Smarten
Augmented Analytics
Powered by ElegantJ BI

Assisted Predictive Modeling User Manual

Version 5.1

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Disclaimer

This document is intended to support administrators, technology managers or developers using and implementing Smarten. The business needs of each organization will vary and this document is expected to provide guidelines and not rules for making any decisions related to Smarten. The overall performance of Smarten depends on many factors, including but not limited to hardware configuration and network throughput.

Contents

1 About this document

This manual explains the concepts required to use Assisted Predictive Modeling features in Smarten Advanced Data Discovery Suite.

1.1 Scope and Organisation of Topic Areas

Chapter 2	Introducing ElegantJ BI - Smarten
Chapter 3	Introducing Assisted Predictive Modeling
Chapter 4	Working with SmartenInsight
Chapter 5	Product and Support Information

1.2 Conventions used

This manual uses typographical conventions in the text to help you distinguish between the names of files, instructions, and other important notes that are relevant during installation. For example:

- Important notes are indicated in a different font color as shown in the example below.

> Note:
> Trend can be applied to a Bar chart, Line chart, Combined chart, and an Area type of Visualization.

- References to documents are highlighted as below:

Reference: **Self-Serve Data Preparation (SSDP) - Concept Manual >Sampling > Sampling-Simple Random Sampling**

2 Introducing ElegantJ BI - Smarten

ElegantJ BI is a full-stack business intelligence tool that employs the “Smarten” approach to Advanced Data Discovery. The solution is composed of a comprehensive set of tools, including Self-Serve Data Preparation, Smart Visualisation, and Plug n’ Play Predictive Analytics. These tools are designed to democratize advanced analytics and transform business users into citizen data scientists.

Self-Serve Data Preparation

Self-Serve Data Preparation allows business users to perform data preparation on their own without the assistance of IT staff or data analysts. Users are not restricted by complex tools or forced to wait for IT to deliver crucial data. Guided by smart suggestions and auto-recommendations, business users can prepare, blend, and transform data and create analysis-ready data quickly and accurately without assistance rather than waiting for central metadata prepared by IT.

Smart Data Visualization

Intuitive Smart Data Visualization tools suggest the best options for visualizing and plotting a particular set or type of data, based on the nature, dimensions, and trend of data so that business users can easily select the appropriate method to clearly and quickly visualize data in a way that is meaningful to the task.

Plug n' Play Predictive Analysis

Assisted Predictive Modeling allows business users to explore predictive algorithms and models without the skill or knowledge of a data scientist or statistician. The solution considers the underlying data and use case, suggests the best-fit algorithm, and then displays output results and data visualization accompanied by an interpretation using simple human language.

3 Introducing Assisted Predictive Modeling

Every organization must plan and forecast results. If the enterprise is to succeed, it must strive for accuracy and identify trends and patterns in the market and industry that will help it predict future results, plan for growth, and capitalize on opportunities.

Predictive analytics for business users leverages machine learning and assisted predictive modeling to help users achieve the best fit and ensure they use the most appropriate algorithm for the data they wish to analyze. With these tools, users can explore patterns in data and receive suggestions to help them gain insight on their own without having to depend on IT or data scientists. The enterprise can provide the tools needed at every level of the organization, with tools and data science for business users that are sophisticated in functionality and easytouse for users at every skill level.

SmartenInsight provides predictive modeling capability and auto-recommendations and auto-suggestions to simplify use and allow business users to leverage predictive algorithms without the expertise and skill of a data scientist. The assisted predictive modeling platform is suitable for business users. These tools allow the organization to apply predictive analytics to any use case using forecasting, regression, clustering, and other techniques to analyze an infinite number of use cases, including customer churn, and planning for and targeting customers for acquisition, identifying cross-sales opportunities, optimizing pricing and promotional targets, and analyzing and predicting customer preferences and buying behaviors.

4 Working with SmartenInsight

SmartenInsight provides predictive modeling capability, auto-recommendations, and auto-suggestions to allow business users to leverage predictive algorithms without the expertise and skill of a data scientist. The assisted predictive modeling platform is suitable for business users. These tools allow business users to apply predictive analytics to various use cases using forecasting, regression, classification, clustering, and other techniques to analyze an infinite number of use cases, such as customer churn, planning for and targeting customers for acquisition, identifying cross-sales opportunities, optimizing pricing and promotional targets, and analyzing and predicting customer preferences and buying behaviors.

Reference: **Concept Manual > Introducing Assistive Predictive Modelling**

4.1 How SmartenInsight Works

The process of SmartenInsight starts with selecting the Algorithm Technique and data that has to be analyzed. Users can analyze data from datasets as well as cubes. The machine learning capabilities of the system automatically selects the best-fit algorithm to create the model for the data and provides the result and data visualization along with the interpretation in simple language. Users can fine-tune the models, configure visualizations, and customise them as per their specific requirements.

These Assisted Predictive Modeling objects are called SmartenInsight, and these objects can be viewed as stand-alone interactive objects. Users can export SmartenInsight objects in JPG, PDF, and PNG formats.

Reference: **Concept Manual > SmartenInsight Process Overview**

Typical steps involved in creating a SmartenInsight are shown below:

- Select the Algorithm Technique
- Select the Dataset or Cube
- Select the target and predictor variables
- Apply required configuration parameters and data filters
- Analyze the model with visualization and interpretation
- Fine-tune the model
- Customize the visualization
- Apply sampling or change model parameters
- Use SmartenInsight as a stand-alone object, apply the model, and export data

4.2 Types of Algorithm Techniques

Below is the list of algorithm techniques that are available in SmartenInsight:

Reference: **Concept Manual > Types of Algorithm Techniques**

Algorithm Technique	Algorithm
Classification	
	Decision tree
	K-Nearest Neighbor Classification
	Binary Logistic Regression
	Multinomial Logistic Regression
	Support Vector Machine
	Naive Bayes Classification
Clustering	
	K-means Clustering
	Hierarchical Clustering
Association	
	A priori
Correlation	
	Pearson Correlation
	Spearman Correlation
Forecasting	
	Holt Winters Forecasting
	Auto-Regressive Integrated Moving Average : ARIMA

	Multiple ARIMA
	Auto-Regressive Integrated Moving Average : ARIMAX
	Multiple ARIMAX
Regression	
	Simple Linear Regression
	Multiple Linear Regression
Hypothesis Testing	
	Independent t-test
	Paired t-test
	Chi-squared test
	ANOVA test
Descriptive Statistics	

4.3 Forecasting with SmartenInsight

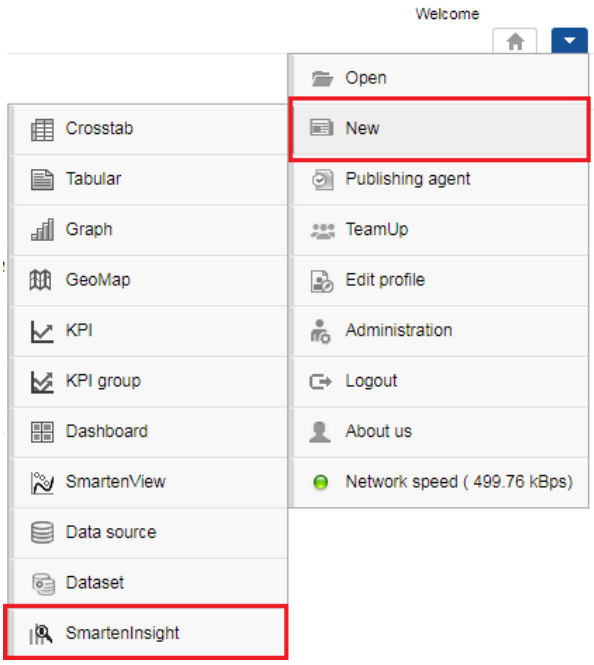
You can use SmartenInsight to forecast future values based on past values and trends. For example, you can forecast sales for upcoming quarters based on sales quantity and product of past quarters.

About this task

Use this task to create a Forecasting model using SmartenInsight.

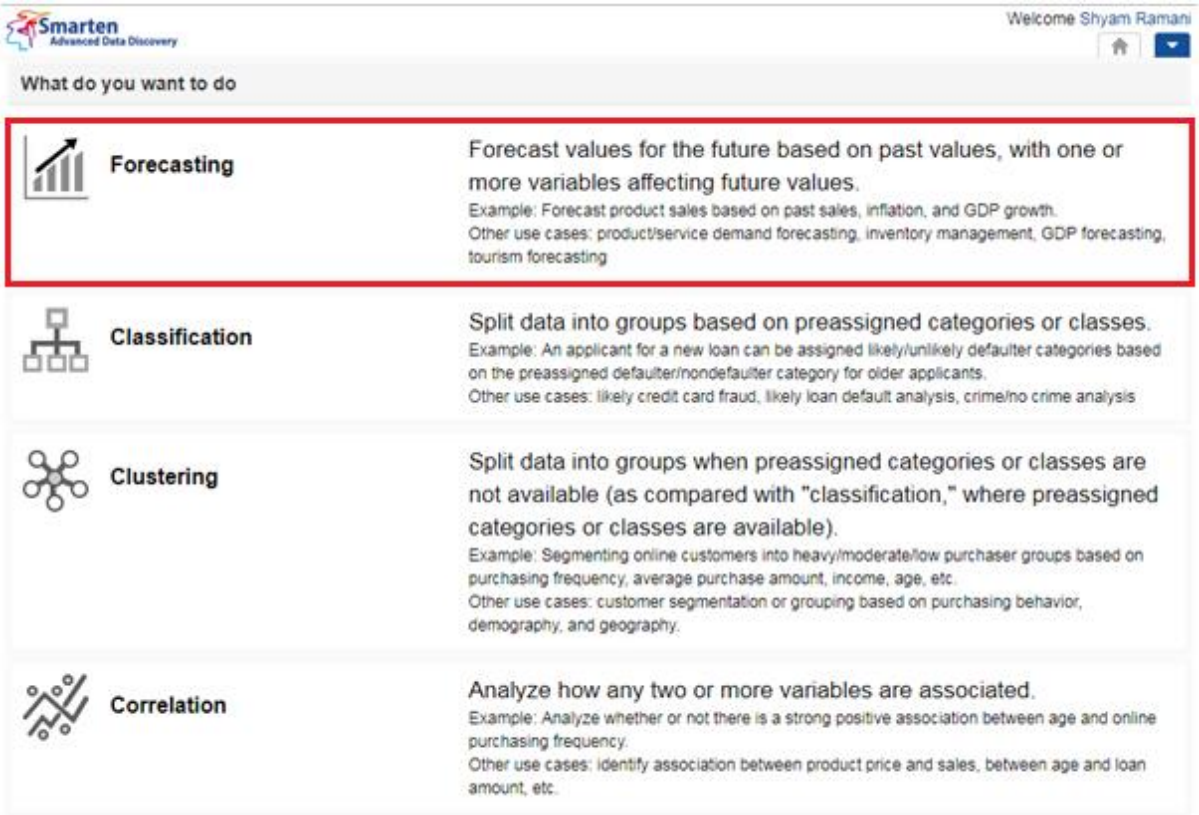
Procedure

1. Click **New** -> **SmartenInsight** from the menu.



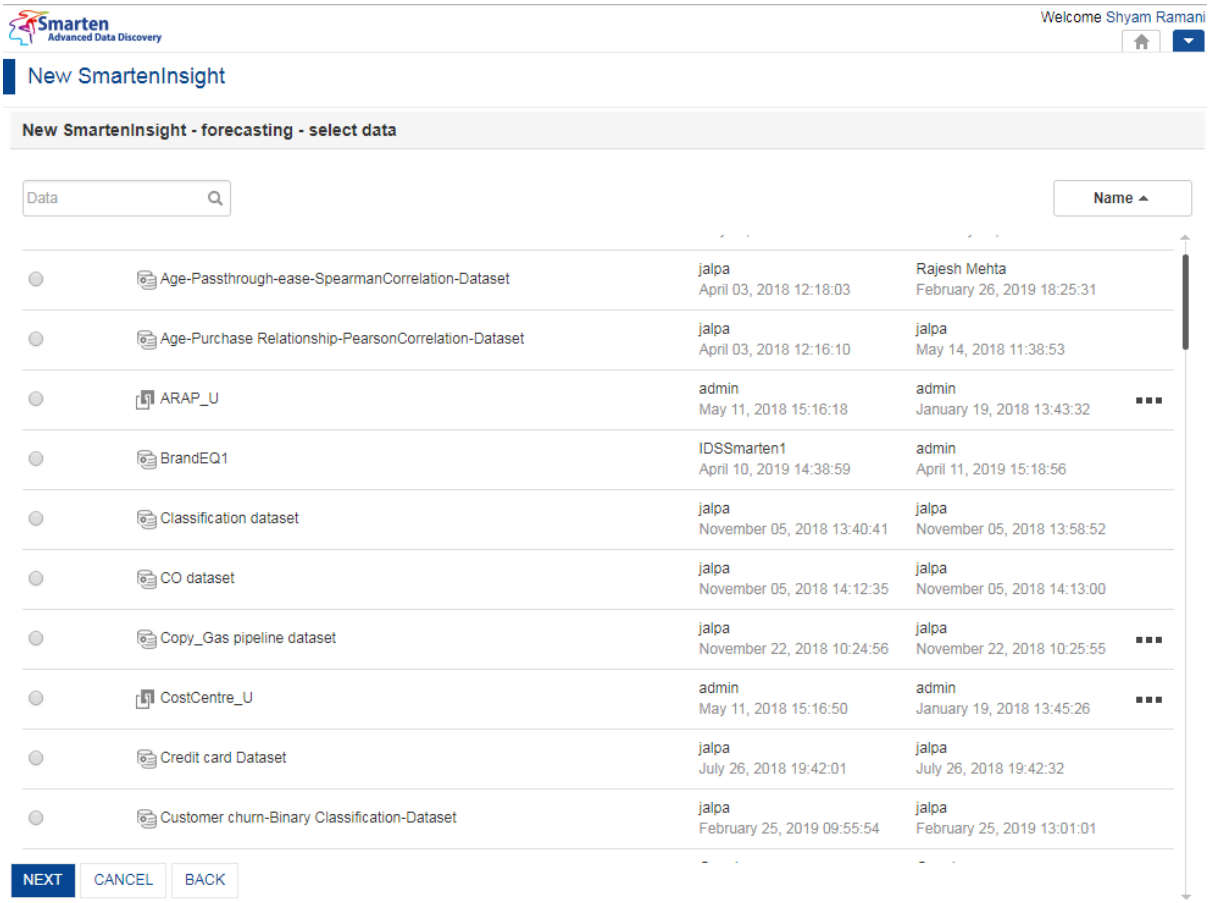
MENU OPTION—NEW SMARTENINSIGHT

The system displays the **What do you want to do** page.



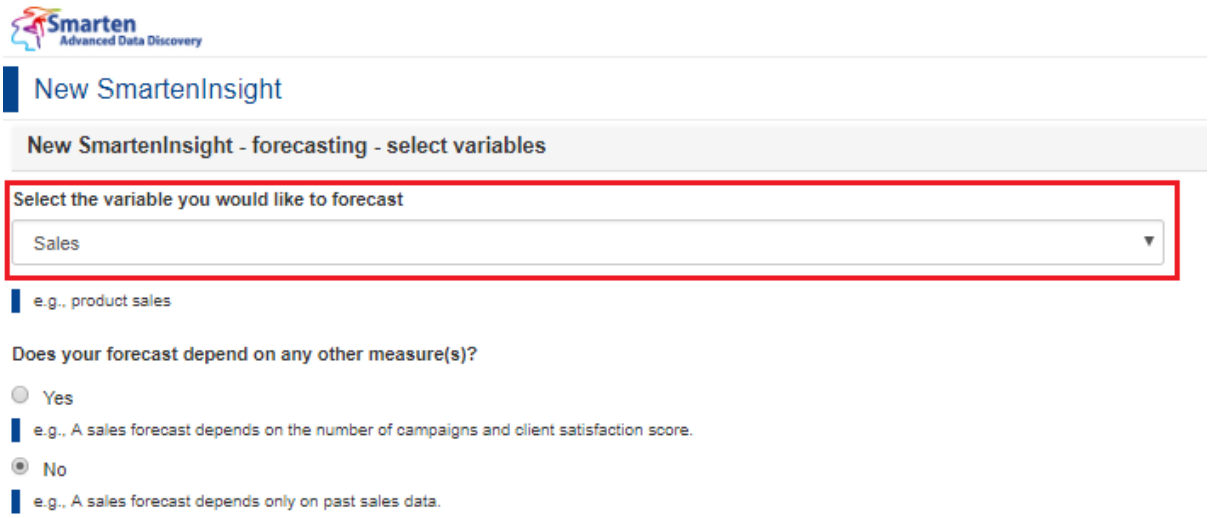
FORECASTING WITH SMARTENINSIGHT—SELECTING A SMARTENINSIGHT TYPE

2. Click **Forecasting**.
   The system displays the **New SmartenInsight** screen.



THE NEW SMARTENINSIGHT PAGE—SELECTING THE DATASET OR CUBE FOR SMARTENINSIGHT

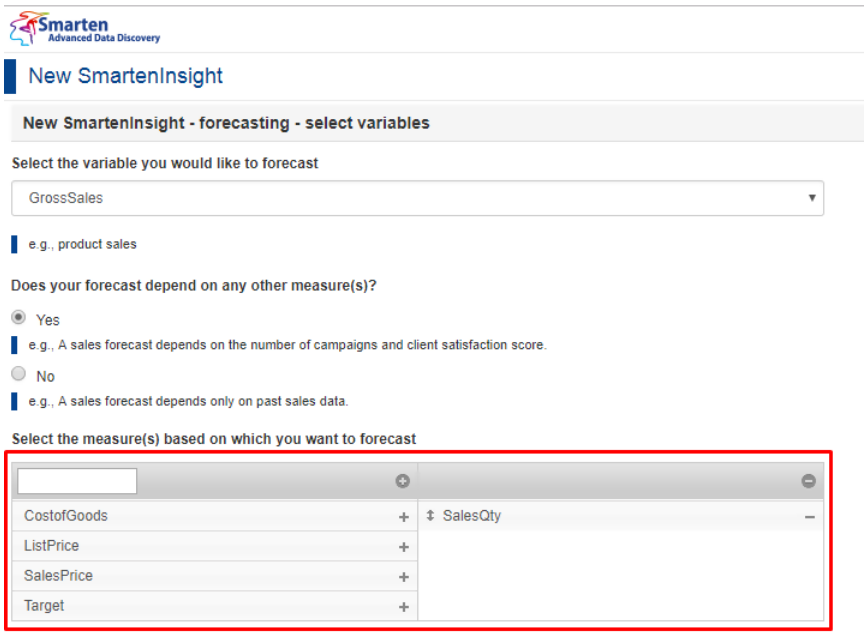
3. Select the dataset or cube you want to use for SmartenInsight, and then click **NEXT**.
4. Select an option from the **Select the variable you would like to forecast** list to select a measure available in the selected dataset or cube for which you want to generate the forecast.



FORECASTING WITH SMARTENINSIGHT—SELECTING THE VARIABLE FOR FORECASTING

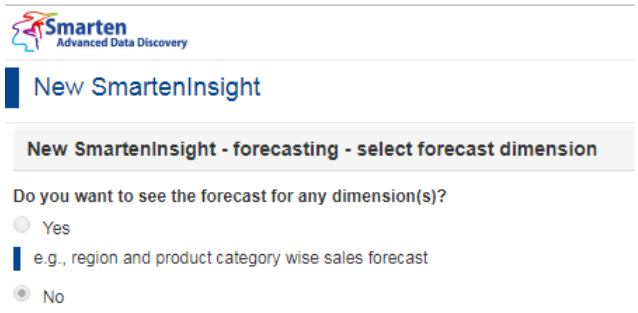
5. Select an option to specify whether or not the forecast depends on any other measures, and then click **NEXT**.

- If you have selected the **Yes** option, click the plus icon next to the variable you want to select from the **Select the measure(s) based on which you want to forecast** section.



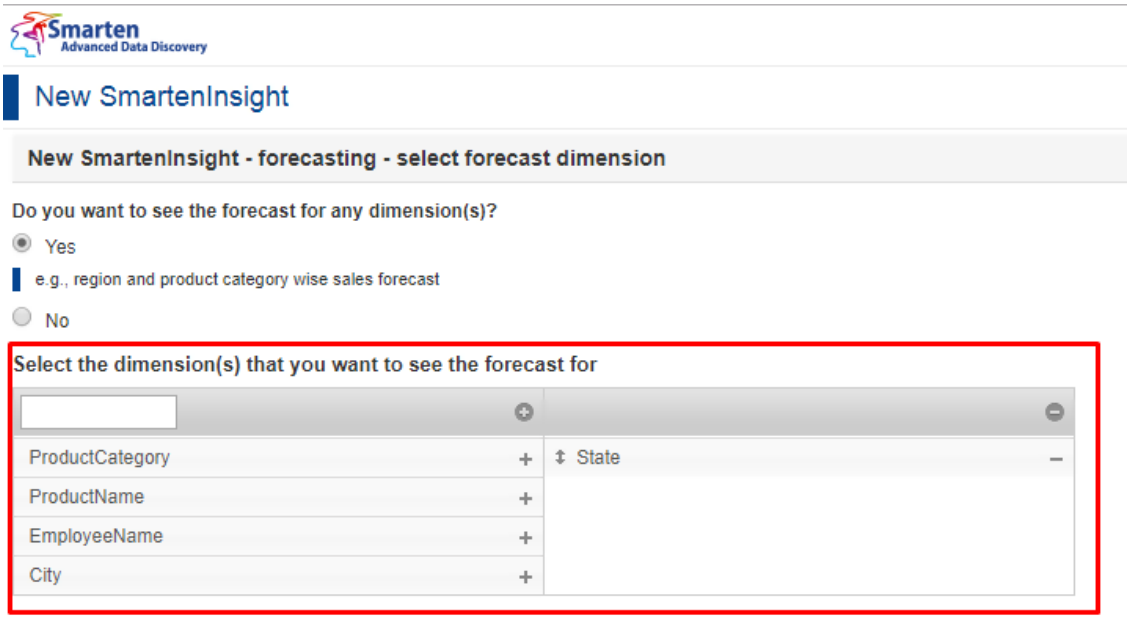
FORECASTING WITH SMARTENINSIGHT—SELECTING THE VARIABLE FOR FORECAST

6. Select an option to specify whether or not you want to see the forecast for any dimensions, and then click **NEXT**.



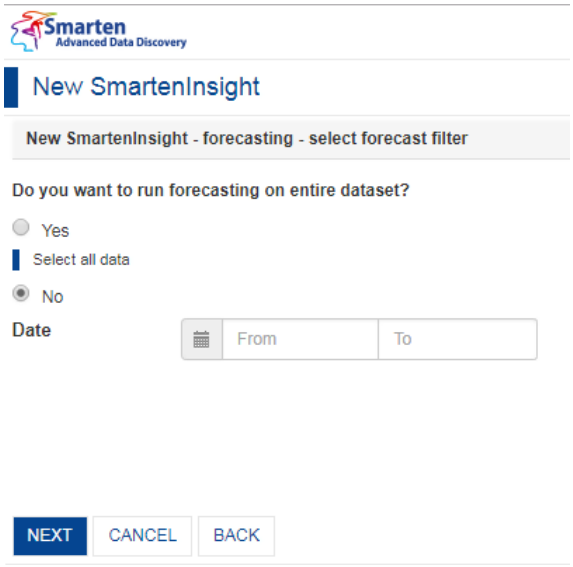
FORECASTING WITH SMARTENINSIGHT—SELECTING THE DIMENSION FOR THE FORECAST

- If you have selected the **Yes** option, click the plus icon next to the dimension variable you want to select from the **Select the dimension(s) that you want to see the forecast for** section.



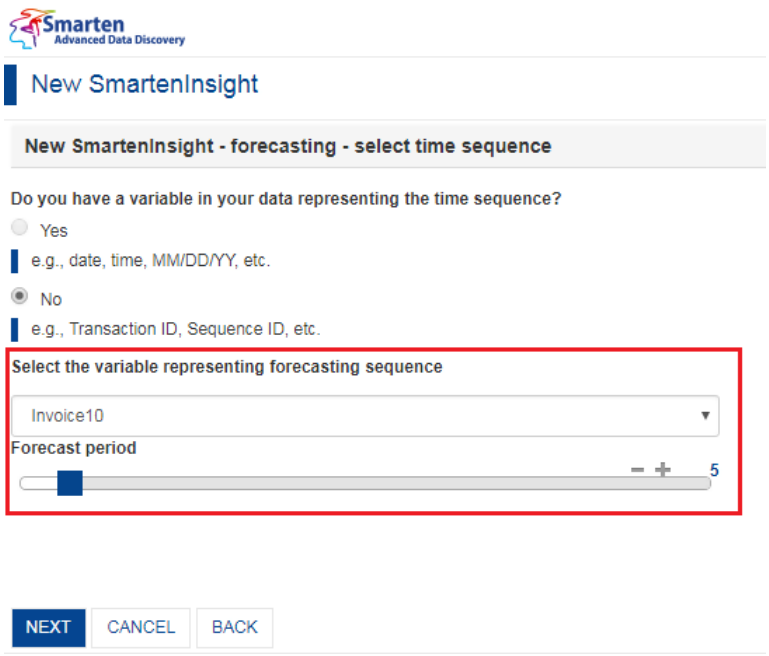
FORECASTING WITH SMARTENINSIGHT—SELECTING DIMENSION FOR THE FORECAST

7. Select an option to specify whether or not you want to run forecasting for the entire dataset, and then click **NEXT**.
    - If you have selected the **No** option, you can select the column filters for which you want to run the forecast.



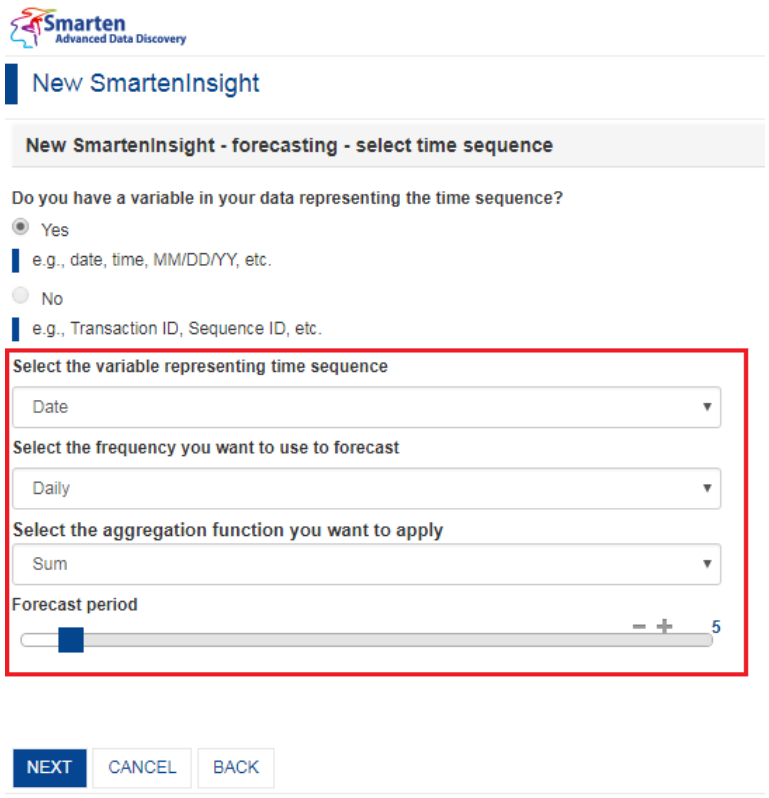
FORECASTING WITH SMARTENINSIGHT—SELECTING THE FORECAST FILTER

8. Select an option to specify whether or not you have a variable in the data representing the time sequence.
    - If you have selected the **No** option, select an option from the **Select the variable representing forecasting sequence** list, and then use the **Forecast period** slider to specify the period for which you want to generate the forecast.



FORECASTING WITH SMARTENINSIGHT—SELECTING VARIABLE REPRESENTING FORECASTING SEQUENCE

- If you have selected the **Yes** option, select the time series variable you want to use for forecasting.



FORECASTING WITH SMARTENINSIGHT—SELECTING TIME SEQUENCE

a) Select an option from the **Select the variable representing time sequence** list.
b) Select an option from the **Select the frequency you want to use to forecast** list. The following options are available:
   - Daily
   - Weekly

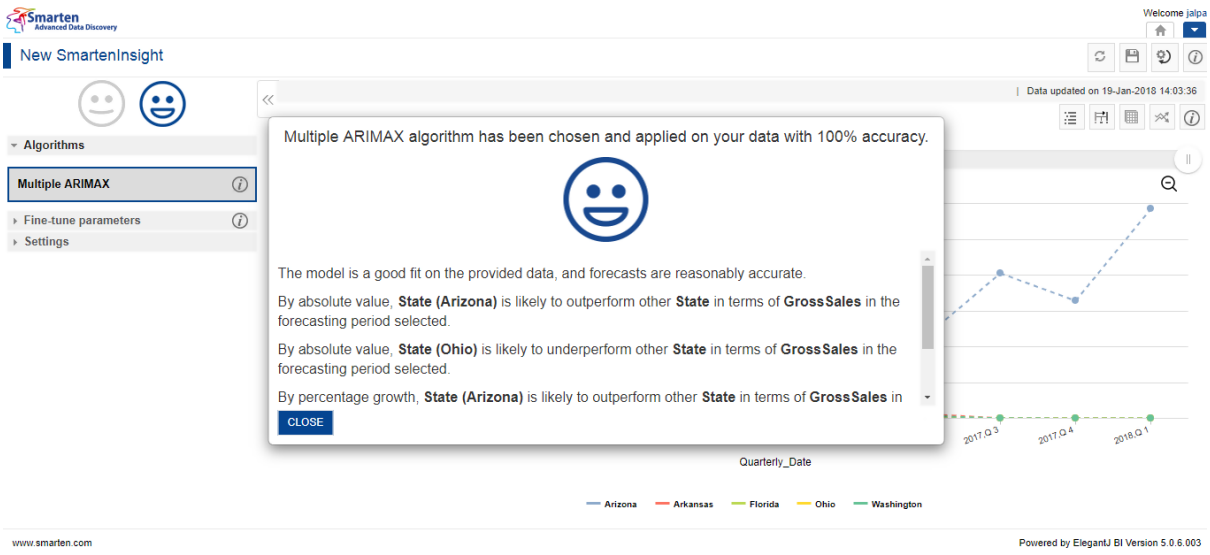
- Monthly
- Quarterly
- Yearly
- Hourly
- Minutely
- Secondly

c) Select an option from the **Select the aggregation function you want to apply** list. The following options are available:

- Sum
- Average
- Maximum
- Minimum
- First
- Last

d) Use the **Forecast period** slider to specify the period for which you want to generate the forecast.

9. Click **NEXT**.
   Based on the columns and variables you have selected, the system selects the best suitable algorithm for forecasting and displays the summary or forecasting.



FORECASTING WITH SMARTENINSIGHT—THE SYSTEM DISPLAYING SUMMARY OF SMARTENINSIGHT

10. Click **CLOSE**.
    Review the forecast generated.

4.3.1 Analyzing the Output of SmartenInsight—Forecasting

The SmartenInsight provides information about the future trends based on the past values. You can view information about the algorithm applied, model summary, data, and help to interpret the chart(s) used.

4.3.1.1 Interpretation

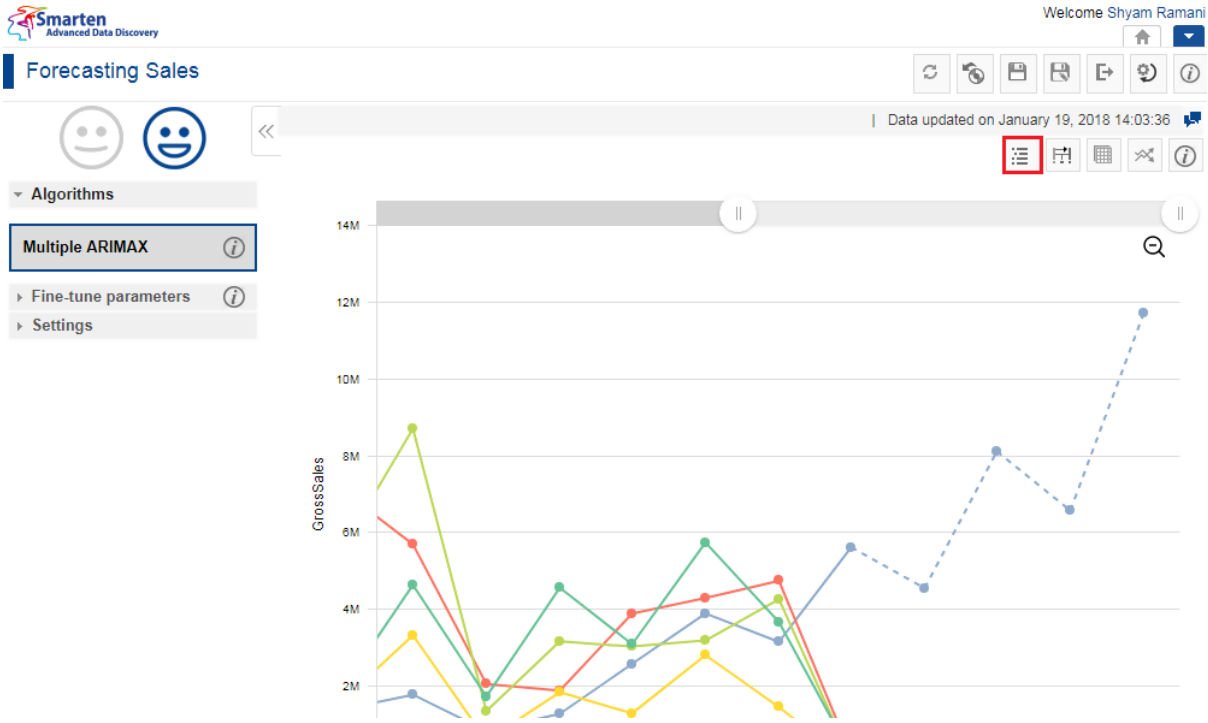
You can view the interpretation of the algorithm applied for forecasting. The interpretation provides information about insights of the model in simple language.

About this task

Use this task to view interpretation of the SmartenInsight Forecasting object.

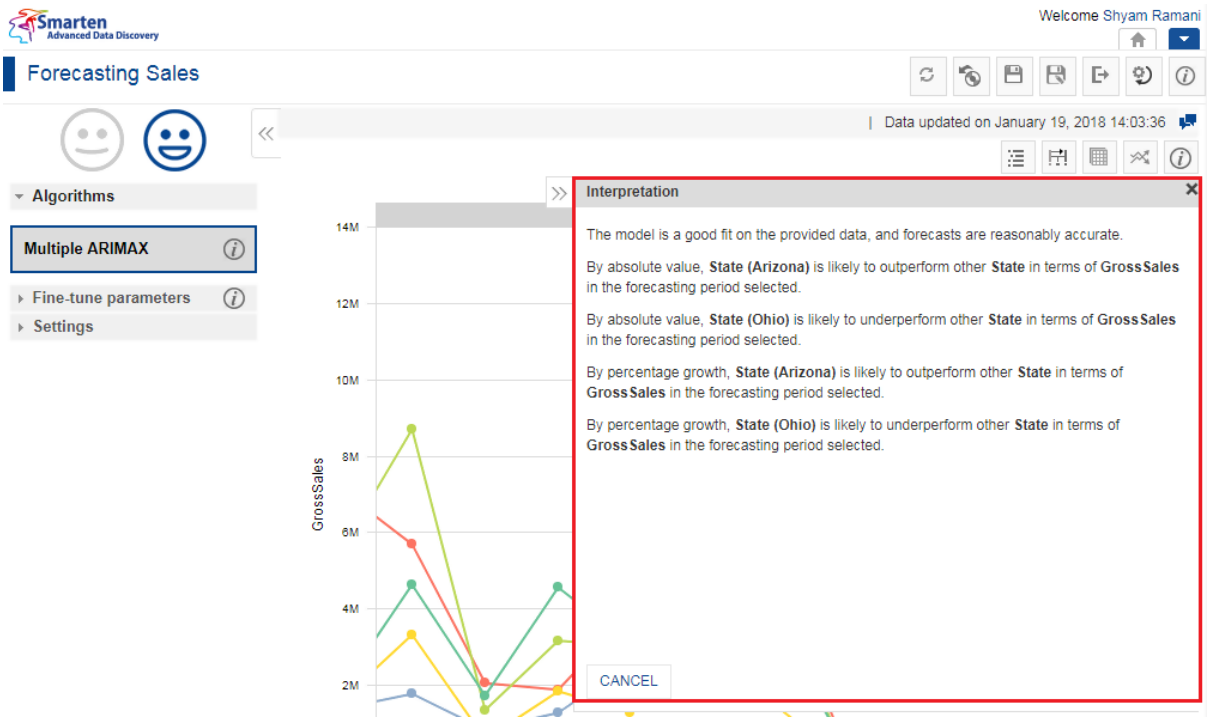
Procedure

1. Open the SmartenInsight Forecasting object for which you want to view interpretation.
2. Click the **Interpretation** icon on the toolbar.



INTERPRETING SMARTENINSIGHT—THE INTERPRETATION OPTION

The system displays the information in the **Interpretation** dialog box.



4.3.1.2 Model Summary

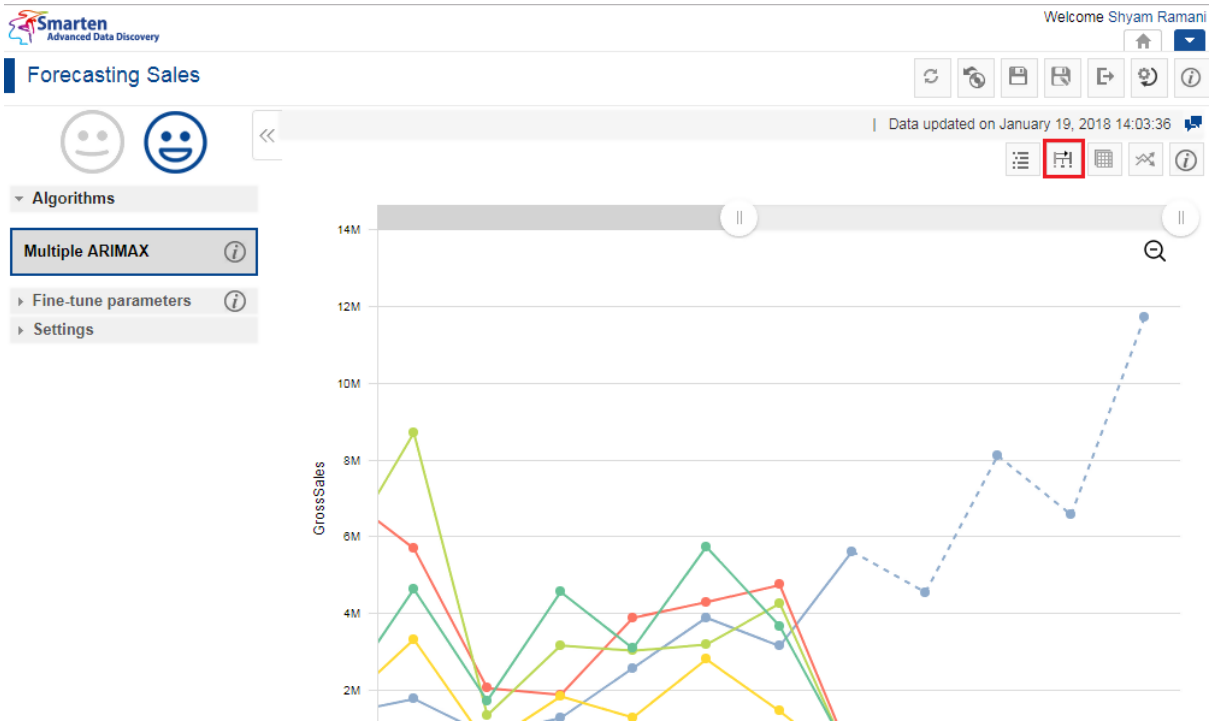
You can view the model summary of the SmartenInsight Forecasting object.

About this task

Use this task to view the model summary of the SmartenInsight Forecasting object.

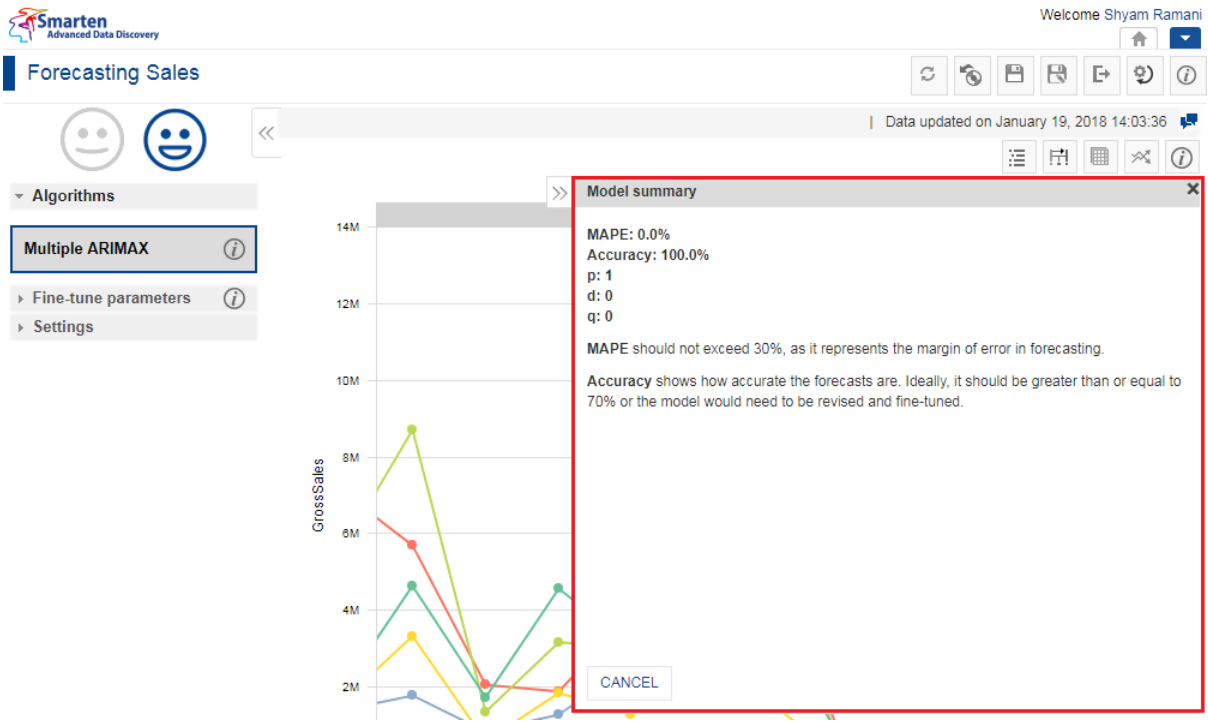
Procedure

1. Open the SmartenInsight Forecasting object for which you want to view the model summary.
2. Click the Model summary icon on the toolbar.



MODEL SUMMARY OF SMARTENINSIGHT—THE MODEL SUMMARY OPTION

The system displays the information in the **Model summary** dialog box.



MODEL SUMMARY OF SMARTENINSIGHT—THE MODEL SUMMARY DIALOG BOX

4.3.1.3 Data

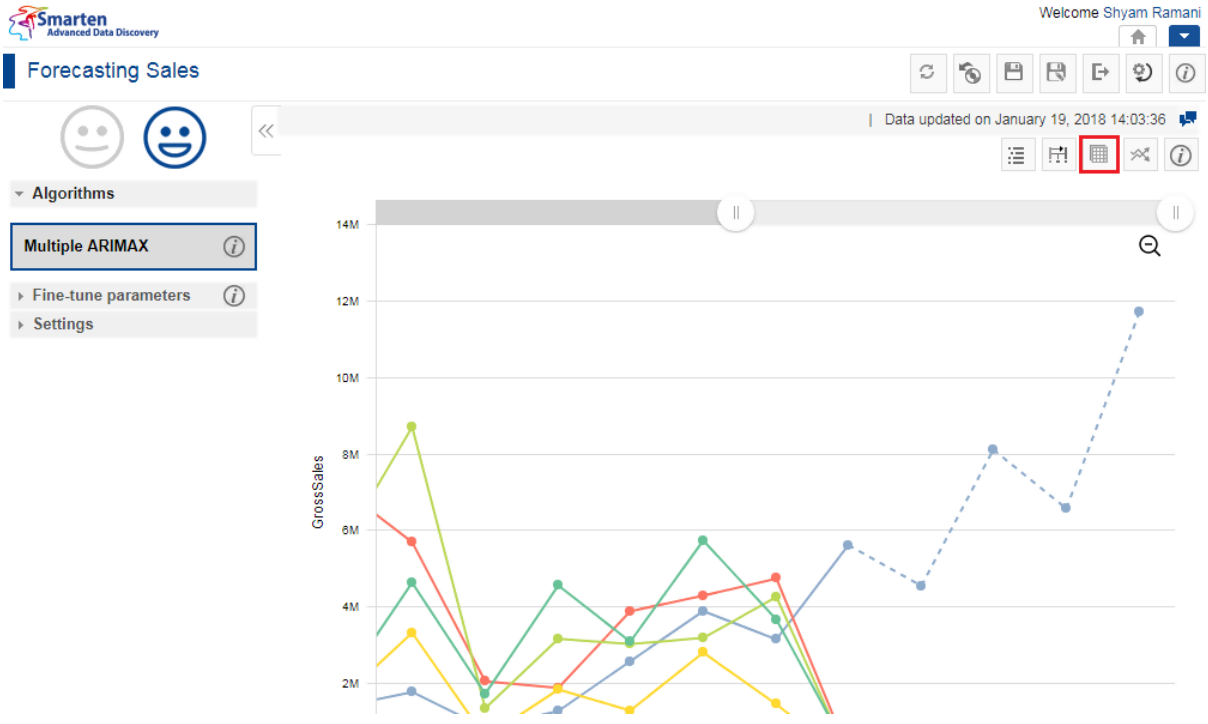
You can view the data used for the SmartenInsight Forecasting object.

About this task

Use this task to view the model summary of the SmartenInsight Forecasting object.

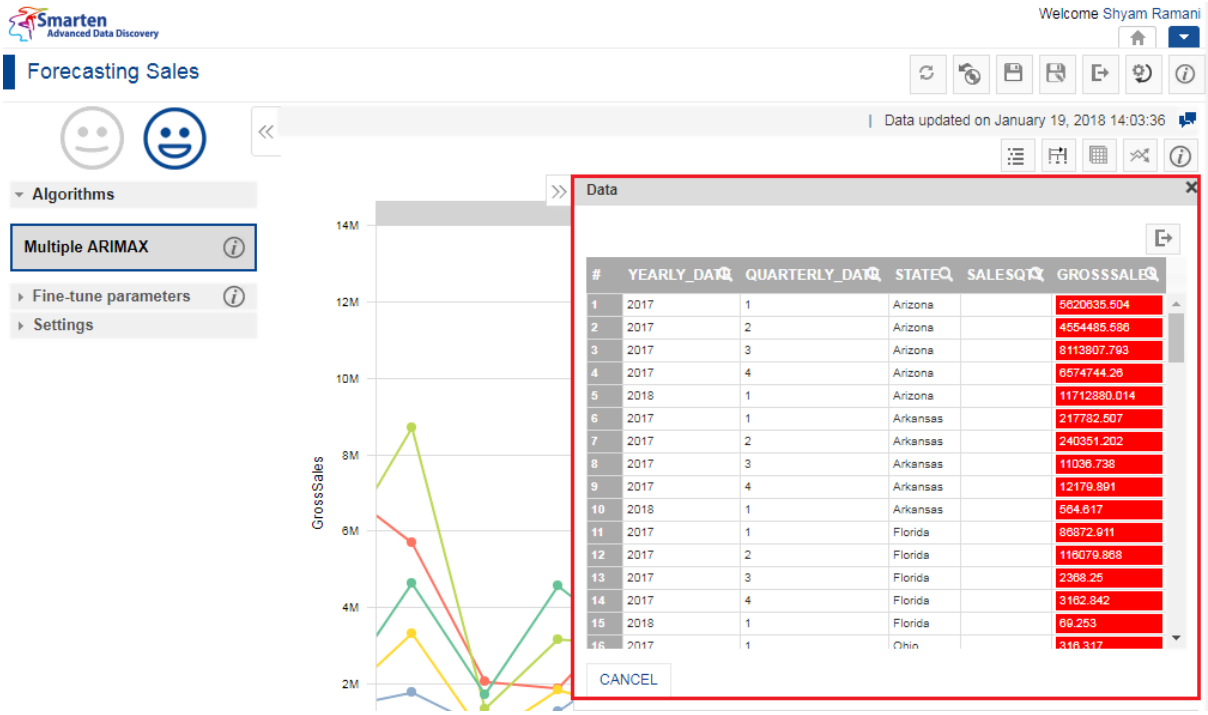
Procedure

1. Open the forecast SmartenInsight for which you want to view data.
2. Click the Data icon on the toolbar.



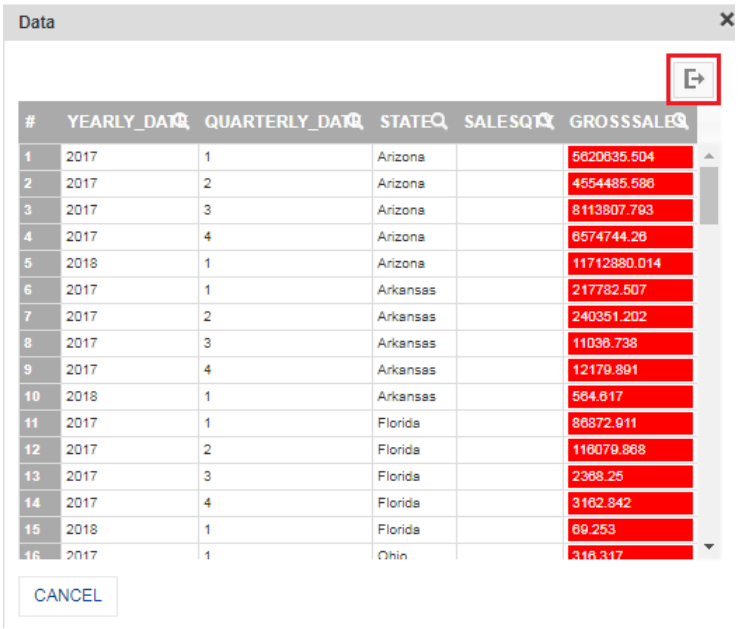
DATA OF SMARTENINSIGHT—THE DATA OPTION

The system displays the information in the **Data** dialog box.



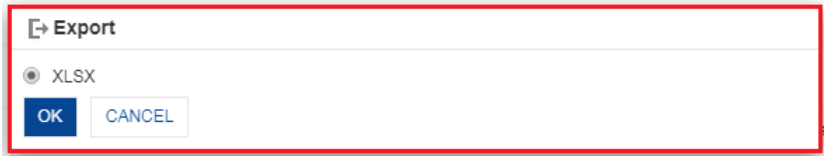
DATA OF SMARTENINSIGHT—THE DATA DIALOG BOX

3. You can click the Export icon to export the data.



EXPORT DATA—THE EXPORT ICON

The system displays the **Export** dialog box.



EXPORT DATA—THE EXPORT DIALOG BOX

4. Click **OK**.

4.3.1.4 Trend

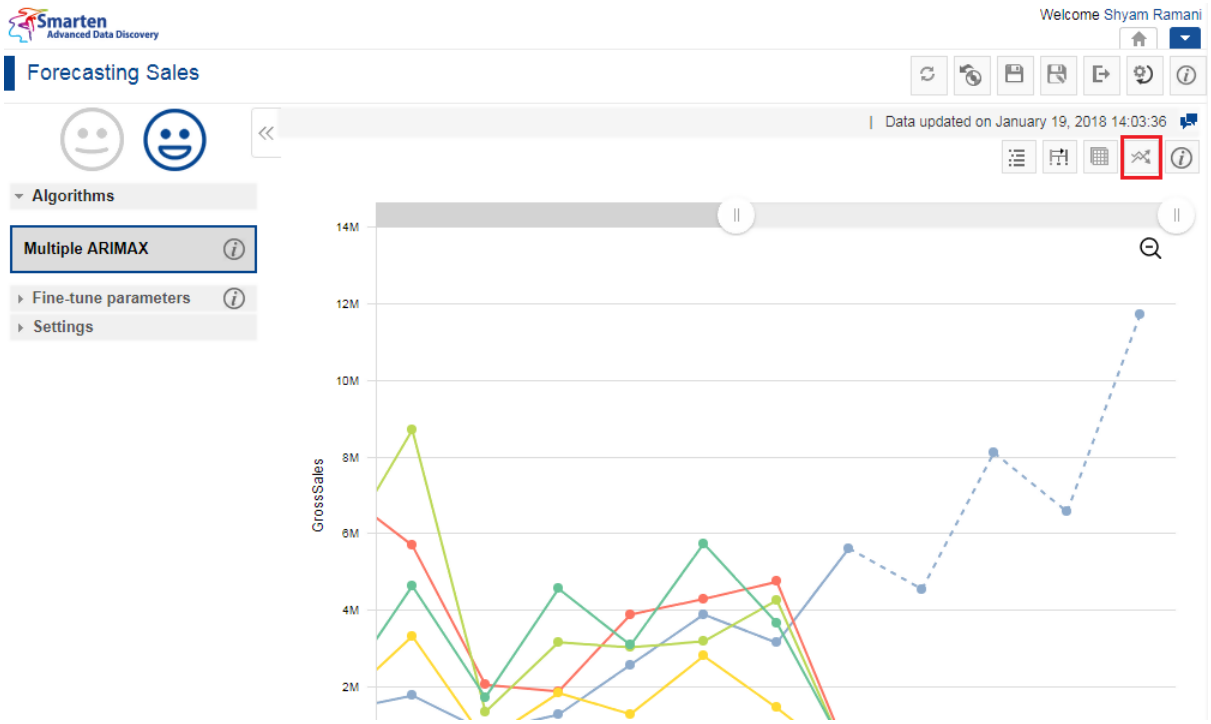
You can view the trend based on the data selected for forecasting. It provides information about the trend based on the dimensions selected. For each value of the dimensions selected, the algorithm displays upward, downward, or no trend.

About this task

Use this task to view the trend of the SmartenInsight Forecasting object.

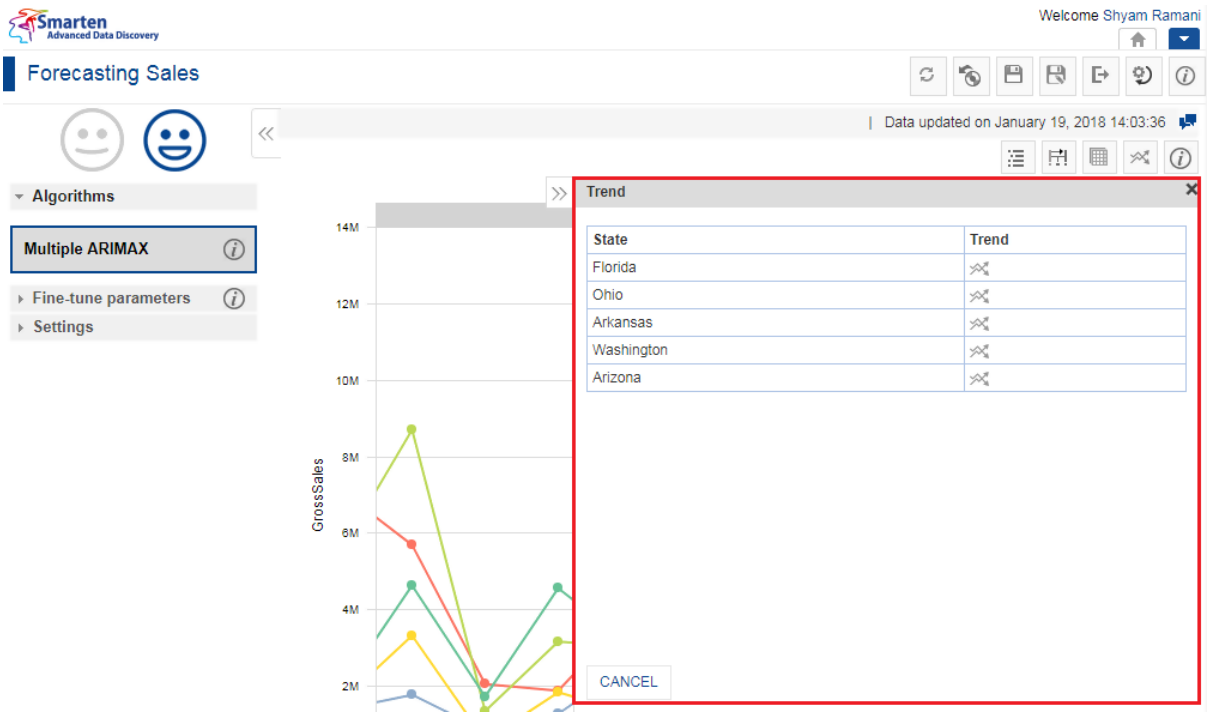
Procedure

1. Open the SmartenInsight Forecasting object for which you want to view the trend.
2. Click the **Trend** icon on the toolbar.



VIEWING TREND FOR SMARTENINSIGHT—THE TREND OPTION

The system displays the information in the **Trend** dialog box.



VIEWING TREND FOR SMARTENINSIGHT—THE TREND DIALOG BOX

4.3.1.5 Chart Information

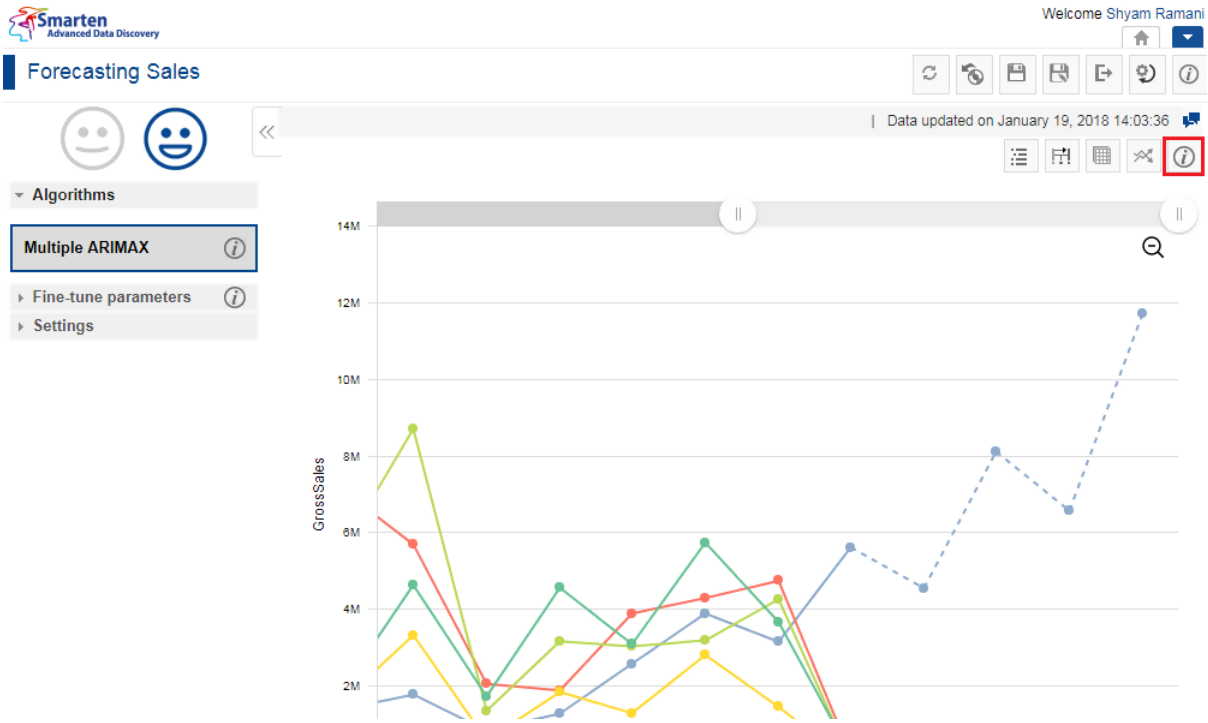
You can view the information and help to interpret the chart that the system has generated for the model.

About this task

Use this task to view information about the chart for SmartenInsight.

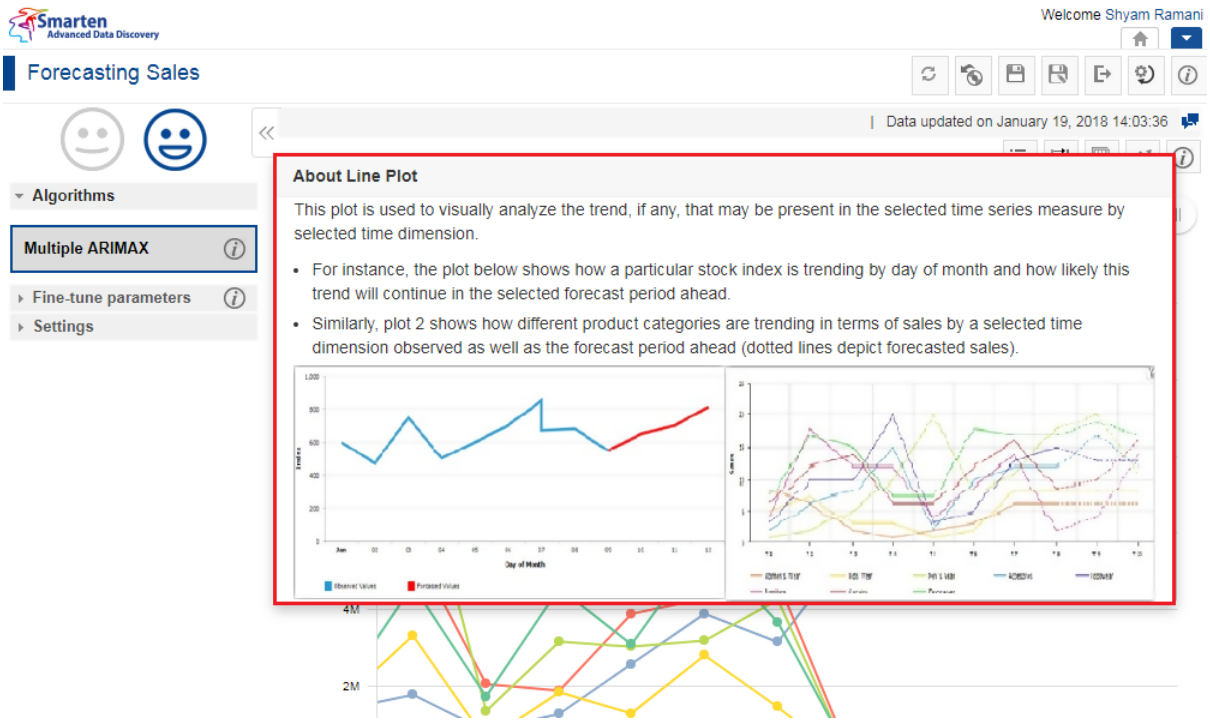
Procedure

1. Open the forecast SmartenInsight for which you want to view information.
2. Click the Information icon on the toolbar.



INFORMATION OF CHART—THE INFORMATION OPTION

The system displays the information and guide to interpret the chart in a dialog box.



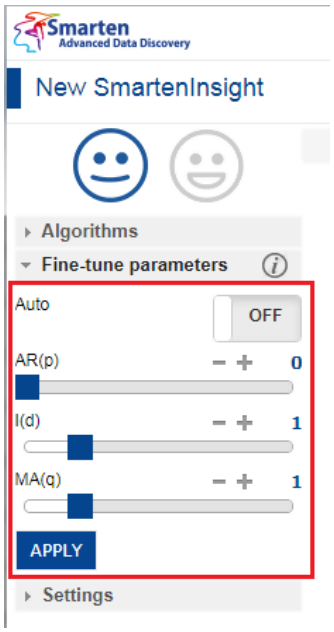
INFORMATION OF CHART—THE ABOUT LINE PLOT DIALOG BOX

4.3.1.6 Fine-tuning

You can modify the values for various parameters in the forecasting SmartenInsight as per your requirements.

Fine-tuning parameters for ARIMA:

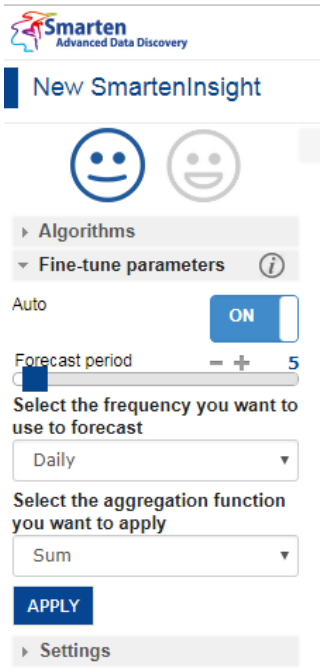
When the Auto option is turned off:



FINE-TUNE PARAMETERS—ARIMA WITH AUTO MODE TURNED OFF

Parameter	Description
AR(p)	Enables you to specify autoregressive model on a series.
I(d)	Enables you to apply differencing on a series.
MA(q)	Enables you to apply a moving average model on a series.

When the Auto mode is turned on:

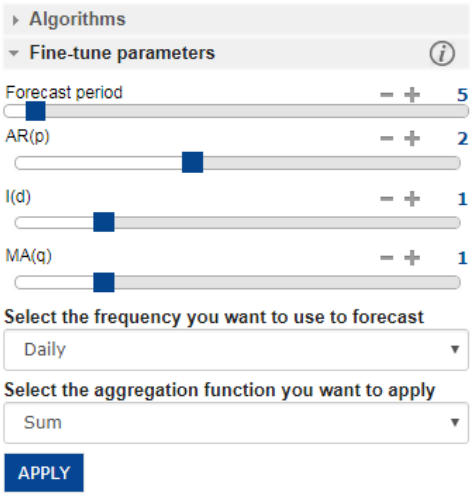


FINE-TUNE PARAMETERS—ARIMA WITH AUTO MODE TURNED ON

Parameter	Description

Forecast period	Enables you to specify the period for which you want to generate the forecast.
Select the frequency you want to use to forecast	Enables you to specify the frequency for the forecast.
Select the aggregation function you want to apply	Enables you to specify the aggregation you want to apply.

Fine-tuning parameters for Multiple ARIMA, Simple ARIMAX, and Multiple ARIMAX :

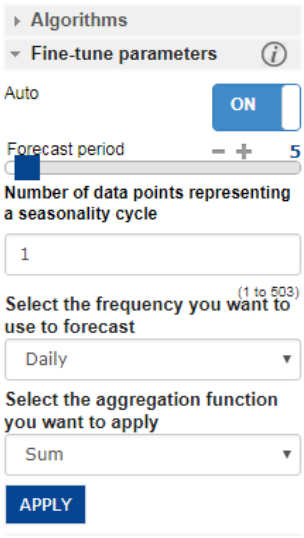


FINE-TUNING PARAMETERS—ARIMAX

Parameter	Description
Forecast period	Enables you to specify the period for which you want to generate the forecast.
AR(p)	Enables you to specify autoregressive model on a series.
I(d)	Enables you to apply differencing on a series.
MA(q)	Enables you to apply a moving average model on a series.
Select the frequency you want to use to forecast	Enables you to specify the frequency for the forecast.
Select the aggregation function you want to apply	Enables you to specify the aggregation you want to apply.

Fine-tuning parameters for Holt-Winters:

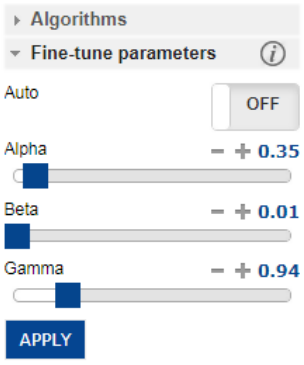
When the Auto mode is turned ON:



FINE-TUNE PARAMETERS—HOLT-WINTERS WITH AUTO MODE TURNED ON

Parameter	Description
Forecast period	Enables you to specify the period for which you want to generate the forecast.
Number of data points representing a seasonality cycle	Enables you to specify the data points represents the seasonality cycle.
Select the frequency you want to use to forecast	Enables you to specify the frequency for the forecast.
Select the aggregation function you want to apply	Enables you to specify the aggregation you want to apply.

When the Auto option is turned off:



FINE-TUNE PARAMETERS—HOLT-WINTERS WITH AUTO MODE TURNED OFF

Parameter	Description
Alpha	Enables you to specify level in a series.

Beta	Enables you to specify trend in a series.
Gamma	Enables you to specify seasonality in a series.

4.3.1.7 Chart Configuration

You can configure properties for SmartenInsight titles. You can configure properties of titles, such as font, size, color, style, and text transformation.

The **Title** settings:

Setting	**Description**
Select title	Enables you to select the title for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select option to transform the font.

The **Label** settings:

Setting	**Description**
Select label	Enables you to select the label for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select option to transform the font.

The **Format** settings:

Setting	**Description**
Measure	Enables you to select the measure for which you want to change the format.
Comma separator	Enables you to select the option to use comma as the separator in the value of the selected measure.

Comma format	Enables you to select the comma format to specify the comma format you want to use in the values of the selected measure.
Digits after decimal point	Enables you to specify the number of digits to be displayed after the decimal point.
Adjusted digits	Enables you to specify an option to adjust digits in the value of the selected measure.
Show suffix	Enables you to show suffix for the selected measure.

4.3.2 Algorithms used for Forecasting

You can view the algorithm that is used for generating the forecast. The following algorithms are available:

Holt-Winters: Holt-Winters Exponential Smoothing smooths the original univariate series and uses the smoothed series in forecasting future values of the variable of interest. Exponential Smoothing assigns exponentially decreasing as the observation becomes older. In other words, recent observations are given relatively more weight in forecasting than older observations.

ARIMA: The Autoregressive Integrated Moving Average model predicts future values of a time series by a linear combination of its past values and a series of errors. This method is suitable for forecasting when data is stationary/nonstationary, univariate, and has any type of data pattern: level/trend/seasonality/cyclic.

Multiple ARIMA: The Multiple Autoregressive Integrated Moving Average model predicts future values of a time series by a linear combination of its past values as well as series of errors by taking into consideration one or more dimension values. This method is suitable for forecasting when data is stationary/nonstationary, multidimensional, and has any type of data pattern: level/trend/seasonality/cyclic.

SIMPLE ARIMAX: The Simple Autoregressive Integrated Moving Average With Exogenous Input model predicts future values of a time series by a linear combination of its past values as well as series of errors by taking into consideration one or more measure values. This is suitable for forecasting when data is stationary/nonstationary, multimeasure, and has any type of data pattern: level/trend/seasonality/cyclic.

Multiple ARIMAX: The Multiple Autoregressive Integrated Moving Average With Exogenous Input model predicts future values of a time series by a linear combination of its past values as well as series of errors by taking into consideration one or more dimensions or measure values. This is suitable for forecasting when data is stationary/nonstationary, multimeasure, and/or multidimensional, and has any type of data pattern: level/trend/seasonality/cyclic.

4.4 Classification with SmartenInsight

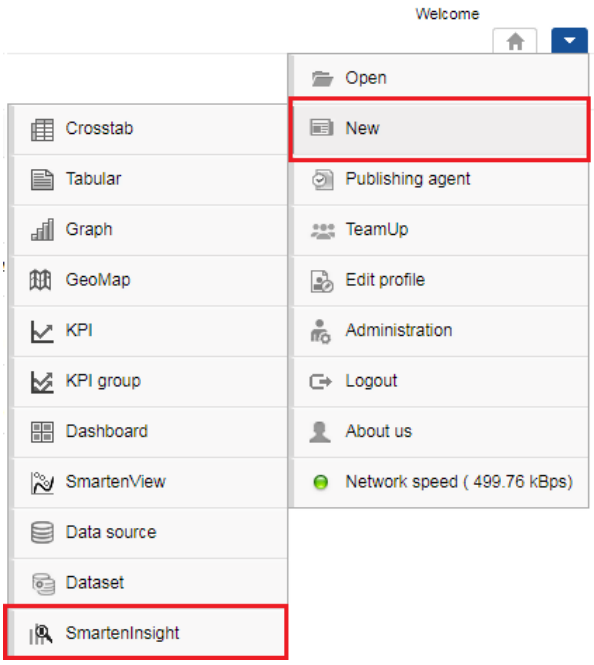
You can use SmartenInsight to classify data into groups based on preassigned categories or classes.

About this task

Use this task to create a classification model using SmartenInsight.

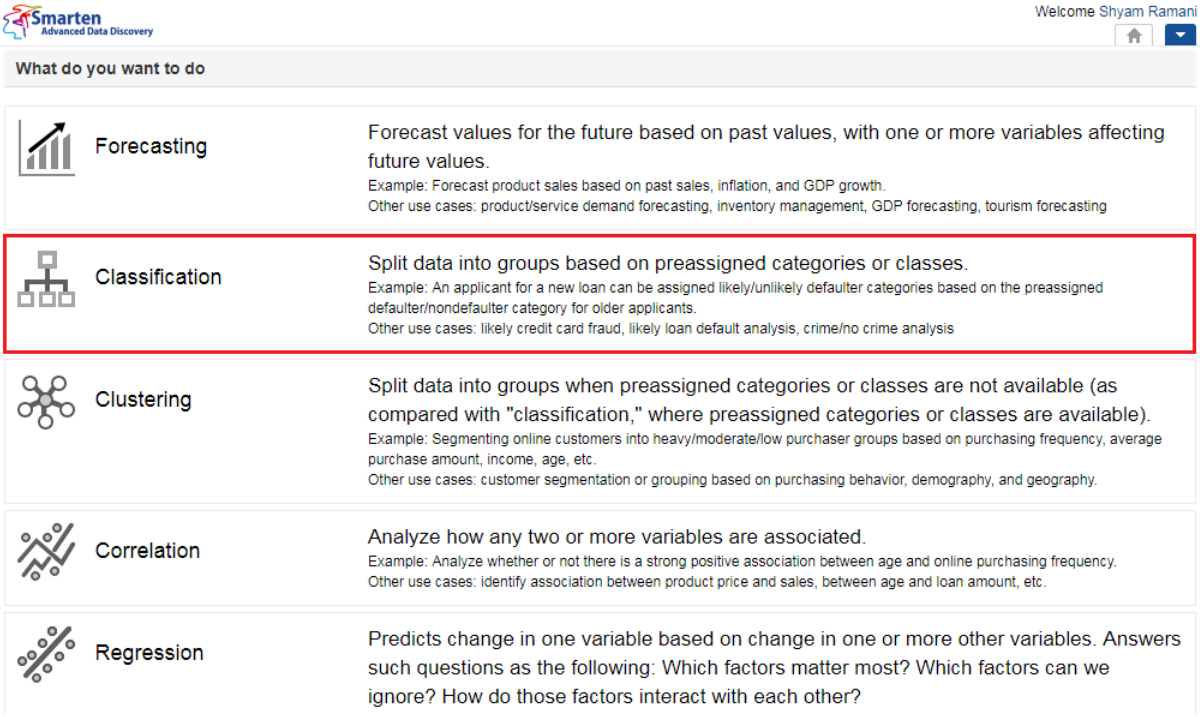
Procedure

1. Click **New** -> **SmartenInsight** from the menu.



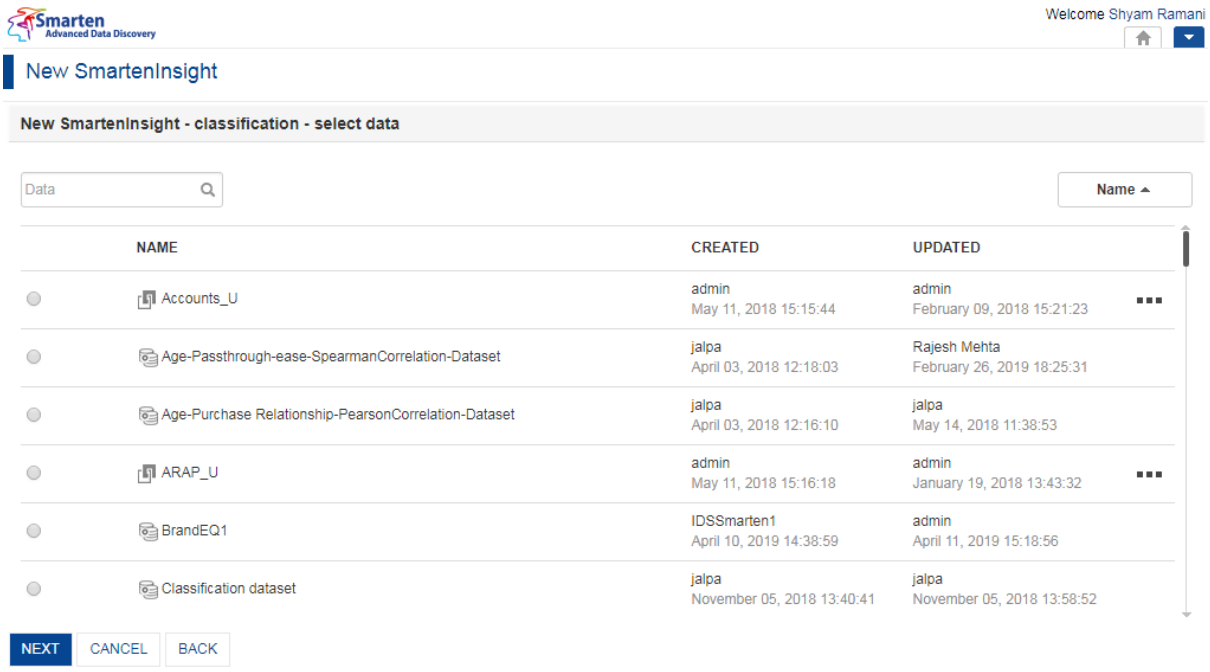
MENU OPTION—NEW SMARTENINSIGHT

The system displays the **What do you want to do** page.



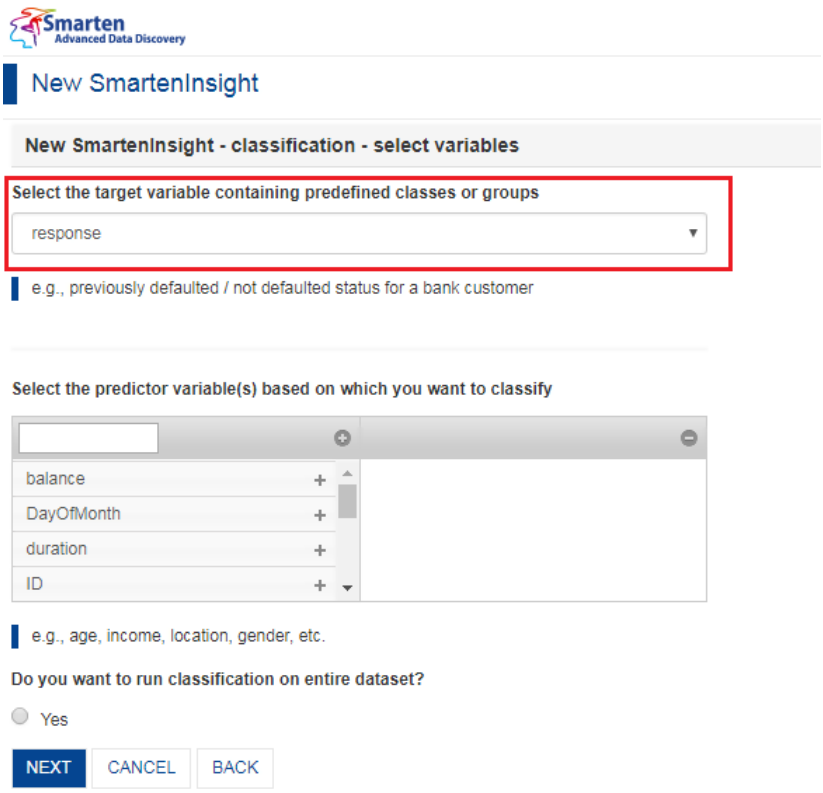
CLASSIFICATION WITH SMARTENINSIGHT—SELECTING A SMARTENINSIGHT TYPE

2. Click **Classification**.
   The system displays the **New SmartenInsight** screen.



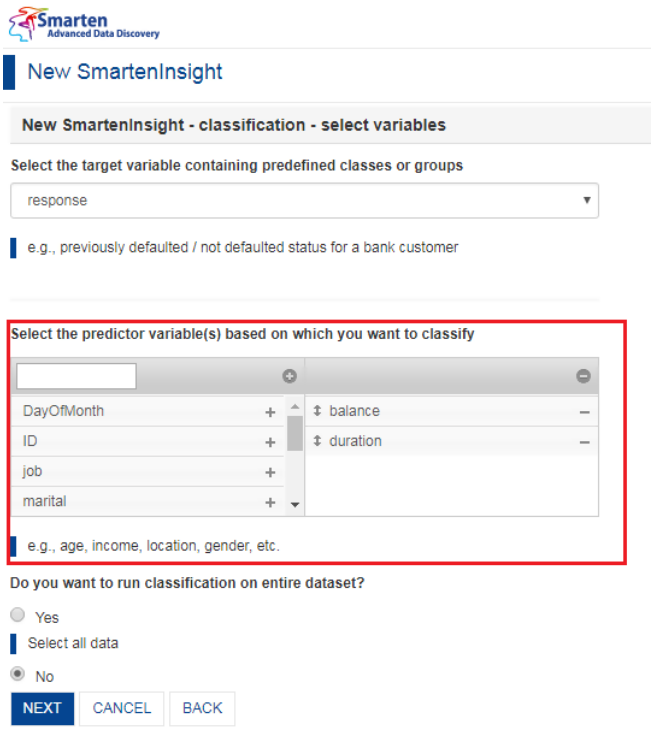
THE NEW SMARTENINSIGHT PAGE—SELECTING THE DATASET OR CUBE FOR SMARTENINSIGHT

3. Select the dataset or cube you want to use for SmartenInsight, and then click **NEXT**.
4. Select an option from the **Select the target variable containing predefined classes or groups** list to select the variable that contains classes or groups.



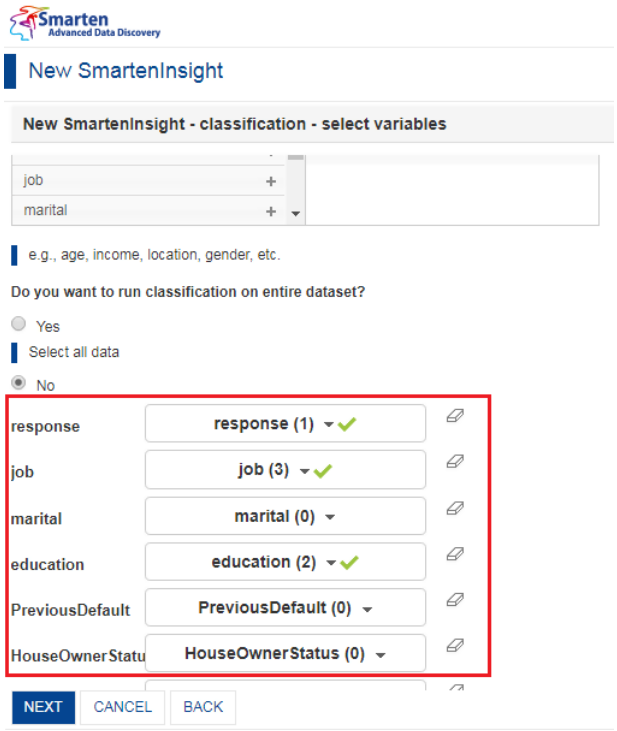
CLASSIFICATION WITH SMARTENINSIGHT—SELECTING THE VARIABLE CONTAINING PREDEFINED CLASSES

5. Select the variable you want to use to classify data from the **Select the predictor variable(s) based on which you want to classify** section.



CLASSIFICATION WITH SMARTENINSIGHT—SELECTING THE VARIABLE FOR CLASSIFICATION

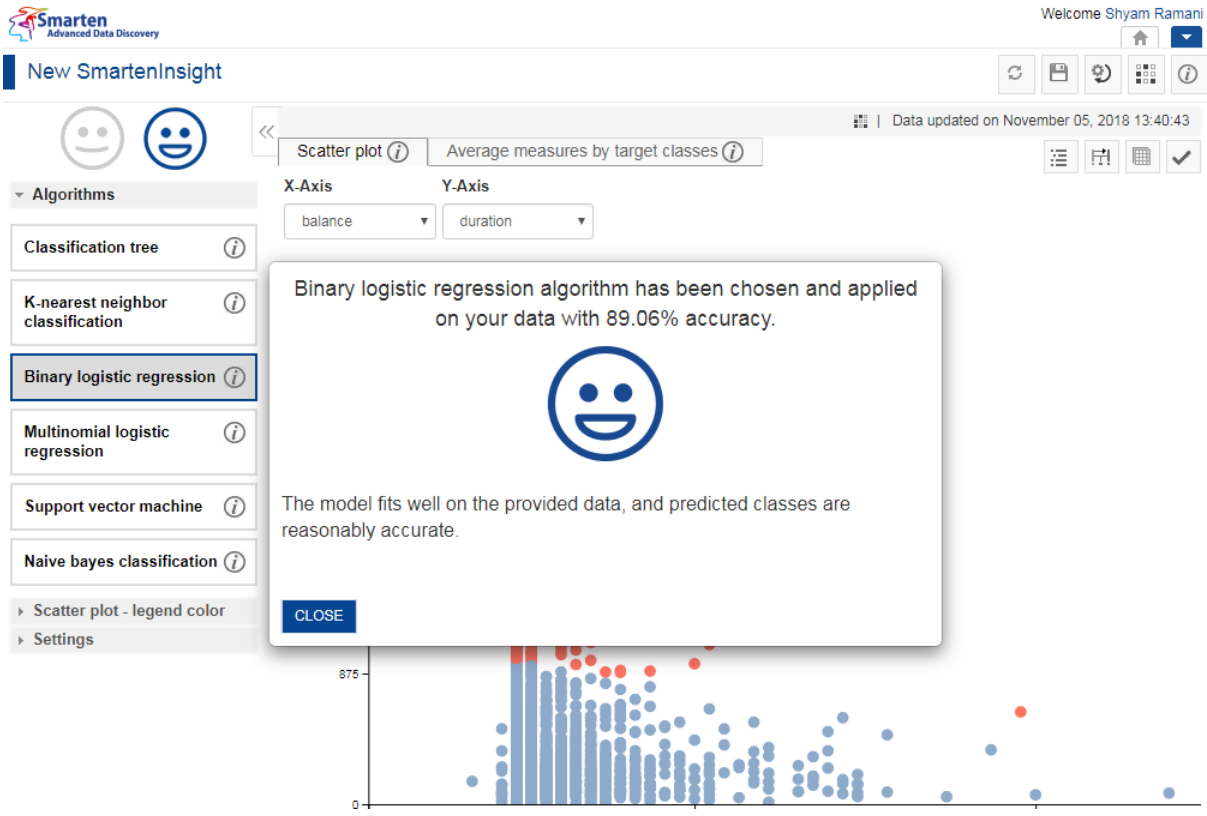
6. Select an option to specify whether or not you want to run classification on the entire dataset, and then click **NEXT**.
    - If you have selected the **No** option, you can select the column filters for which you want to run classification.



CLASSIFICATION WITH SMARTENINSIGHT—SELECTING DIMENSION FOR CLASSIFICATION

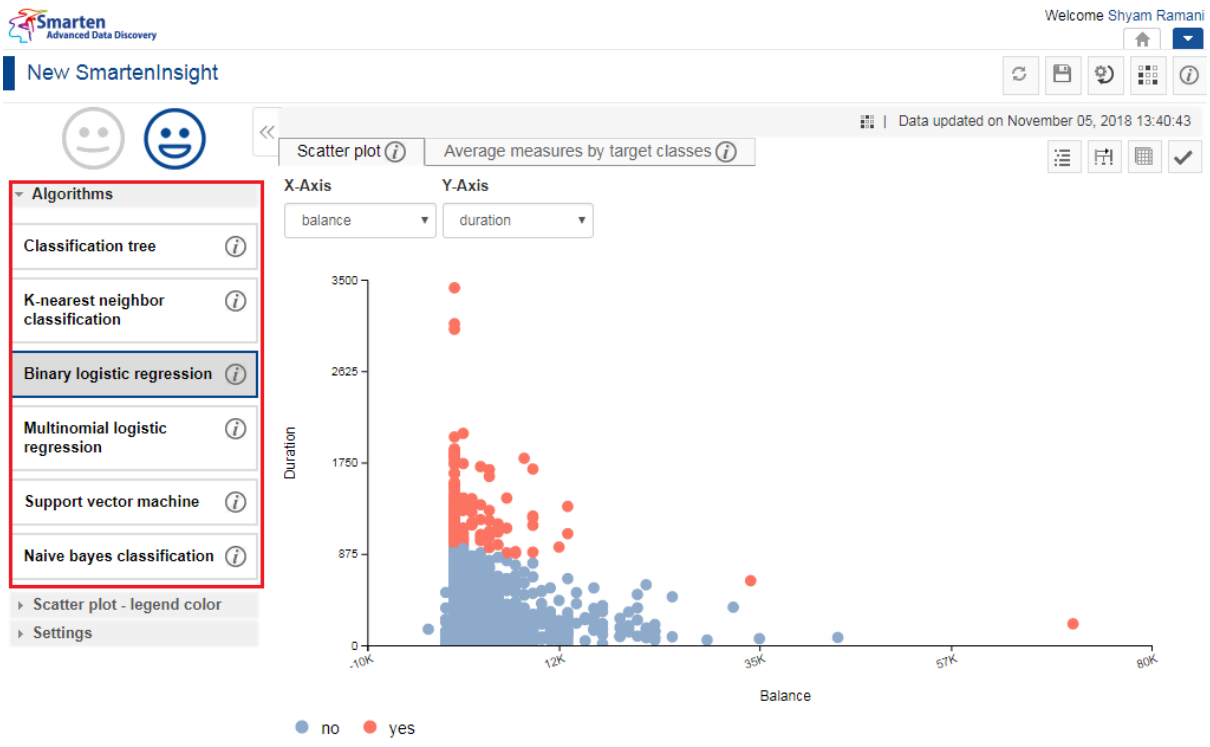
7. Click **NEXT**.

Based on the variables you have selected, the system selects the best suitable algorithm for classification and displays a summary for the classification.



CLASSIFICATION WITH SMARTENINSIGHT—THE SYSTEM DISPLAYING SUMMARY OF SMARTENINSIGHT

8. Click **CLOSE**.
9. In case you want to see results from other algorithms, you can select a different algorithm from the **Algorithms** section.



4.4.1 Analyzing the Output of SmartenInsight—Classification

SmartenInsight provides information about the classification of data based on the variables you have selected.

4.4.1.1 Interpretation

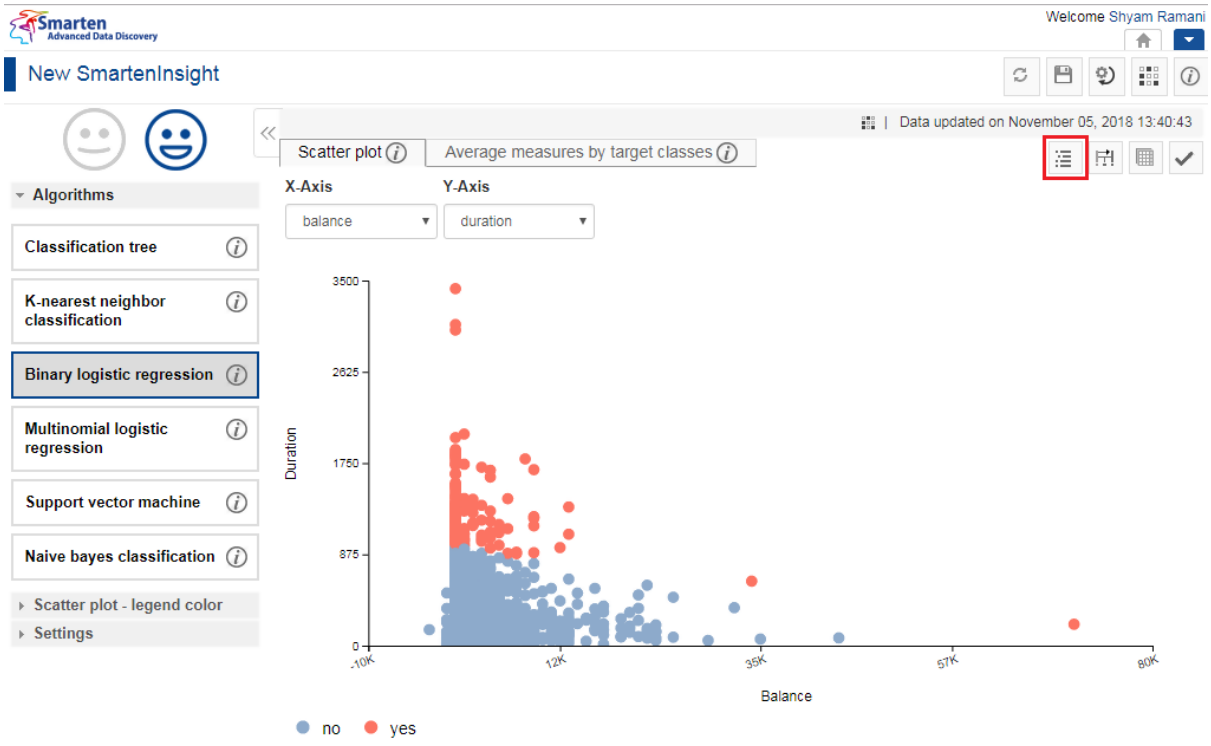
You can view the interpretation of the algorithm applied for classification. The interpretation provides information about insights of the model in simple language.

About this task

Use this task to view the interpretation of the SmartenInsight classification object.

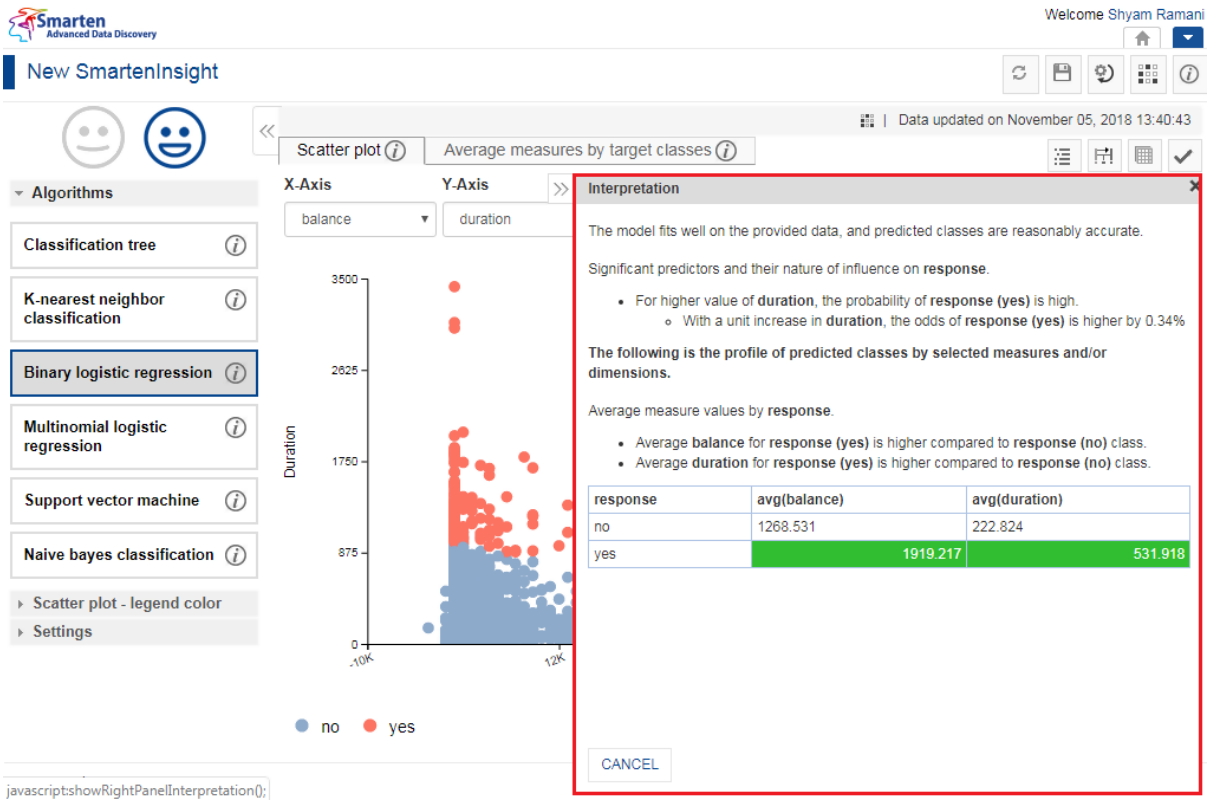
Procedure

1. Open the SmartenInsight classification object for which you want to view interpretation.
2. Click the **Interpretation** icon on the toolbar.



INTERPRETING SMARTENINSIGHT—THE INTERPRETATION OPTION

The system displays the information in the **Interpretation** dialog box.



INTERPRETING SMARTENINSIGHT—THE INTERPRETATION DIALOG BOX

4.4.1.2 Model Summary

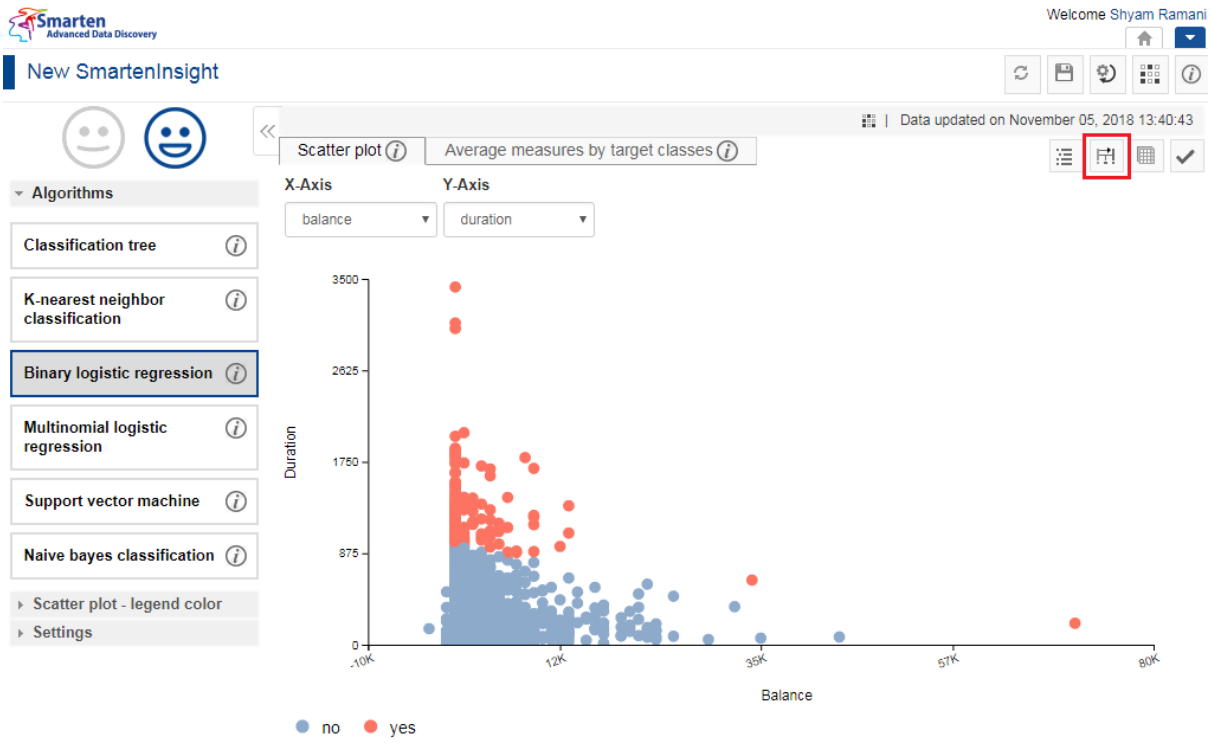
You can view the model summary of the SmartenInsight Classification object.

About this task

Use this task to view the model summary of the SmartenInsight Classification object.

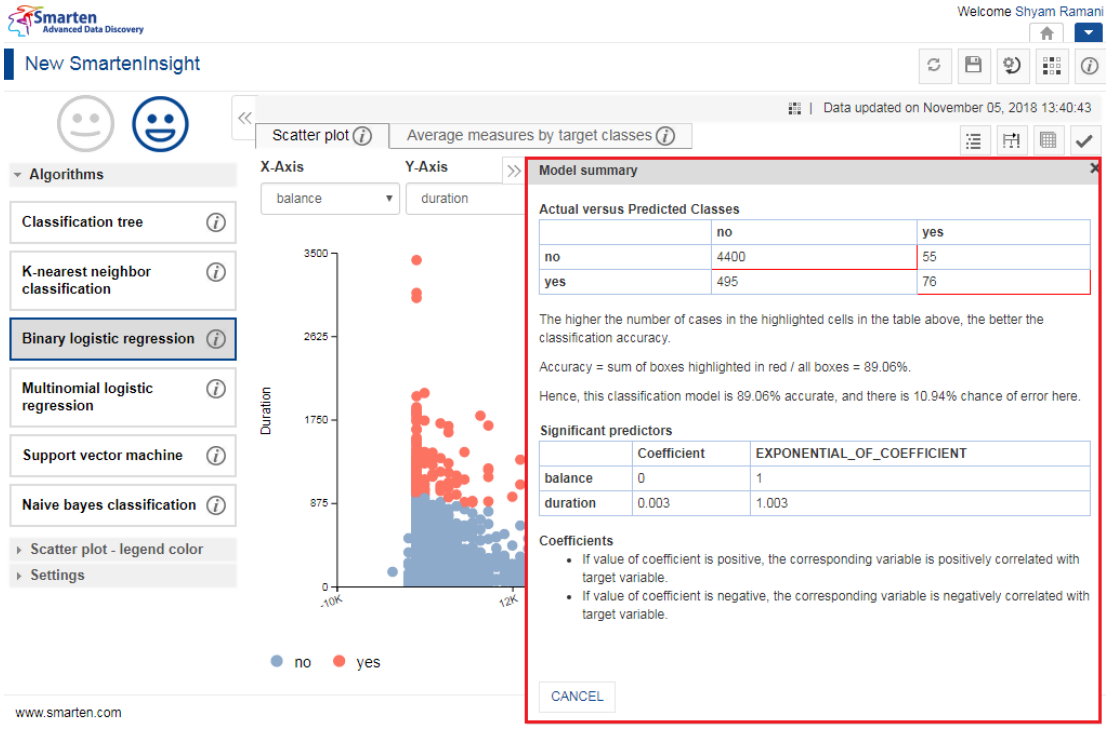
Procedure

1. Open the SmartenInsight Classification object for which you want to view the model summary.
2. Click the Model summary icon on the toolbar.



MODEL SUMMARY OF SMARTENINSIGHT—THE MODEL SUMMARY OPTION

The system displays the information in the **Model summary** dialog box.



MODEL SUMMARY OF SMARTENINSIGHT—THE MODEL SUMMARY DIALOG BOX

4.4.1.3 Data

You can view the data used for the SmartenInsight Classification object.

About this task

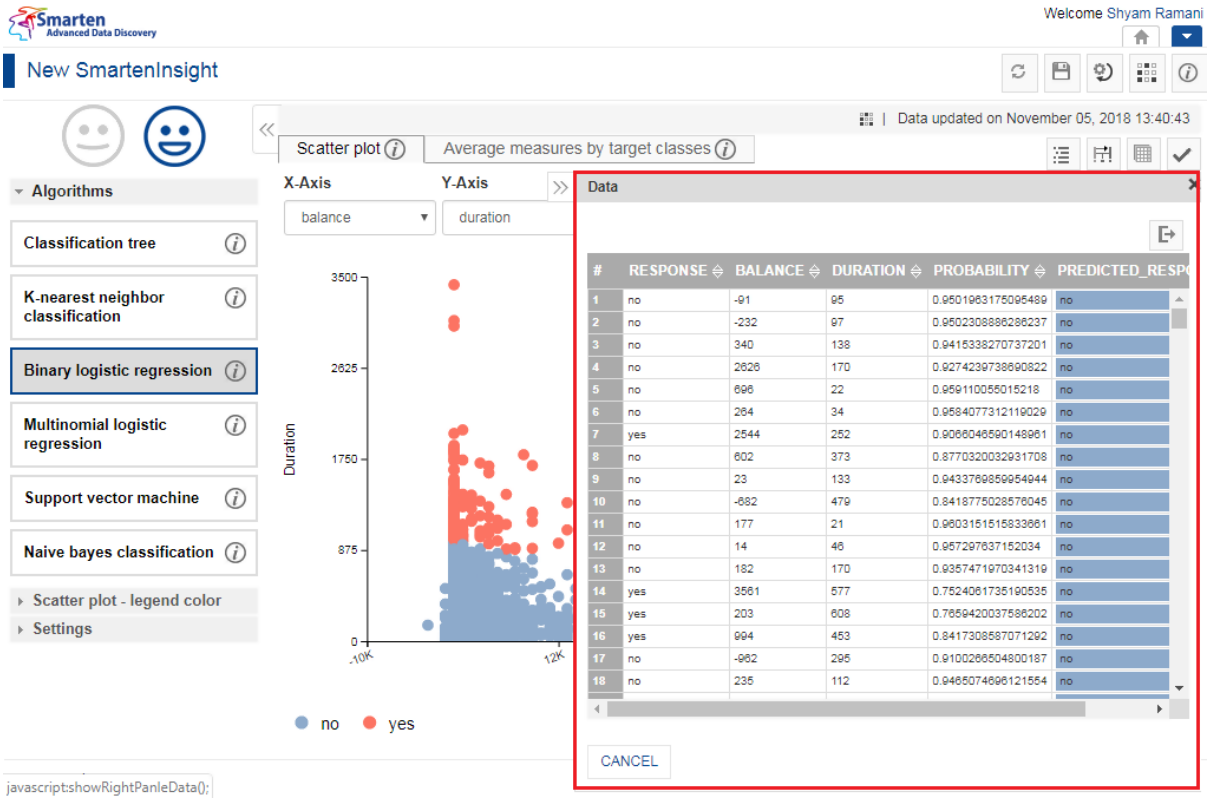
Use this task to view the model summary of the SmartenInsight Classification object.

Procedure

1. Open the SmartenInsight Classification object for which you want to view data.
2. Click the Data icon on the toolbar.

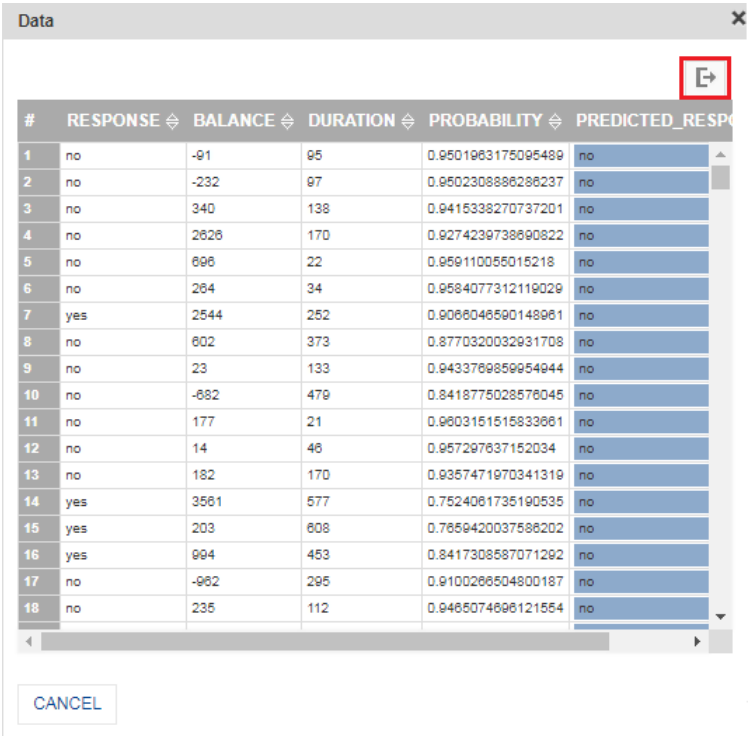
DATA OF SMARTENINSIGHT—THE DATA OPTION

The system displays the information in the **Data** dialog box.



DATA OF SMARTENINSIGHT—THE DATA DIALOG BOX

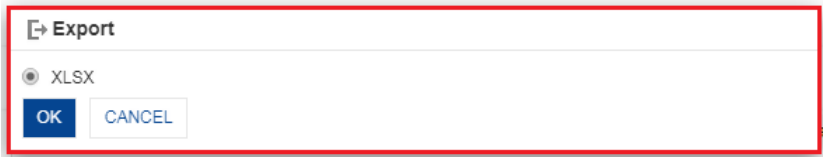
3. You can click the Export icon to export the data.



#	RESPONSE	BALANCE	DURATION	PROBABILITY	PREDICTED_RESP
1	no	-91	95	0.9501963175095489	no
2	no	-232	97	0.9502308886286237	no
3	no	340	138	0.9415338270737201	no
4	no	2626	170	0.9274239738690822	no
5	no	696	22	0.959110055015218	no
6	no	264	34	0.9584077312119029	no
7	yes	2544	252	0.9066046590148961	no
8	no	602	373	0.8770320032931708	no
9	no	23	133	0.9433769859954944	no
10	no	-682	479	0.8418775028576045	no
11	no	177	21	0.9603151515833661	no
12	no	14	46	0.957297637152034	no
13	no	182	170	0.9357471970341319	no
14	yes	3561	577	0.7524061735190535	no
15	yes	203	608	0.7659420037586202	no
16	yes	994	453	0.8417308587071292	no
17	no	-962	295	0.9100266504800187	no
18	no	235	112	0.9465074696121554	no

EXPORT DATA—THE EXPORT ICON

The system displays the **Export** dialog box.



EXPORT DATA—THE EXPORT DIALOG BOX

4. Click **OK**.

4.4.1.4 Applying the Model for SmartenInsight

You can enter values for the input parameters and see the results of the model for classification.

About this task

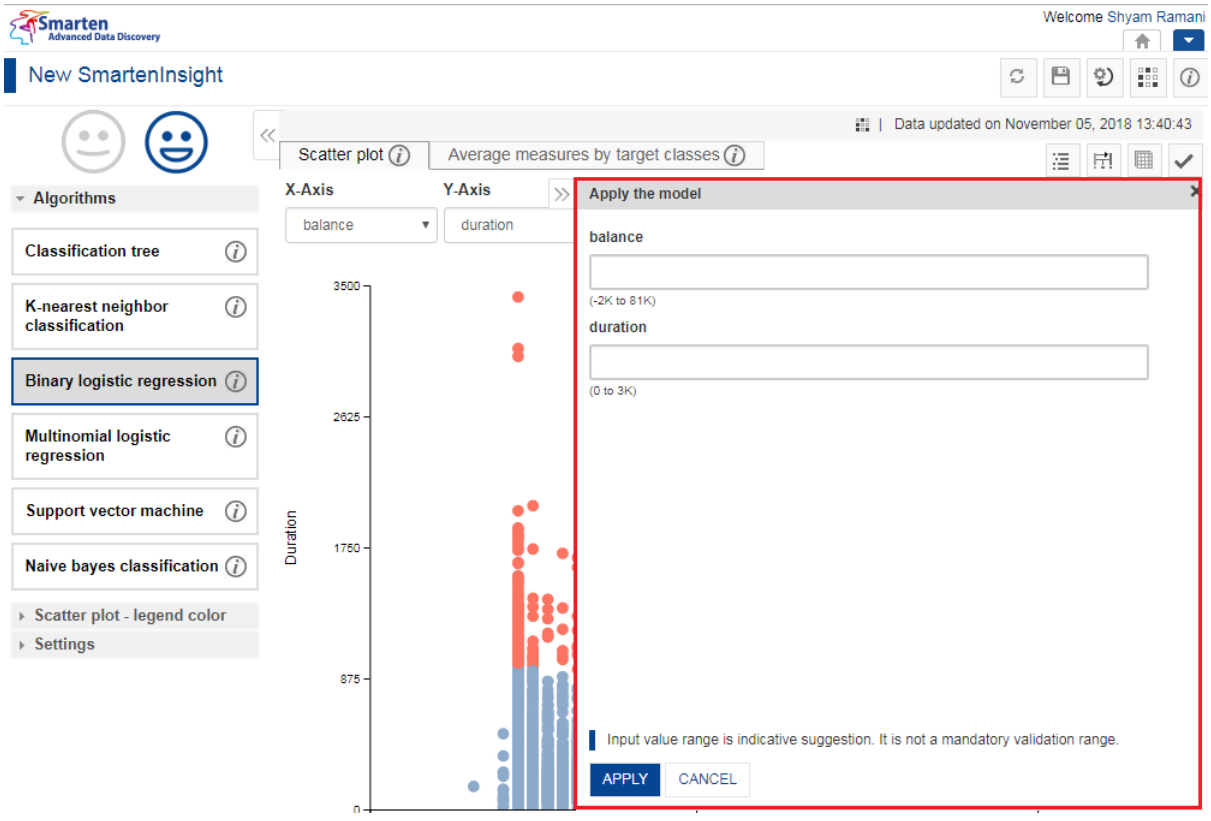
Use this task to apply the model for SmartenInsight Classification object.

Procedure

1. Open the SmartenInsight Classification object for which you want to apply the model.
2. Click the **Apply the model** icon on the toolbar.

APPLYING MODEL FOR SMARTENINSIGHT—THE APPLY MODEL OPTION

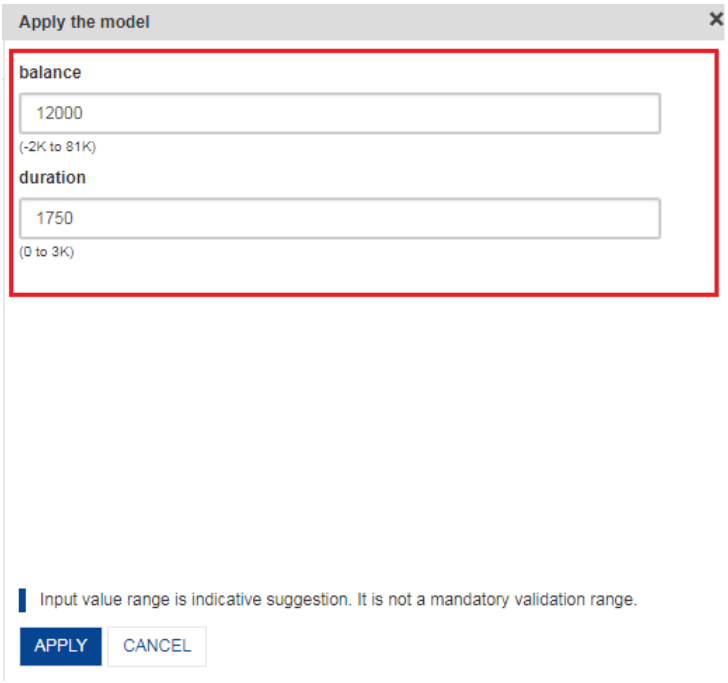
The system displays the information in the **Apply the model** dialog box.



APPLYING MODEL FOR SMARTENINSIGHT—THE APPLY THE MODEL DIALOG BOX

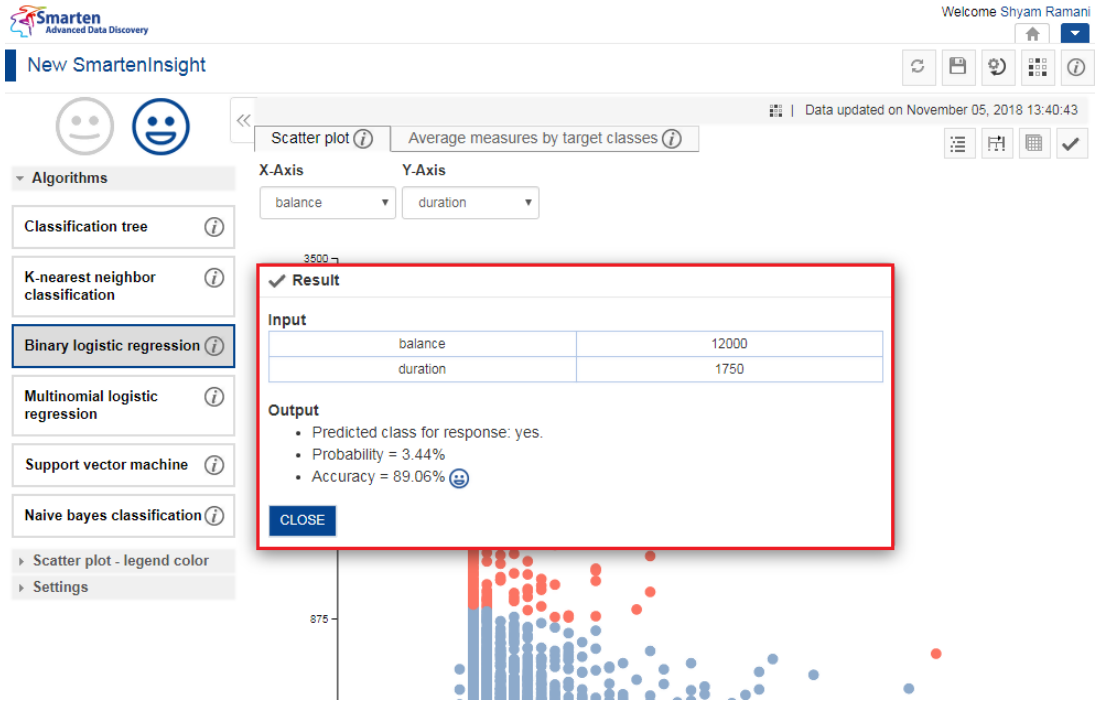
3. Select an option from the list available in the **Apply the model** dialog box.
   The lists available depend on the variables you have selected for classification.

4. Specify values in the fields.
   The fields available are based on the variables you have selected for classification.



APPLYING MODEL FOR SMARTENINSIGHT—SPECIFYING VALUES FOR THE CLASSIFICATION VARIABLES

5. Click **APPLY**.
   The system displays the **Result** dialog box.



APPLYING MODEL FOR SMARTENINSIGHT—THE RESULT DIALOG BOX

6. Click **CLOSE**.

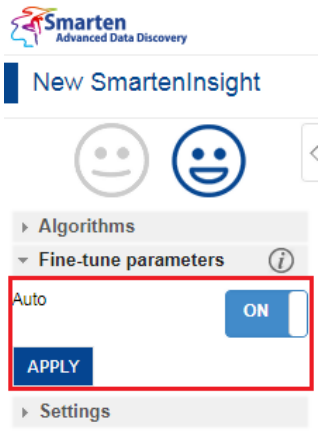
4.4.1.5 Fine-tuning

You can modify the values for various parameters in the classification SmartenInsight as per your requirements.

> Note:
> The fine-tune parameters are available for only the Classification tree algorithm.

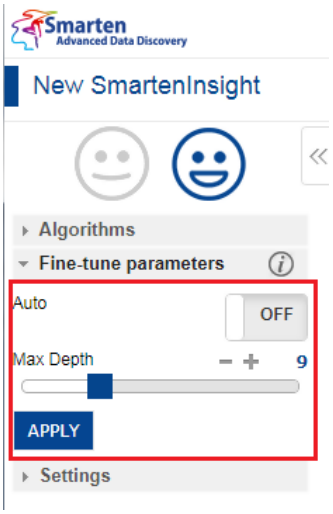
Fine-tuning parameters:

The system automatically selects a value for the **Max Depth** fine-tuning parameter when the **Auto** mode is turned on.



FINE-TUNE PARAMETERS—CLASSIFICATION TREE WITH AUTO MODE TURNED ON

You can manually select a value for **Max Depth** fine-tuning parameter when the **Auto** mode is turned off.



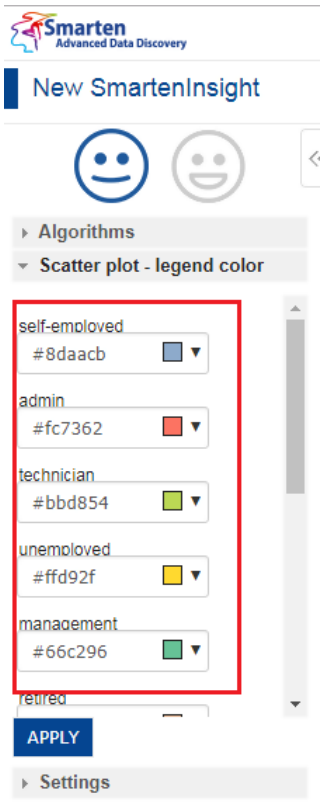
FINE-TUNE PARAMETERS—CLASSIFICATION TREE WITH AUTO MODE TURNED OFF

Parameter	Description
Max Depth	Enables you to specify the maximum depth of any node of the final tree, with the root node counted as depth 0. Note: The **Max Depth** fine-tune parameters are only available for the Classification tree algorithm.

4.4.1.6 Specifying Legend colors

You can specify legend colors for scatter plots.

> Note:
> The legend colors property is available for K-nearest neighbor classification, Binary logistic regression, Multinomial logistic regression, Support vector machine, and Naive bayes classification algorithms.



SPECIFYING LEGEND COLOR—OPTIONS TO SPECIFY LEGEND COLOR

Parameter	Description
Legend color	Enables you to specify a color for the various legends used in the chart. The legends available in this section depend on the target variable you have selected.

4.4.1.7 Chart Configuration

You can configure properties for SmartenInsight charts. You can configure properties of chart title, label, and value formats.

The **Title** settings:

Setting	Description
Select title	Enables you to select the title for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

> Note:
> The **Title** property is available for Classification tree, K-nearest neighbor classification, Binary logistic regression, Multinomial logistic regression, Support vector machine, and Naive bayes classification algorithms.

The **Label** settings:

Setting	Description
Select label	Enables you to select the label for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

> Note:
> The **Label** property is available for Classification tree, K-nearest neighbor classification, Binary logistic regression, Multinomial logistic regression, Support vector machine, and Naive bayes classification algorithms.

The **Format** settings:

Setting	Description
Measure	Enables you to select the measure for which you want to change the format.
Comma separator	Enables you to select the option to use a comma as the separator in the value of the selected measure.
Comma format	Enables you to select the comma format to specify the comma format

	you want to use in the values of the selected measure.
Digits after decimal point	Enables you to specify the number of digits to be displayed after the decimal point.
Adjusted digits	Enables you to specify an option to adjust digits in the value of the selected measure.
Show suffix	Enables you to show suffix for the selected measure.

> Note:
> The **Format** property is available for K-nearest neighbor classification, Binary logistic regression, Multinomial logistic regression, Support vector machine, and Naive bayes classification algorithms.

The **Quick** settings:

Setting	**Description**
Enable sampling	Enables you to apply to sampling of data from the dataset.
Number of x axis ticks	Enables you to specify the number of ticks to be available in the x axis. Note: The number of x-axis ticks property is available for K-nearest neighbor classification, Binary logistic regression, Multinomial logistic regression, Support vector machine, and Naive bayes classification algorithms.
Number of y axis ticks	Enables you to specify the number of ticks to be available in the y axis. Note: The number of y-axis ticks property is available for K-nearest neighbor classification, Binary logistic regression, Multinomial logistic regression, Support vector machine, and Naive bayes classification algorithms.

4.4.2 Algorithms used for Classification

You can view the algorithm that is used for generating classification. The following algorithms are available:

- **Classification tree**: Classification tree is used for classifying data into predefined classes of the target variables.
- **K-nearest neighbor classification**: The K-nearest neighbor classification is used for classifying numeric data into two or more groups based on predefined categories.
- **Binary logistic regression**: The Binary logistic regression is used for classifying numeric and/or categorical data into two groups based on predefined categories. The **Scatter plot** tab provides information about the quality of the classification model. The less overlap among the classes in the plot indicates the better classification by the model. You can select an option from the **X-Axis** and **Y-Axis** list to specify the variable whose values you want to display in the respective axis.

The **Average measures by target classes** tab enables you to analyze how average measures are distributed across target variable classes.

- **Multinomial logistic regression**: The Multinomial logistic regression is used for classifying numeric and/or categorical data into more than two groups based on predefined categories.
- **Support vector machine**: The Support vector machine classification is used for classifying numeric and/or categorical data into two groups based on predefined categories.
- **Naive bayes classification**: The Naive bayes classification is the method used for classifying non-negative numeric data into two or more groups based on predefined categories.

4.5 Clustering with SmartenInsight

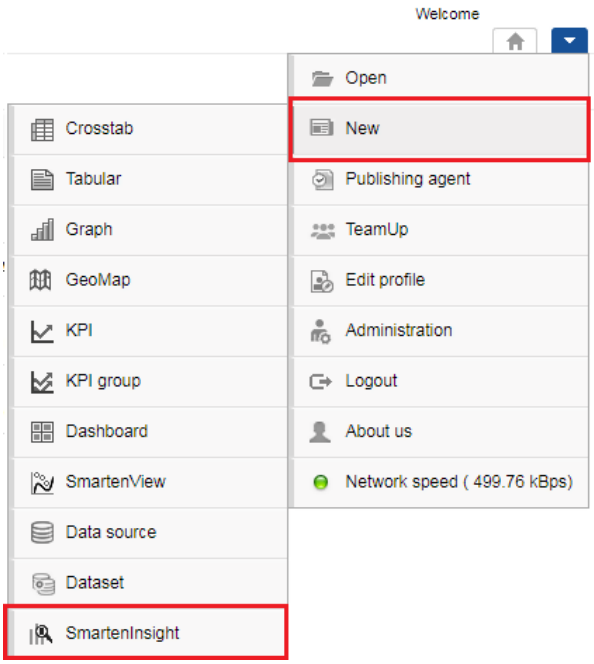
You can use SmartenInsight to classify data into groups when the preassigned categories or classes are not available.

About this task

Use this task to create a clustering model using SmartenInsight.

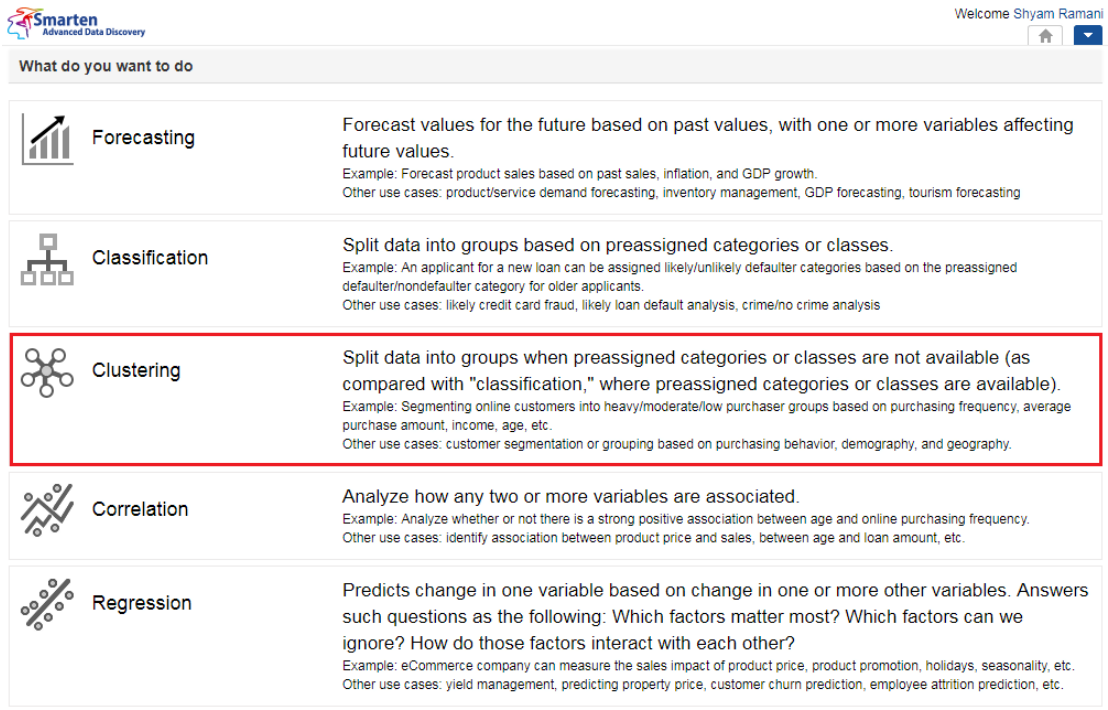
Procedure

1. Click **New** -> **SmartenInsight** from the menu.



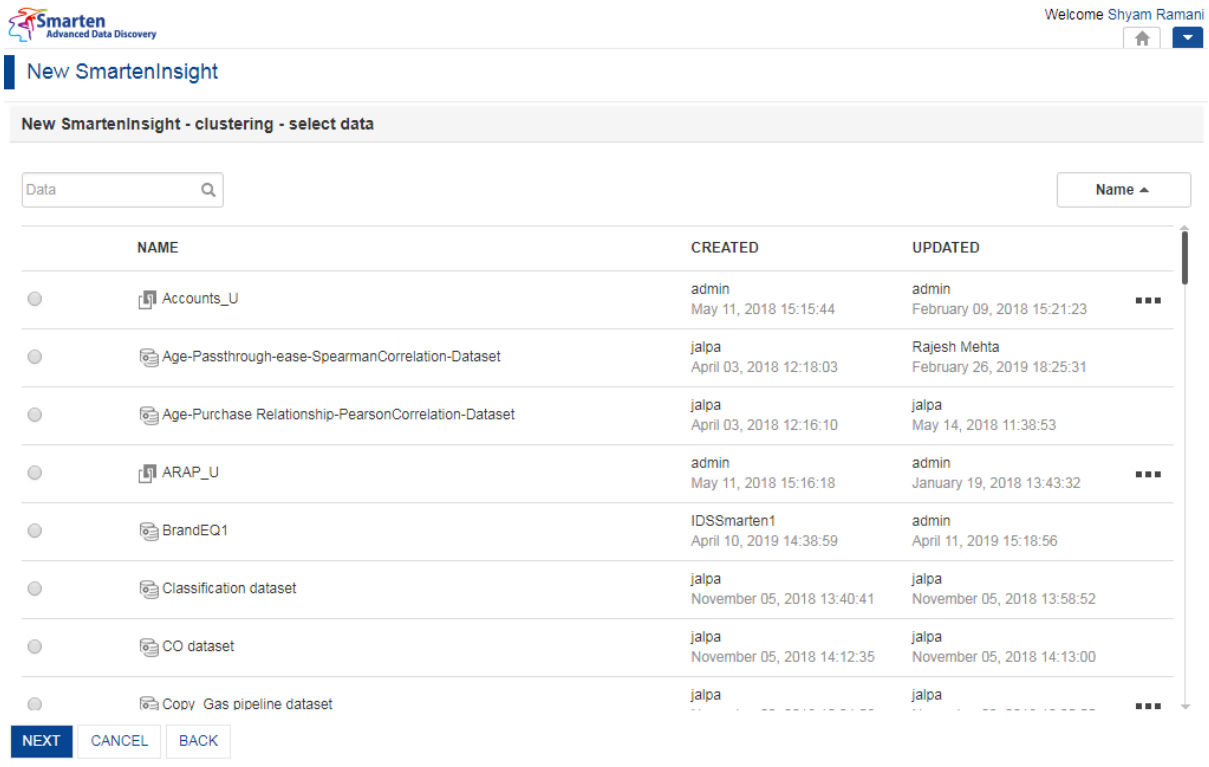
MENU OPTION—NEW SMARTENINSIGHT

The system displays the **What do you want to do** page.



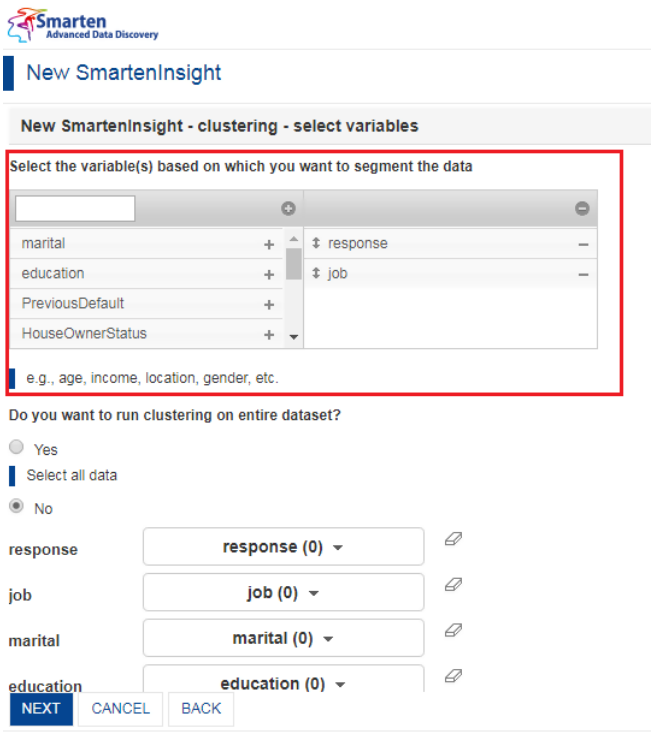
CLUSTERING WITH SMARTENINSIGHT—SELECTING A SMARTENINSIGHT TYPE

2. Click **Clustering**.
   The system displays the **New SmartenInsight** screen.



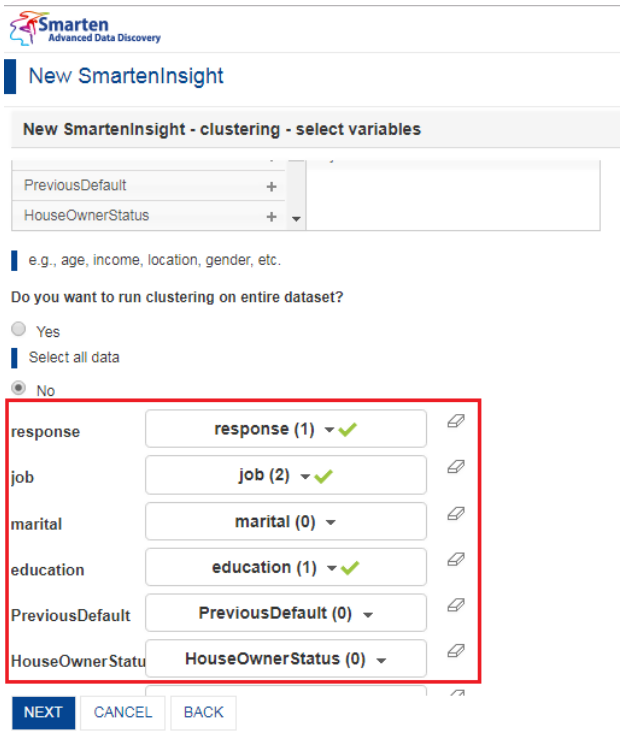
THE NEW SMARTENINSIGHT PAGE—SELECTING THE DATASET OR CUBE FOR SMARTENINSIGHT

3. Select the dataset or cube you want to use for SmartenInsight, and then click **NEXT**.
4. Select the variable you want to use to segment data from the **Select the variable(s) based on which you want to segment the data** section.



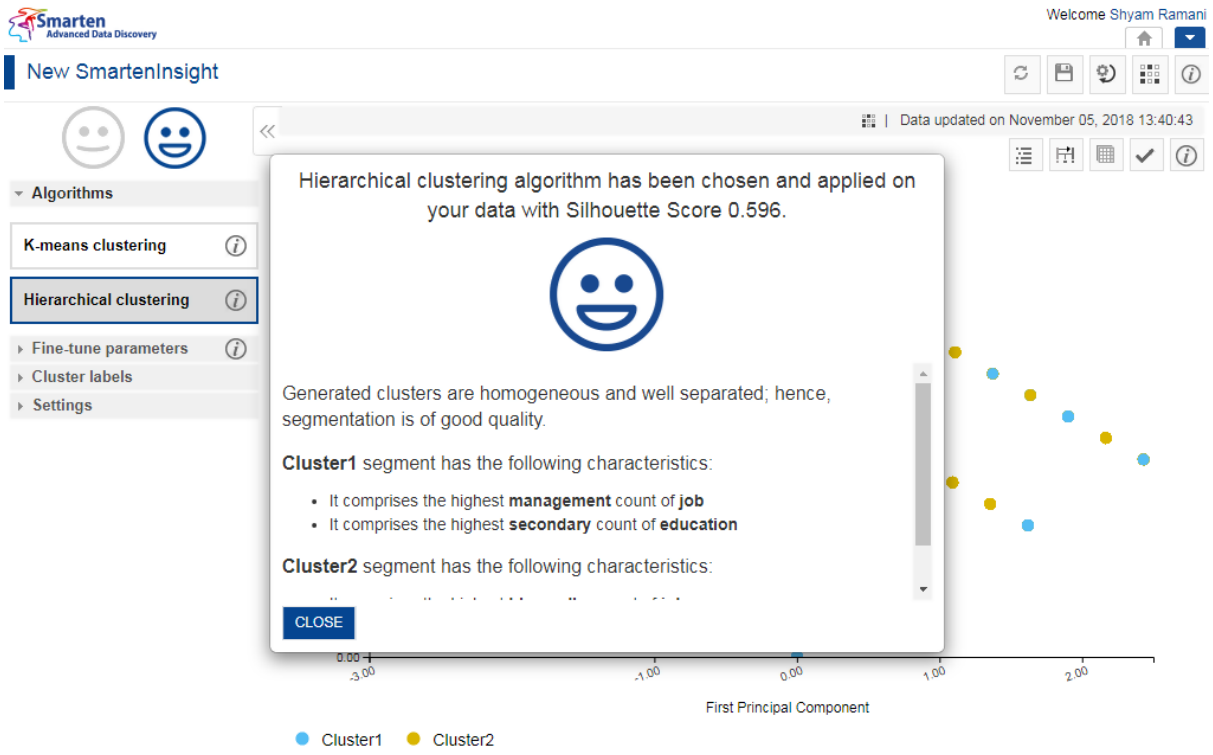
CLUSTERING WITH SMARTENINSIGHT—SELECTING THE VARIABLE FOR CLUSTERING

5. Select an option to specify whether or not you want to run clustering on the entire dataset.
   - If you have selected the **No** option, you can select the column filters for which you want to run clustering.



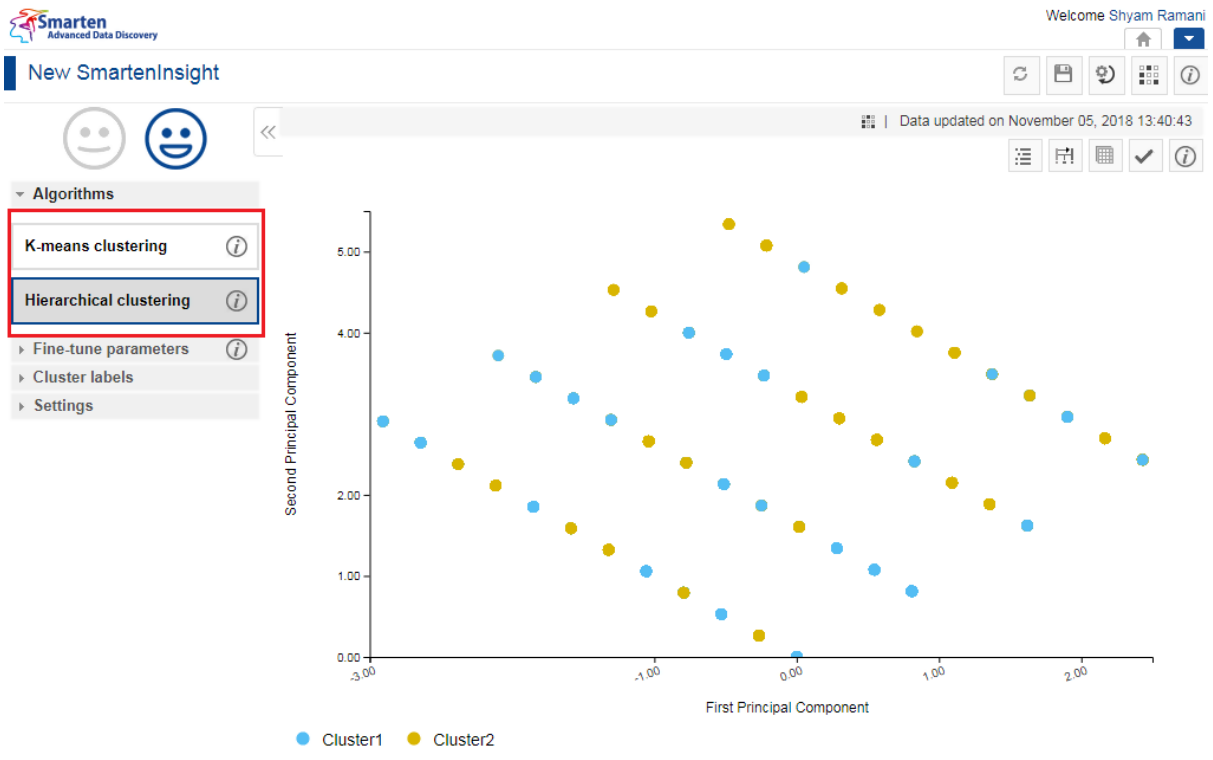
CLUSTERING WITH SMARTENINSIGHT—SELECTING DIMENSION FOR CLUSTERING

6. Click **NEXT**.
   Based on the variables you have selected, the system selects the best suitable algorithm for clustering and displays a summary for the clustering.



CLUSTERING WITH SMARTENINSIGHT—THE SYSTEM DISPLAYING A SUMMARY OF SMARTENINSIGHT

7. Click **CLOSE**.
8. In case you want to see results from other algorithms, you can select a different algorithm from the **Algorithms** section.



ALGORITHMS FOR CLUSTERING—SELECT AN ALGORITHM

4.5.1 Analyzing the output of SmartenInsight—Clustering

SmartenInsight provides information about the clustering of data based on the variables you have selected.

4.5.1.1 Interpretation

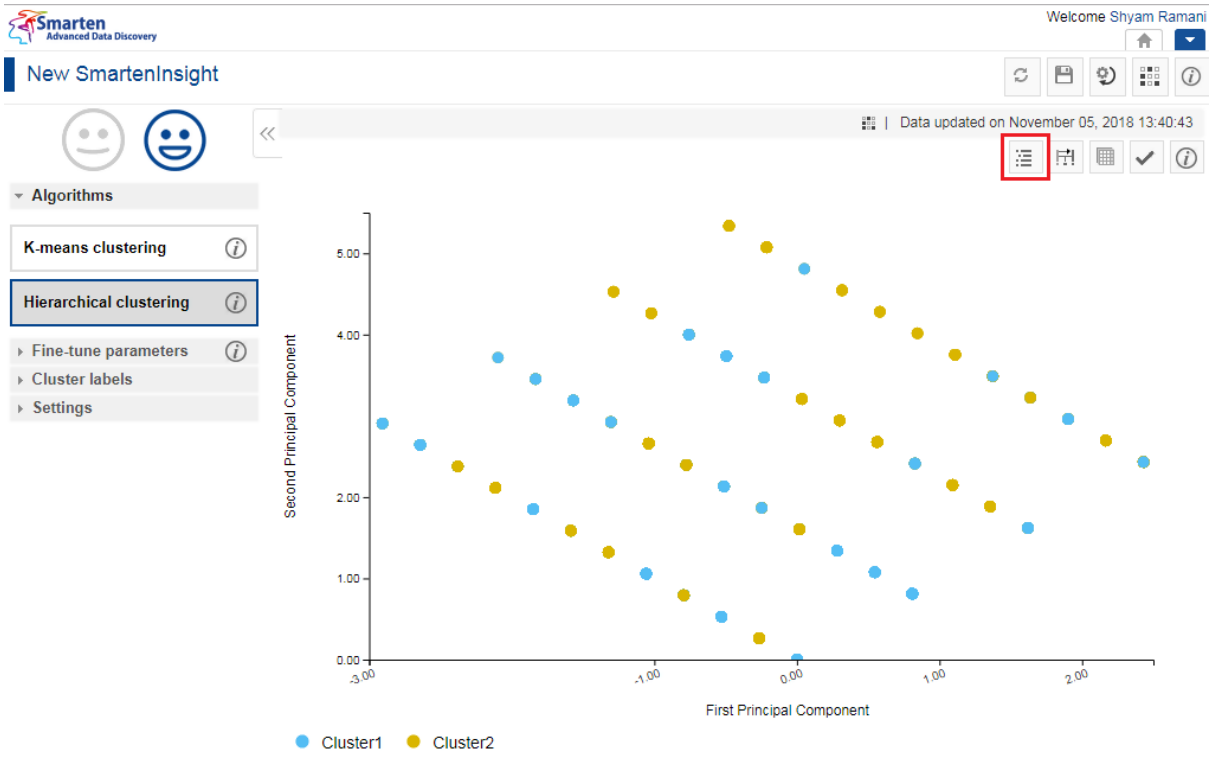
You can view the interpretation of the algorithm applied for clustering. The interpretation provides information about insights of the model in simple language.

About this task

Use this task to view the interpretation of the SmartenInsight clustering object.

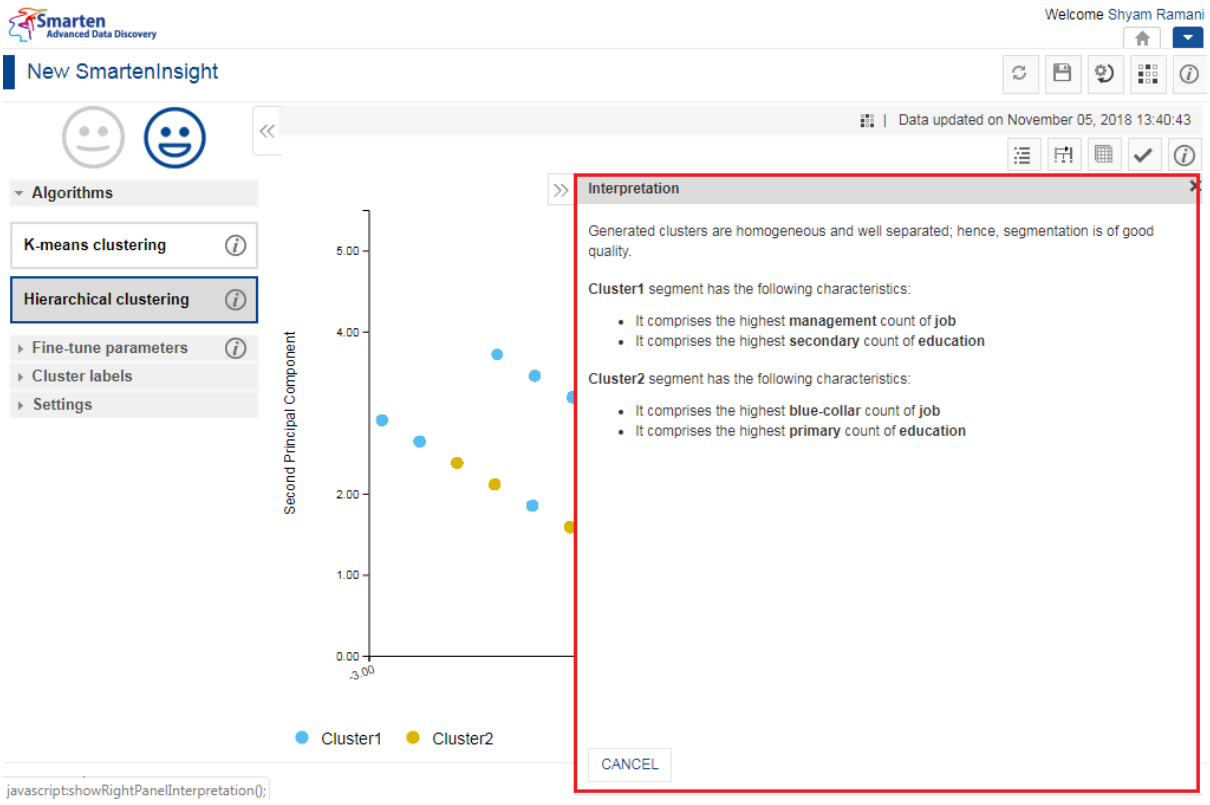
Procedure

1. Open the SmartenInsight clustering object for which you want to view interpretation.
2. Click the **Interpretation** icon on the toolbar.



INTERPRETING SMARTENINSIGHT—THE INTERPRETATION OPTION

The system displays the information in the **Interpretation** dialog box.



INTERPRETING SMARTENINSIGHT—THE INTERPRETATION DIALOG BOX

4.5.1.2 Model Summary

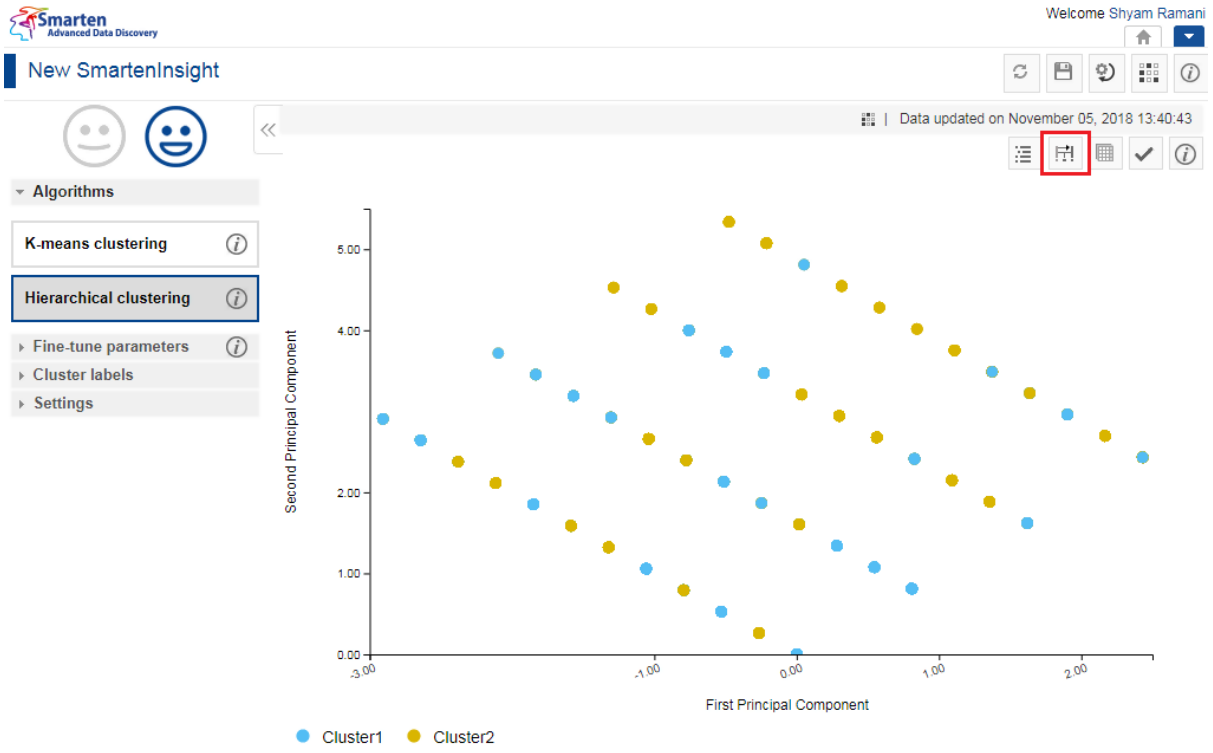
You can view the model summary of the SmartenInsight clustering object.

About this task

Use this task to view the model summary of the SmartenInsight clustering object.

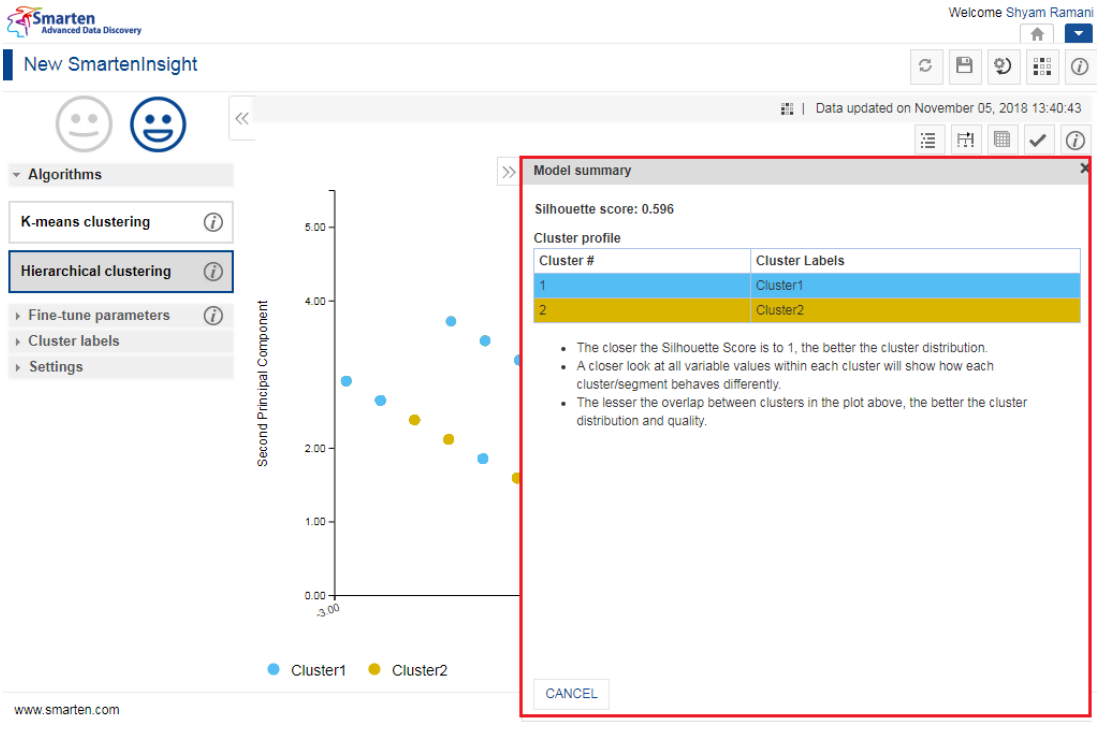
Procedure

1. Open the SmartenInsight clustering object for which you want to view the model summary.
2. Click the Model summary icon on the toolbar.



MODEL SUMMARY OF SMARTENINSIGHT—THE MODEL SUMMARY OPTION

The system displays the information in the **Model summary** dialog box.



MODEL SUMMARY OF SMARTENINSIGHT—THE MODEL SUMMARY DIALOG BOX

4.5.1.3 Data

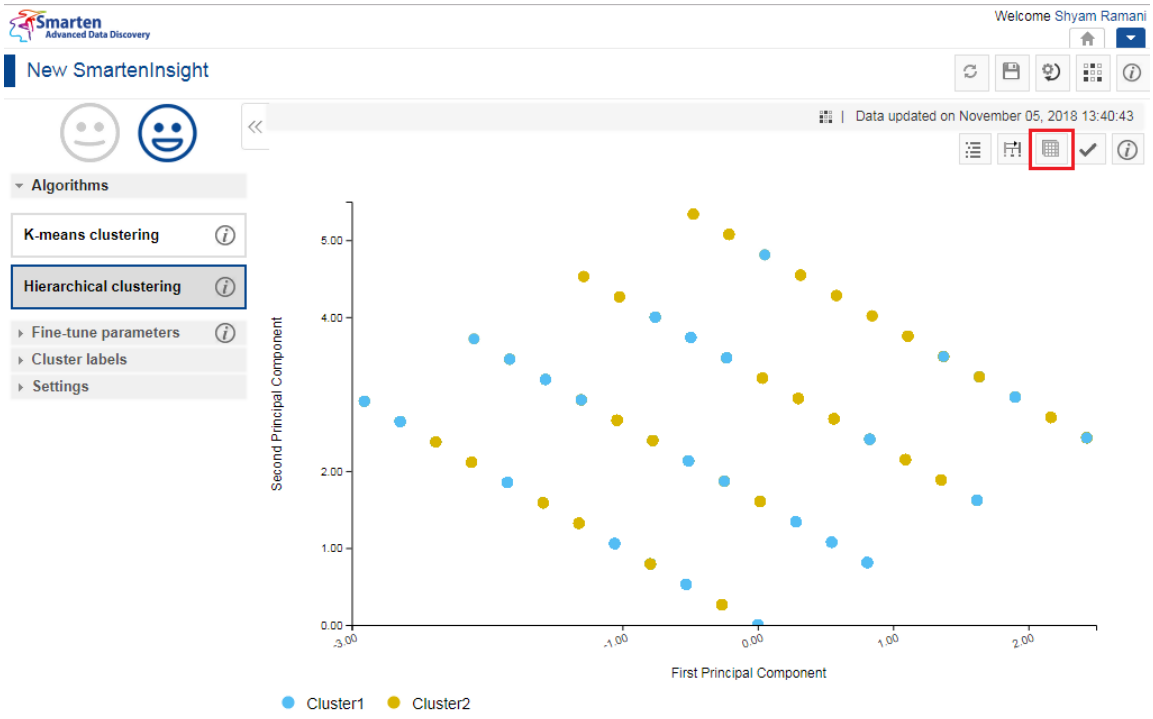
You can view the data used for the SmartenInsight clustering object.

About this task

Use this task to view the model summary of the SmartenInsight clustering object.

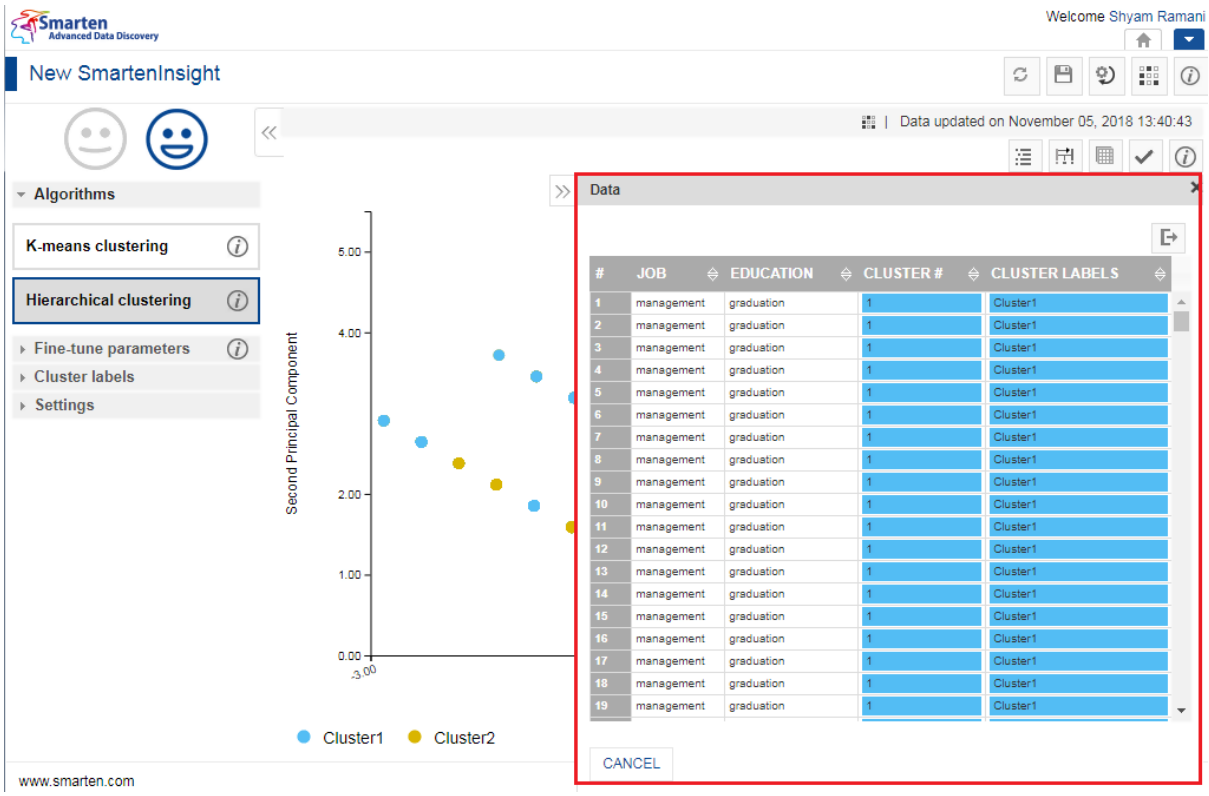
Procedure

1. Open the SmartenInsight clustering object for which you want to view data.
2. Click the Data icon on the toolbar.



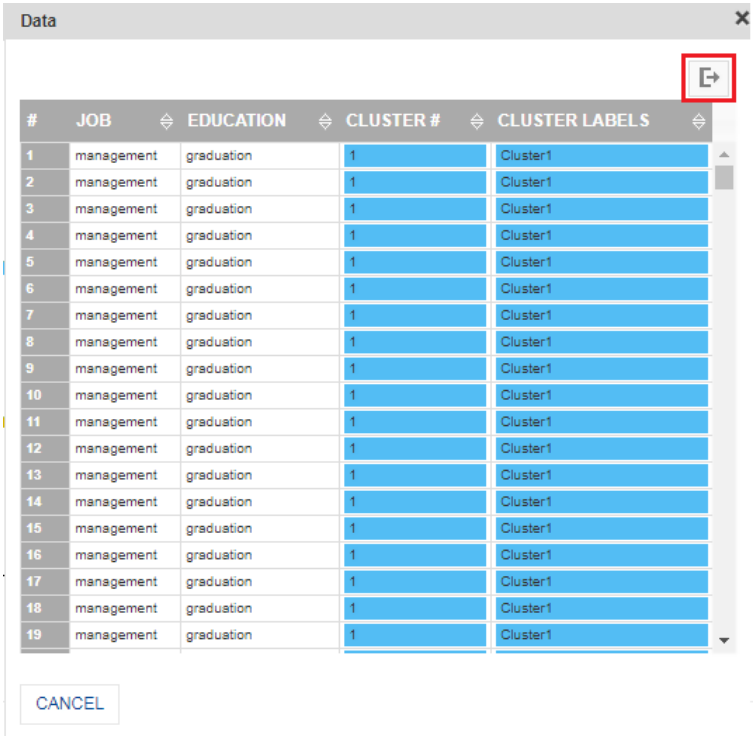
DATA OF SMARTENINSIGHT—THE DATA OPTION

The system displays the information in the **Data** dialog box.



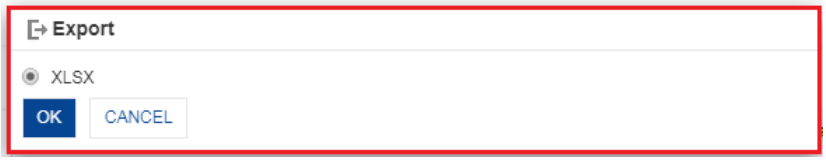
DATA OF SMARTENINSIGHT—THE DATA DIALOG BOX

3. You can click the Export icon to export the data.



EXPORT DATA—THE EXPORT ICON

The system displays the **Export** dialog box.



EXPORT DATA—THE EXPORT DIALOG BOX

4. Click **OK**.

4.5.1.4 Applying the Model for SmartenInsight

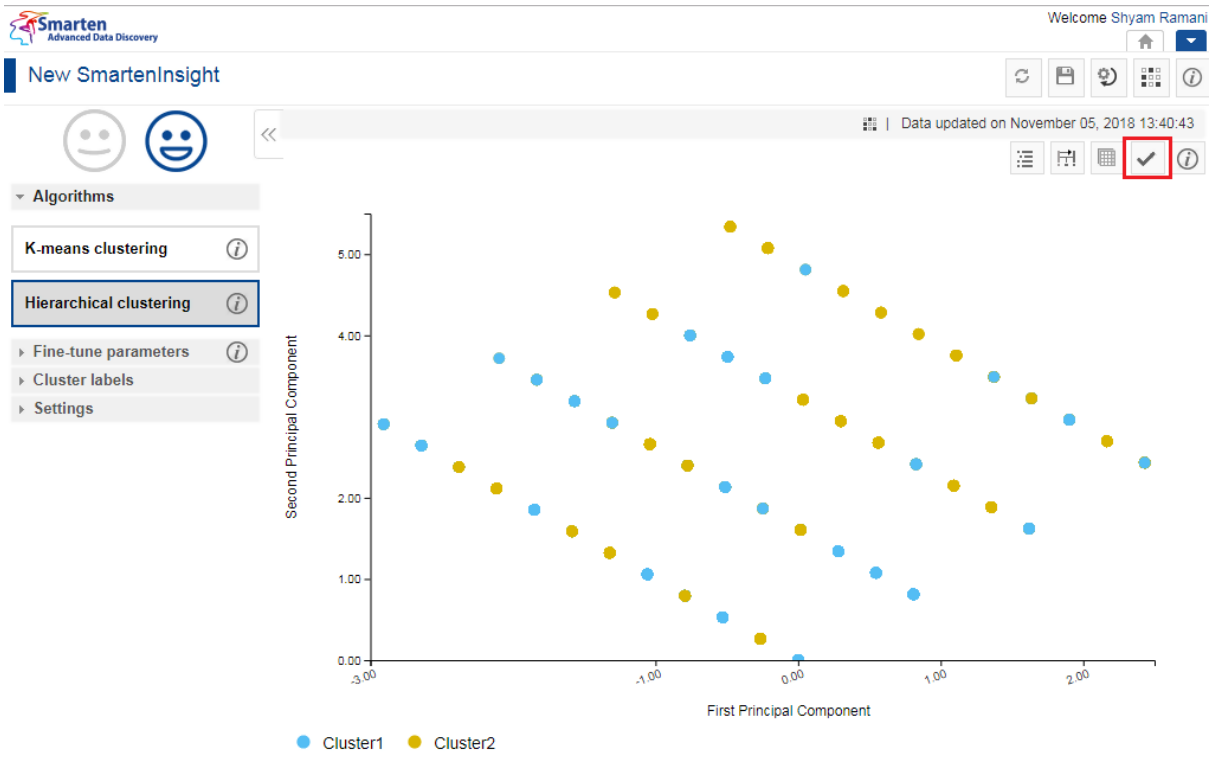
You can enter values for the input parameters and see the results of the model for clustering.

About this task

Use this task to apply the model for SmartenInsight clustering object.

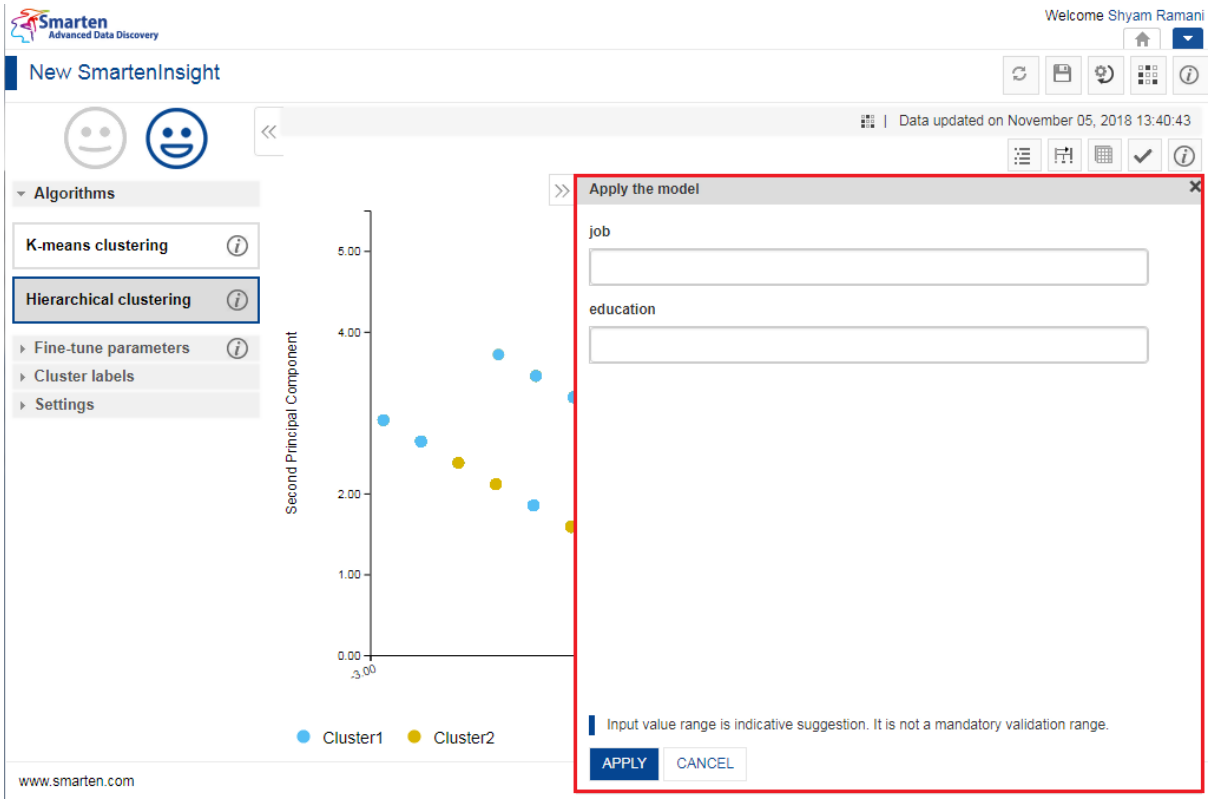
Procedure

1. Open the SmartenInsight clustering object for which you want to apply the model.
2. Click the **Apply the model** icon on the toolbar.



VIEWING TREND FOR SMARTENINSIGHT—THE TREND OPTION

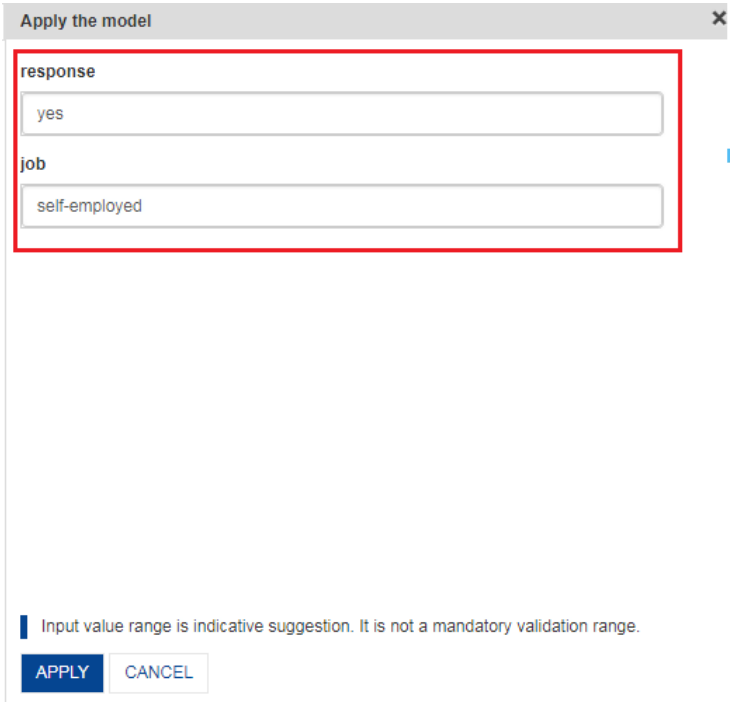
The system displays the information in the **Apply the model** dialog box.



APPLYING MODEL FOR SMARTENINSIGHT—THE APPLY THE MODEL DIALOG BOX

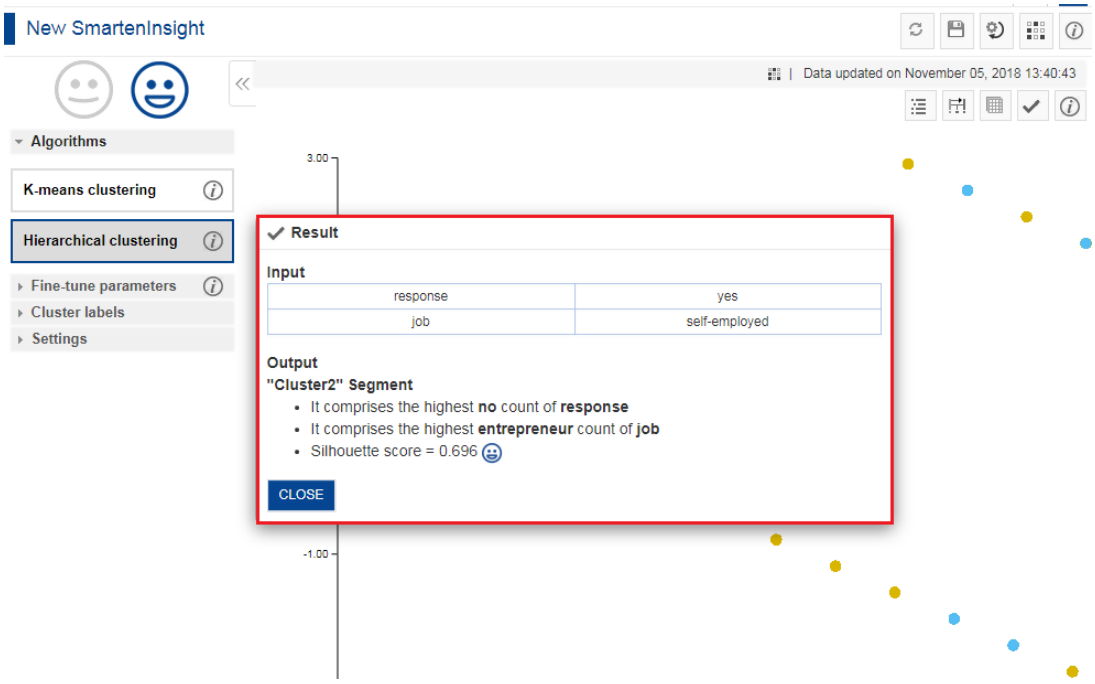
3. Select an option from the list available in the **Apply the model** dialog box.
   The lists available depend on the variables you have selected for clustering.

4. Specify values in the fields.
   The fields available are based on the variables you have selected for clustering.



APPLYING MODEL FOR SMARTENINSIGHT—SPECIFYING VALUES FOR THE CLUSTERING VARIABLES

5. Click **APPLY**.
   The system displays the **Result** dialog box.



APPLYING MODEL FOR SMARTENINSIGHT—THE RESULT DIALOG BOX

6. Click **CLOSE**.

4.5.1.5 Chart Information

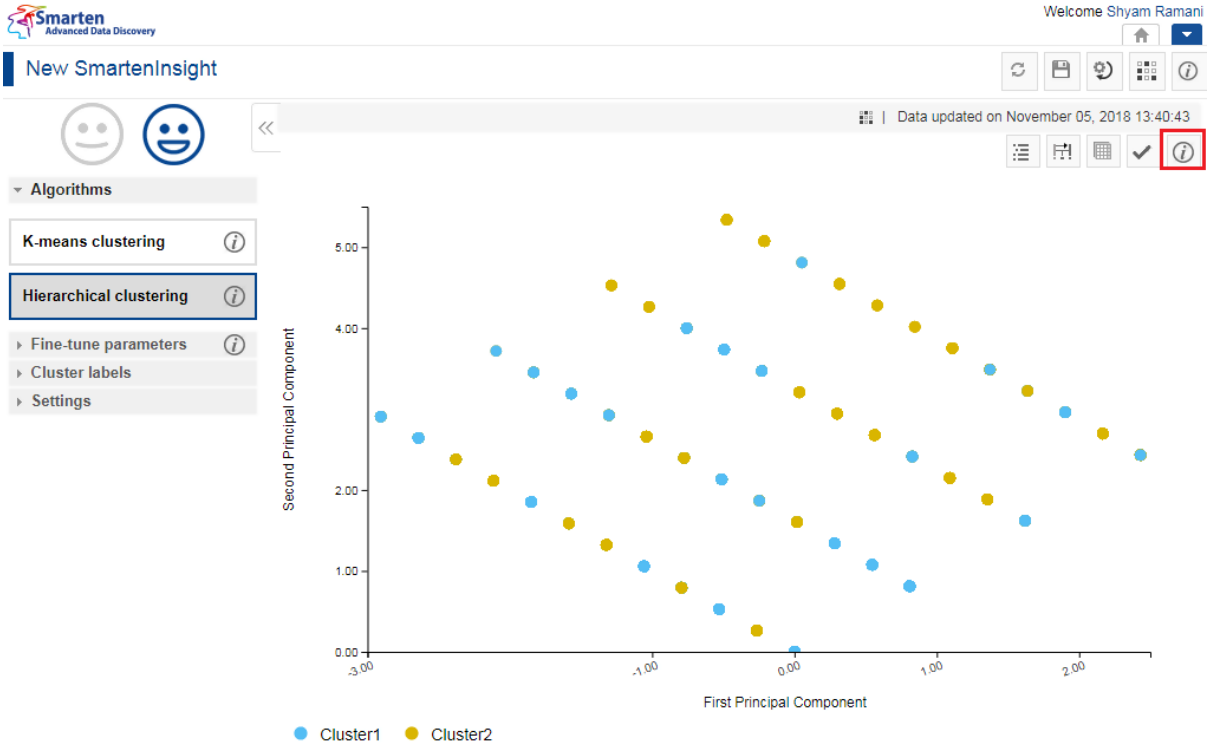
You can view the information and help interpret the chart that the system has generated for the model.

About this task

Use this task to view information about the chart for SmartenInsight.

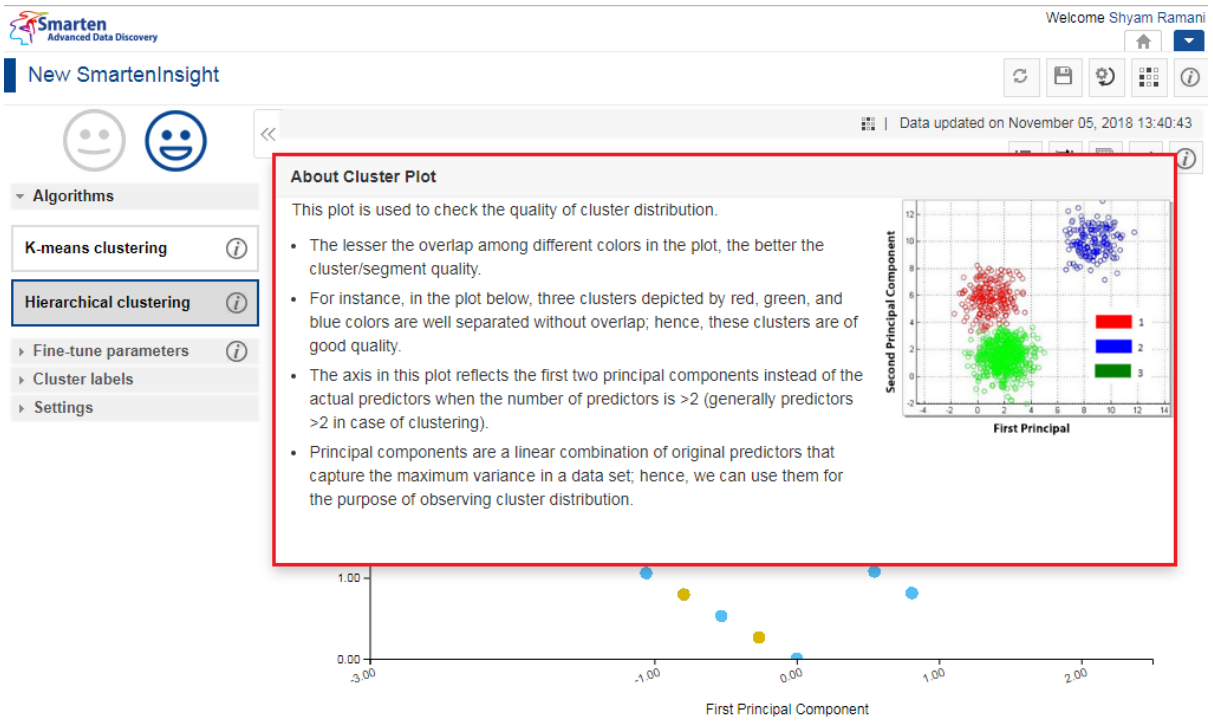
Procedure

1. Open the SmartenInsight clustering object for which you want to view information.
2. Click the Information icon on the toolbar.



INFORMATION OF CHART—THE INFORMATION OPTION

The system displays the information and guide to interpreting the chart in a dialog box.



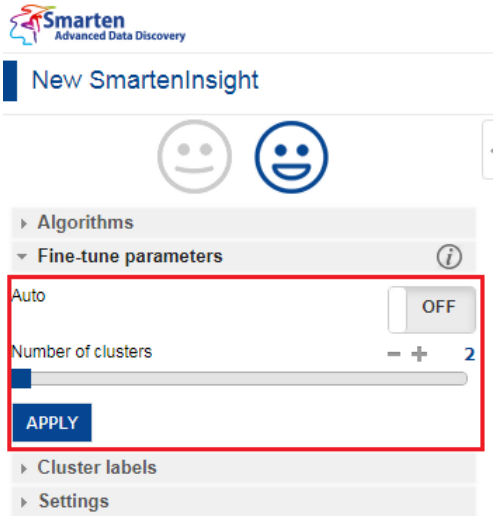
INFORMATION OF CHART—THE ABOUT LINE PLOT DIALOG BOX

4.5.1.6 Fine-tuning

You can modify the values for various parameters in the clustering SmartenInsight as per your requirements.

Fine-tuning parameters:

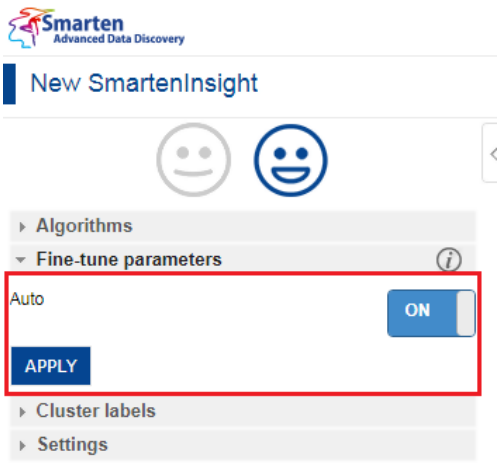
You can manually specify the number of clusters fine-tuning parameter when the Auto option is turned off:



FINE-TUNE PARAMETERS—K-MEANS AND HIERARCHICAL CLUSTERING WITH AUTO MODE TURNED OFF

Parameter	Description
Number of clusters	Enables you to specify the number of clusters to be formed.

The system automatically selects a value for the number of clusters fine-tuning parameter when the Auto mode is turned on.

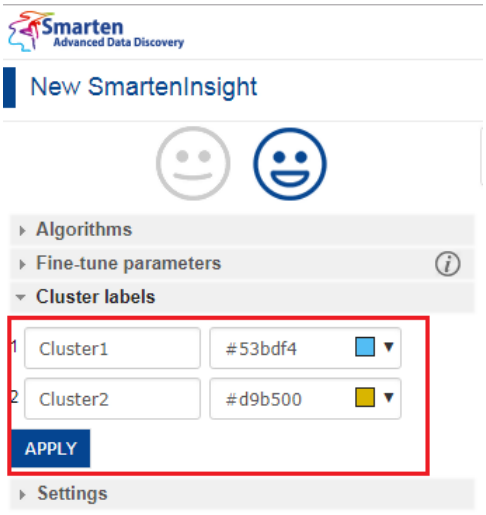


FINE-TUNE PARAMETERS—K-MEANS AND HIERARCHICAL CLUSTERING WITH AUTO MODE TURNED ON

4.5.1.7 Specifying Cluster Labels

You can specify labels for each cluster available in SmartenInsight.

Specifying cluster labels:



SPECIFYING CLUSTER LABELS—CLUSTER LABELS

Parameter	Description

Cluster	Specify the color code that you want to use for the cluster.

4.5.1.8 Chart Configuration

You can configure properties for SmartenInsight titles. You can configure properties of titles, such as font, size, color, style, and text transformation.

The **Title** settings:

Setting	**Description**
Select title	Enables you to select the title for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Label** settings:

Setting	**Description**
Select label	Enables you to select the label for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Format** settings:

Setting	**Description**
Measure	Enables you to select the measure for which you want to change the format.
Comma separator	Enables you to select the option to use a comma as the separator in the

	value of the selected measure.
Comma format	Enables you to select the comma format to specify the comma format you want to use in the values of the selected measure.
Digits after decimal point	Enables you to specify the number of digits to be displayed after the decimal point.
Adjusted digits	Enables you to specify an option to adjust digits in the value of the selected measure.
Show suffix	Enables you to show suffix for the selected measure.

The **Quick** settings:

Setting	**Description**
Enable sampling	Enables you to apply sampling of data from the dataset.
Number of x axis ticks	Enables you to specify the number of ticks to be available in the x axis.
Number of y axis ticks	Enables you to specify the number of ticks to be available in the y axis.

4.5.2 Algorithms used for Clustering

You can view the algorithm that is used for generating clustering. The following algorithms are available:

- **Hierarchical clustering**: Hierarchical clustering is a process by which numeric and/or categorical observations are segmented such that they are as dissimilar as possible from one group to another group and as similar as possible within each group.
- **K-means clustering**: K-means clustering is a process by which numeric observations are segmented such that they are as dissimilar as possible from one group to another group and as similar as possible within each group.

4.6 Correlation with SmartenInsight

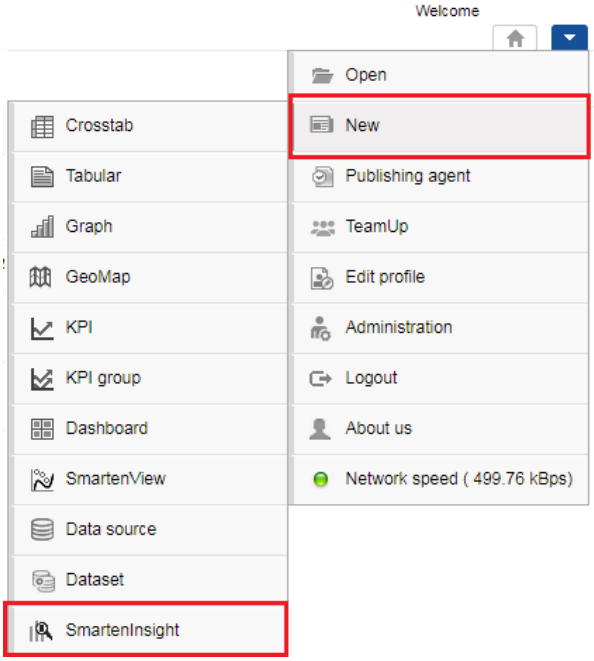
You can use SmartenInsight to analyze how two or more variables are correlated with each other.

About this task

Use this task to create a correlation model using SmartenInsight.

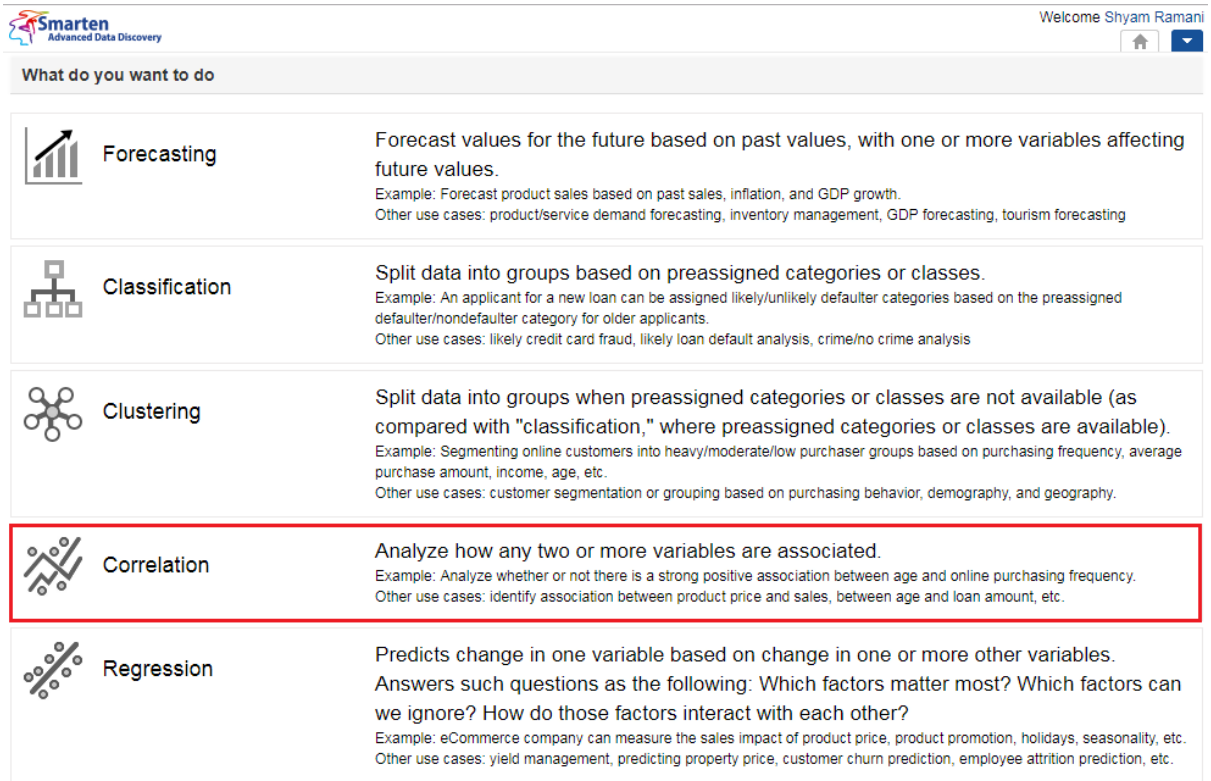
Procedure

1. Click **New** -> **SmartenInsight** from the menu.



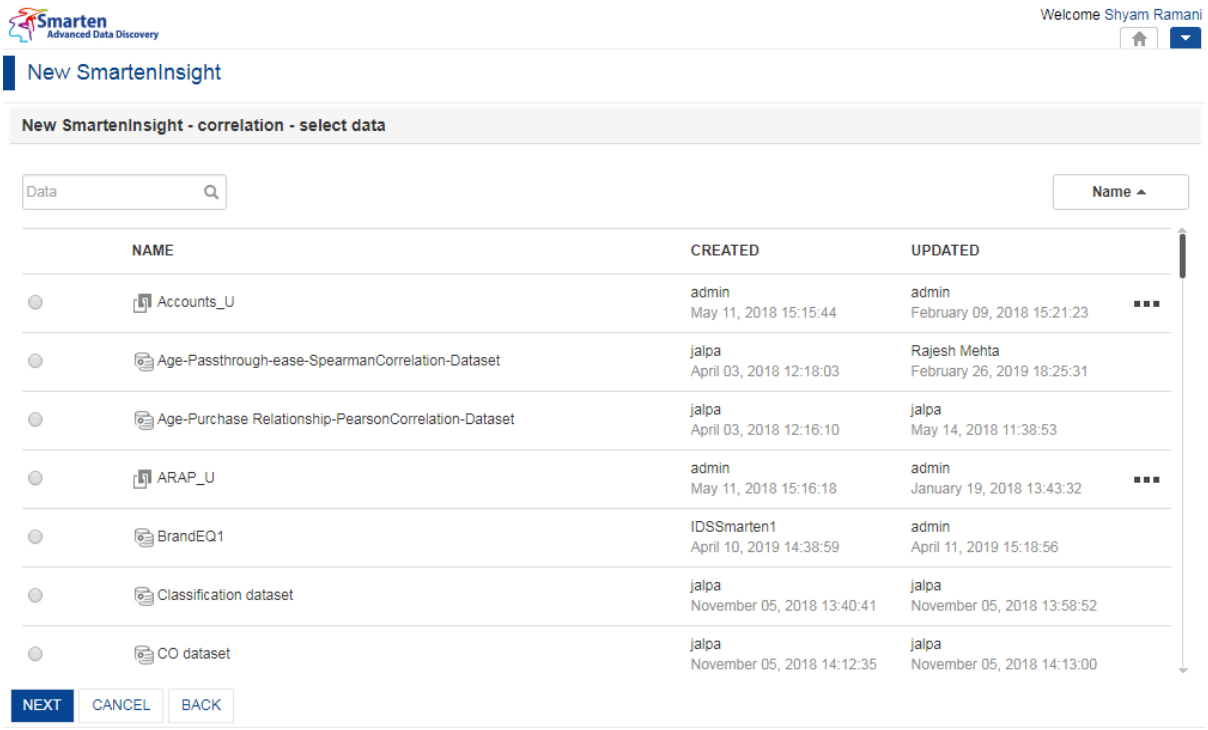
MENU OPTION—NEW SMARTENINSIGHT

The system displays the **What do you want to do** page.



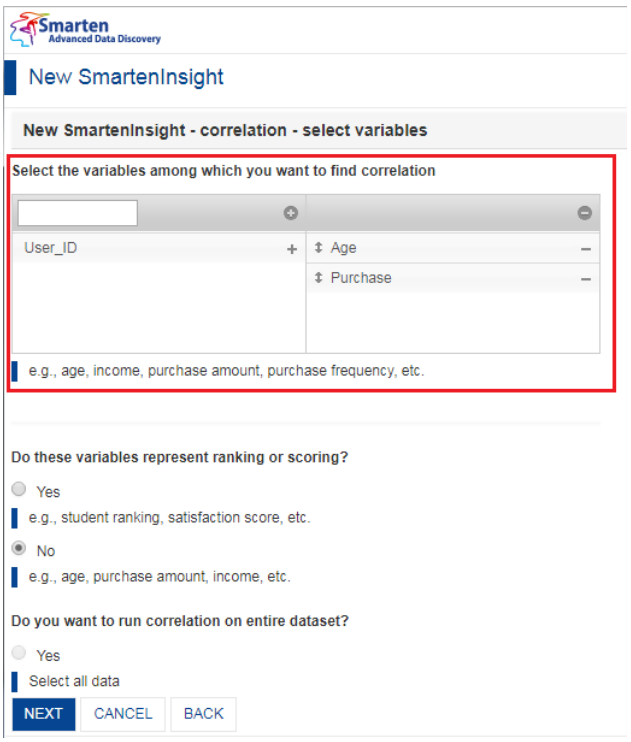
CORRELATION WITH SMARTENINSIGHT—SELECTING A SMARTENINSIGHT TYPE

2. Click **Correlation**.
   The system displays the **New SmartenInsight** screen.



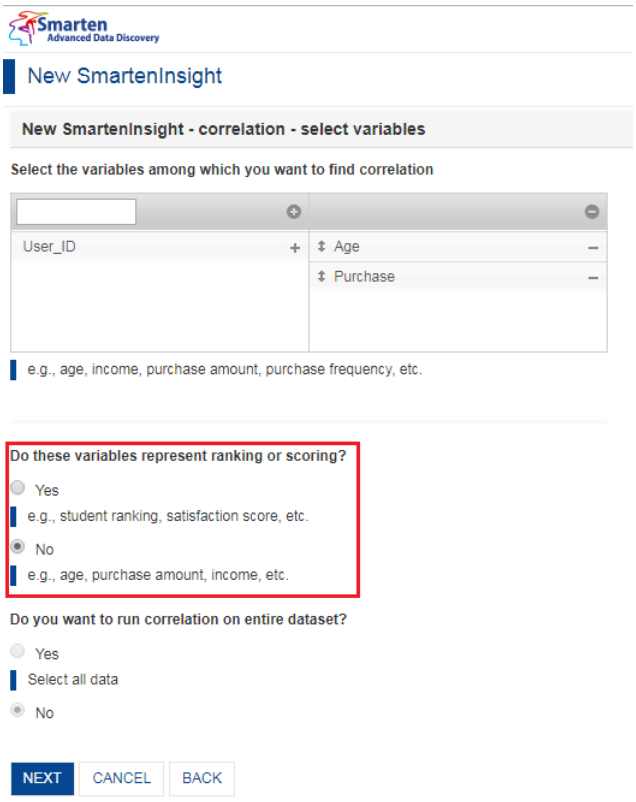
THE NEW SMARTENINSIGHT PAGE—SELECTING THE DATASET OR CUBE FOR SMARTENINSIGHT

3. Select the dataset or cube you want to use for SmartenInsight, and then click **NEXT**.
4. Select the variable among which you want to find correlation from the **Select the variables among which you want to find correlation** section.



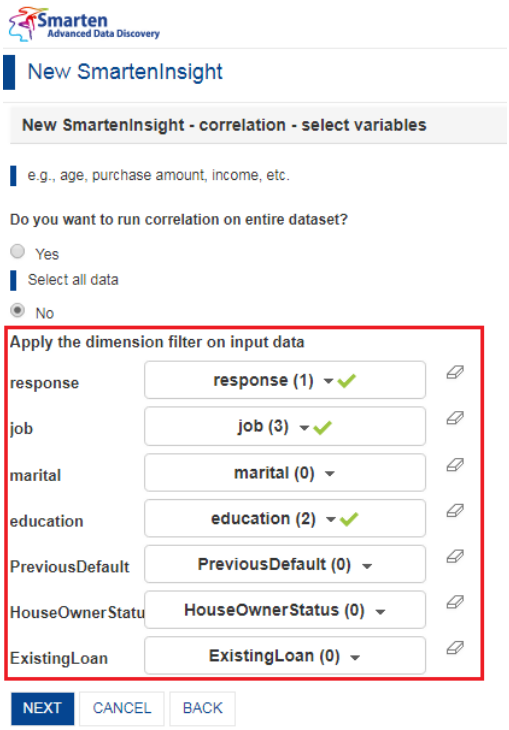
CORRELATION WITH SMARTENINSIGHT—SELECTING THE VARIABLE FOR CORRELATION

5. Select an option to specify if the variables represent ranking or scoring.



CORRELATION WITH SMARTENINSIGHT—SELECTING DIMENSION FOR CORRELATION

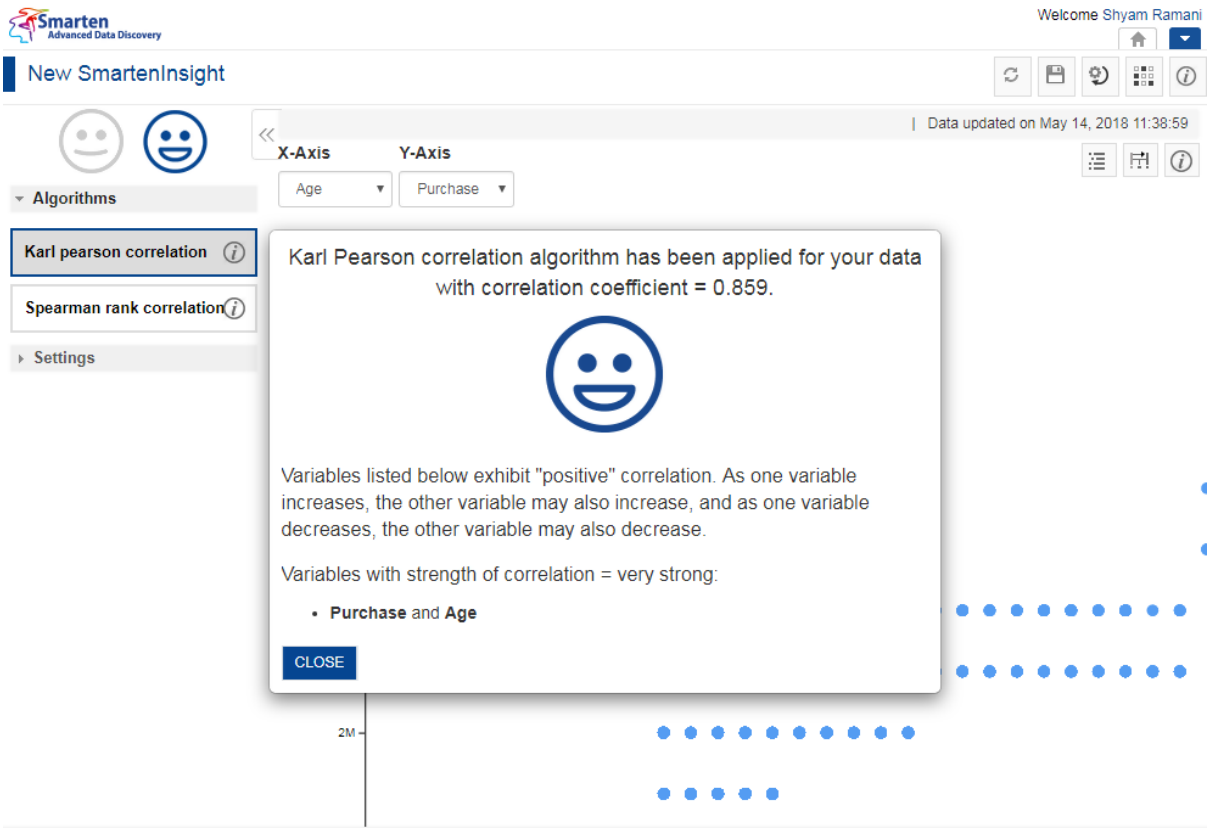
6. Select an option to specify if you want to run the correlation on the entire dataset.
    - If you have selected the **No** option, you can select the column filters for which you want to run correlation.



CORRELATION WITH SMARTENINSIGHT—SELECTING DIMENSION FOR CORRELATION

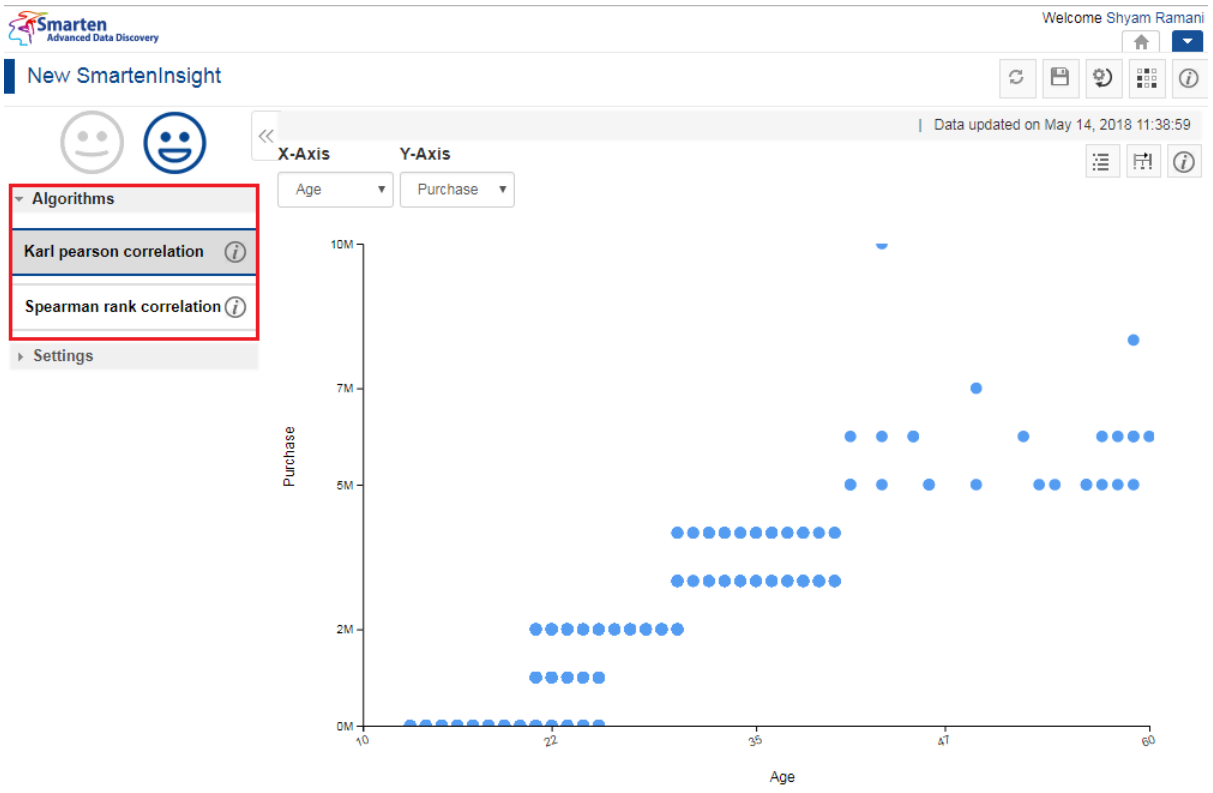
7. Click **NEXT**.

Based on the variables you have selected, the system selects the best suitable algorithm for analyzing how the selected variables are associated with each other.



CORRELATION WITH SMARTENINSIGHT—THE SYSTEM DISPLAYING SUMMARY OF SMARTENINSIGHT

8. Click **CLOSE**.
   Review the correlation generated.
9. You can select a different algorithm used for analyzing how the selected variables are associated with each other from the **Algorithms** section.



ALGORITHMS FOR CORRELATION—SELECT AN ALGORITHM

4.6.1 Analyzing the Output of SmartenInsight—Correlation

SmartenInsight provides information about the correlation of data based on the variables you have selected.

4.6.1.1 Interpretation

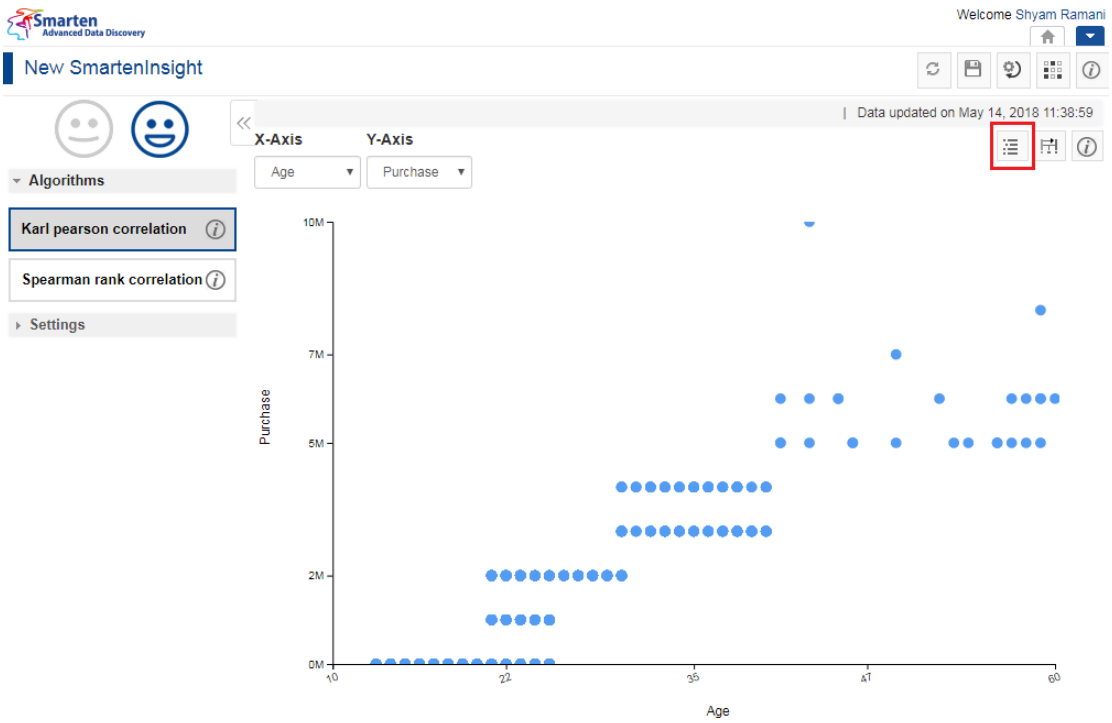
You can view the interpretation of the algorithm applied for correlation. The interpretation provides information about insights of the model in simple language.

About this task

Use this task to view the interpretation of the SmartenInsight correlation object.

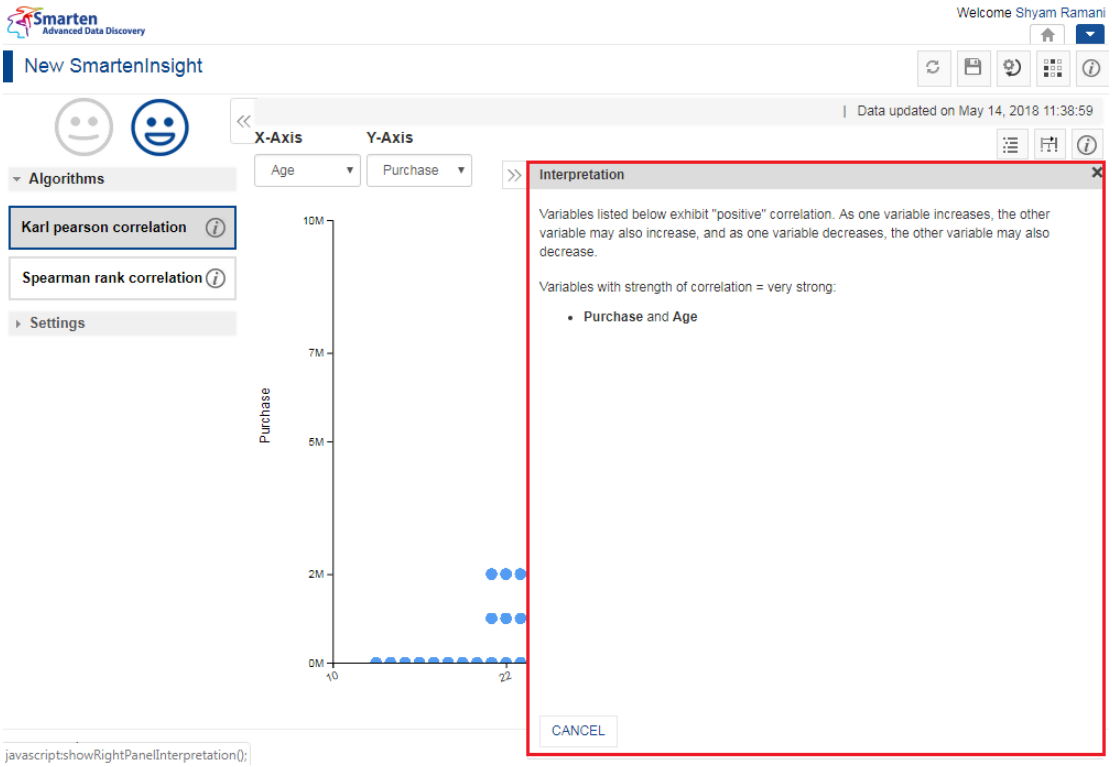
Procedure

1. Open the SmartenInsight correlation object for which you want to view interpretation.
2. Click the **Interpretation** icon on the toolbar.



INTERPRETING SMARTENINSIGHT—THE INTERPRETATION OPTION

The system displays the information in the **Interpretation** dialog box.



INTERPRETING SMARTENINSIGHT—THE INTERPRETATION DIALOG BOX

4.6.1.2 Model Summary

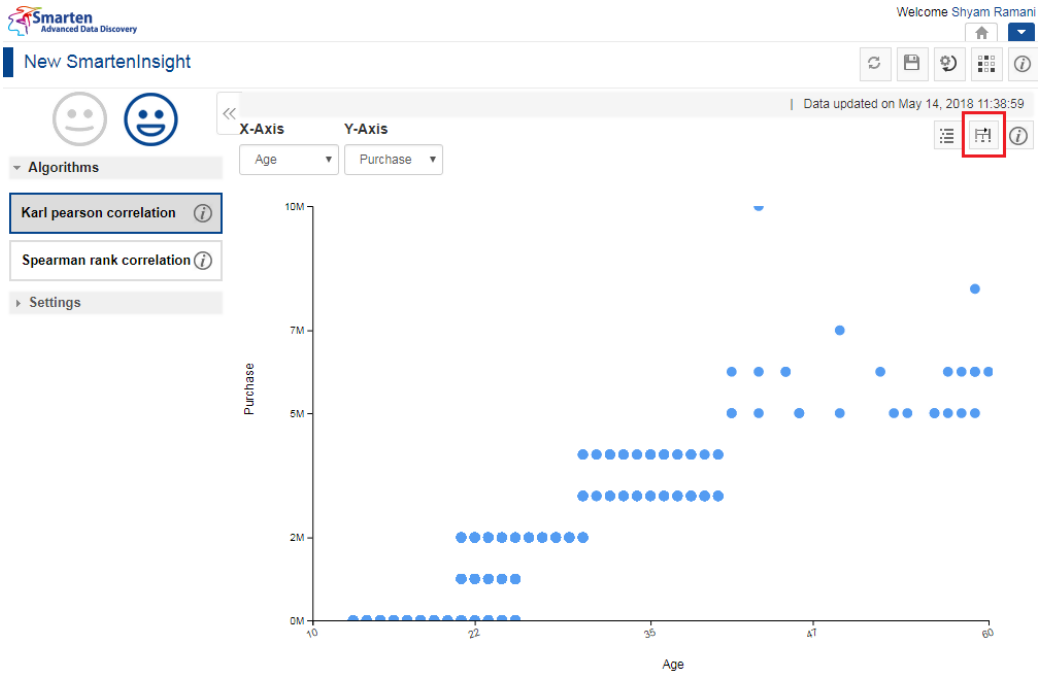
You can view the model summary of the SmartenInsight correlation object.

About this task

Use this task to view the model summary of the SmartenInsight correlation object.

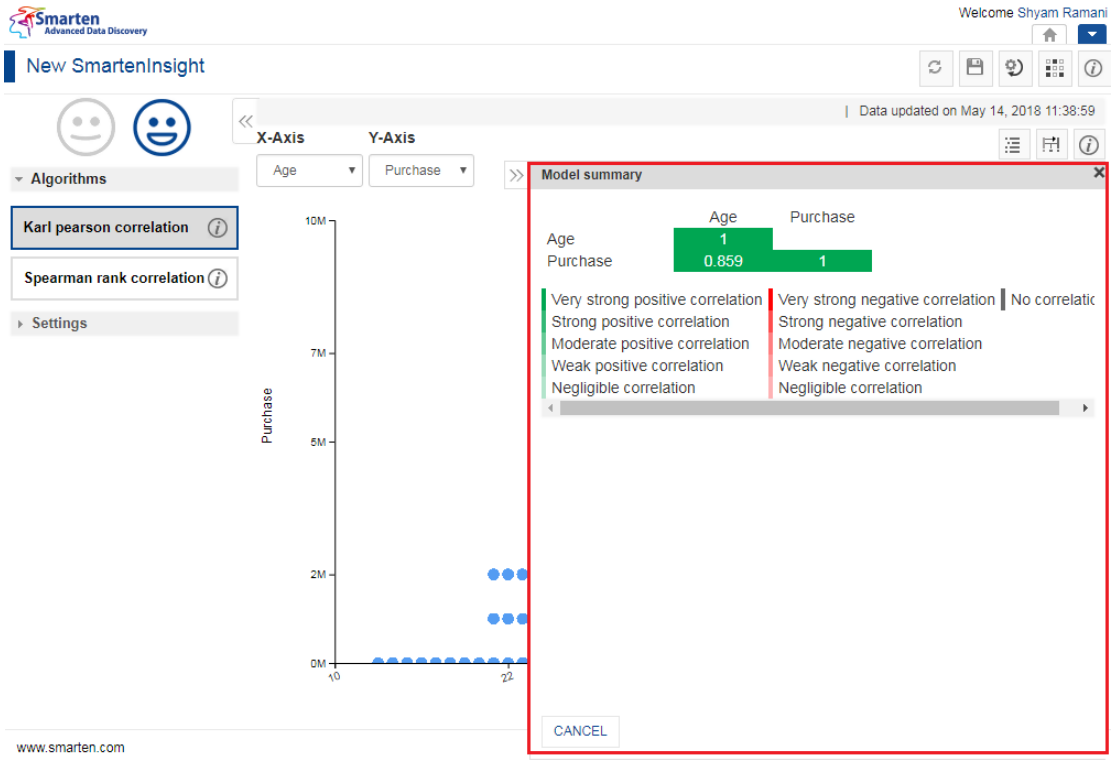
Procedure

1. Open the SmartenInsight correlation object for which you want to view the model summary.
2. Click the Model summary icon on the toolbar.



MODEL SUMMARY OF SMARTENINSIGHT—THE MODEL SUMMARY OPTION

The system displays the information in the **Model summary** dialog box.



MODEL SUMMARY OF SMARTENINSIGHT—THE MODEL SUMMARY DIALOG BOX

4.6.1.3 Chart Information

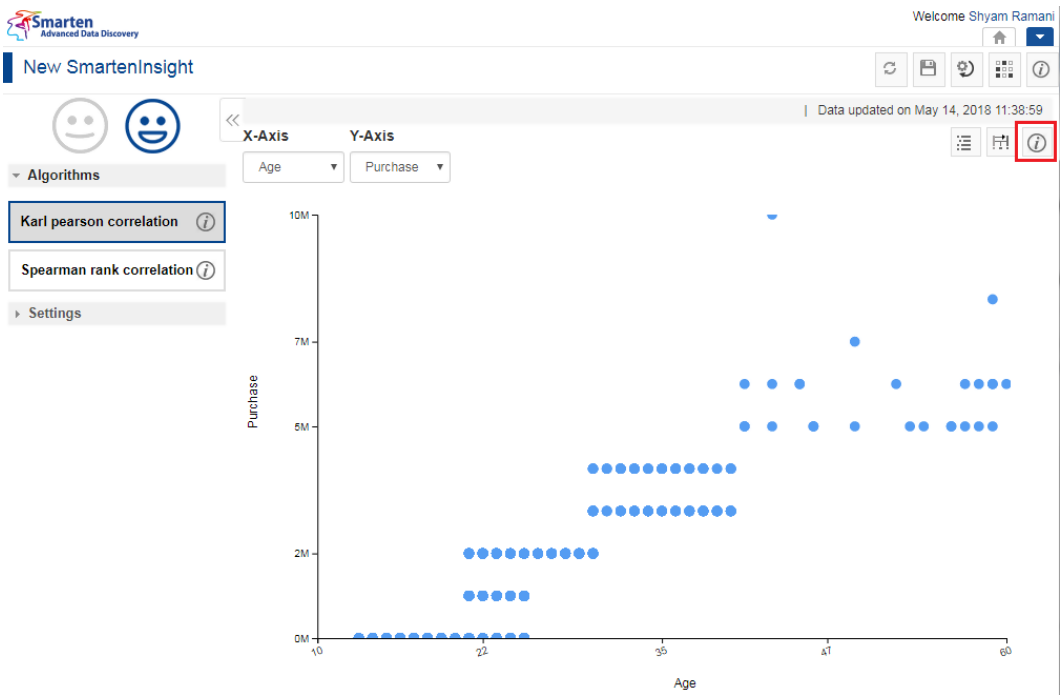
You can view the information and help to interpret the chart that the system has generated for the model.

About this task

Use this task to view information about the chart for SmartenInsight.

Procedure

1. Open the SmartenInsight correlation object for which you want to view information.
2. Click the Information icon on the toolbar.



INFORMATION OF CHART—THE INFORMATION OPTION

The system displays the information and guide to interpreting the chart in a dialog box.

INFORMATION OF CHART—THE ABOUT LINE PLOT DIALOG BOX

4.6.1.4 Chart Configuration

You can configure properties for SmartenInsight titles. You can configure properties of titles, such as font, size, color, style, and text transformation.

The **Title** settings:

Setting	Description
Select title	Enables you to select the title for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Label** settings:

Setting	Description
Select label	Enables you to select the label for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Format** settings:

Setting	Description
Measure	Enables you to select the measure for which you want to change the format.
Comma separator	Enables you to select the option to use a comma as the separator in the value of the selected measure.
Comma format	Enables you to select the comma format to specify the comma format you want to use in the values of the selected measure.
Digits after decimal point	Enables you to specify the number of digits to be displayed after the decimal point.
Adjusted digits	Enables you to specify an option to adjust digits in the value of the selected measure.
Show suffix	Enables you to show suffix for the selected measure.

The **Quick** settings:

Setting	Description
Enable sampling	Enables you to apply sampling of data from the dataset.
Number of x axis ticks	Enables you to specify the number ticks to be available in the x axis.
Number of y axis ticks	Enables you to specify the number ticks to be available in the y axis.
Digits after decimal point	Enables you to specify the number of digits to be displayed after the decimal point.
Adjusted digits	Enables you to specify an option to adjust digits in the value of the selected measure.
Show suffix	Enables you to show suffix for the selected measure.

4.6.2 Algorithms used for Correlation

You can view the algorithm that is used for generating correlation. The following algorithms are available:

- **Karl pearson correlation**: The Karl pearson correlation provides a statistical measure that indicates the extent to which two variables fluctuate together.
- **Spearman rank correlation**: The Spearman rank correlation is a measure of the correlation between two ranked variables. It measures the strength and direction of the association between two sets of data when ranked by each of their quantities.

4.7 Regression with SmartenInsight

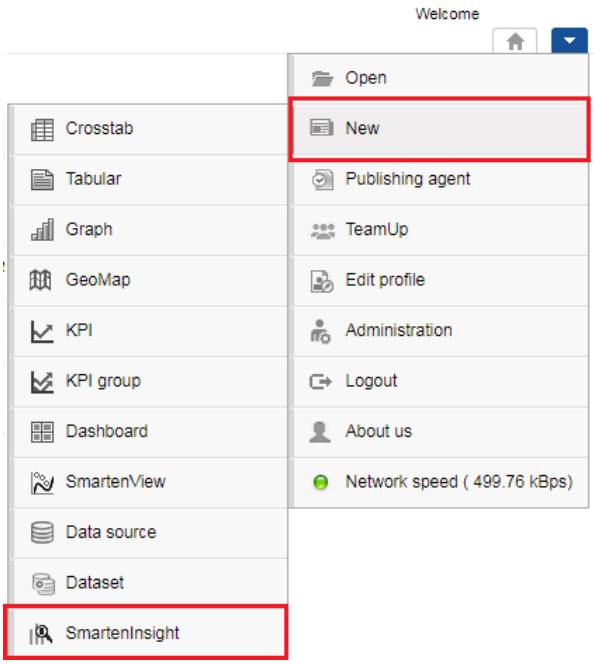
You can use SmartenInsight to predict change in a variable based on changes in other variables. This algorithm helps you get information, such as which factors matter most, the factors that can be ignored, and how these factors affect a target variable.

About this task

Use this task to create a regression model using SmartenInsight.

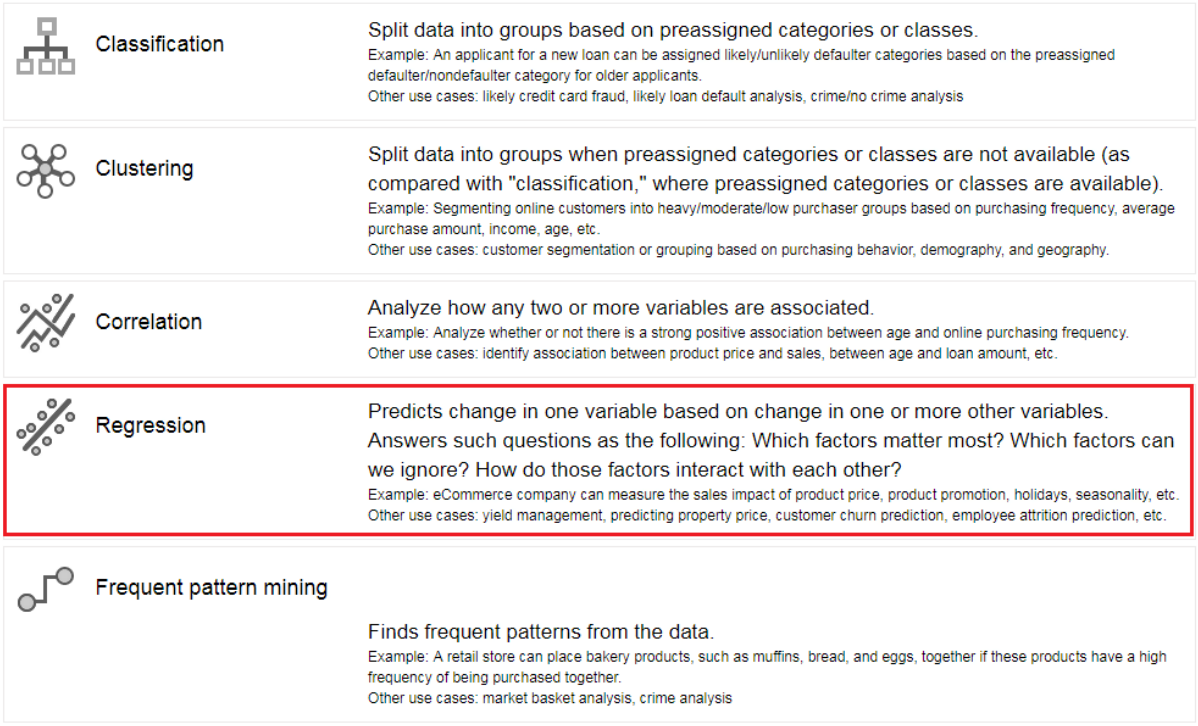
Procedure

1. Click **New** -> **SmartenInsight** from the menu.



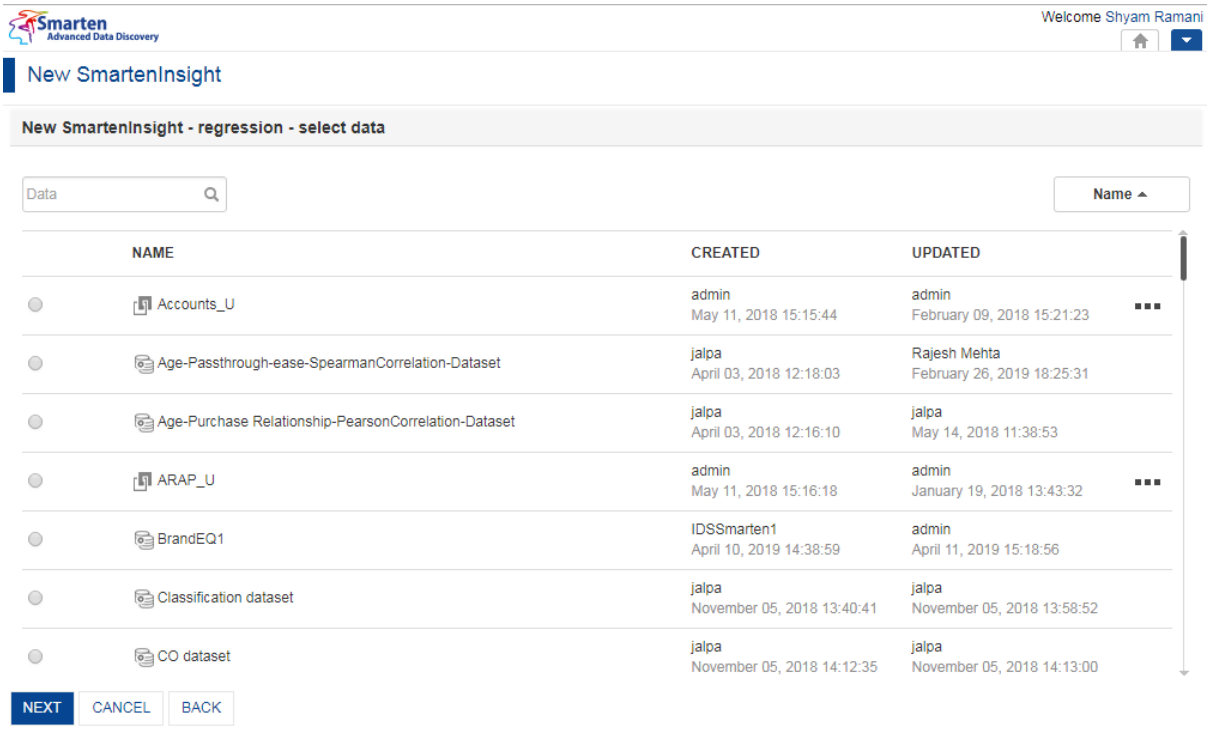
MENU OPTION—NEW SMARTENINSIGHT

The system displays the **What do you want to do** page.



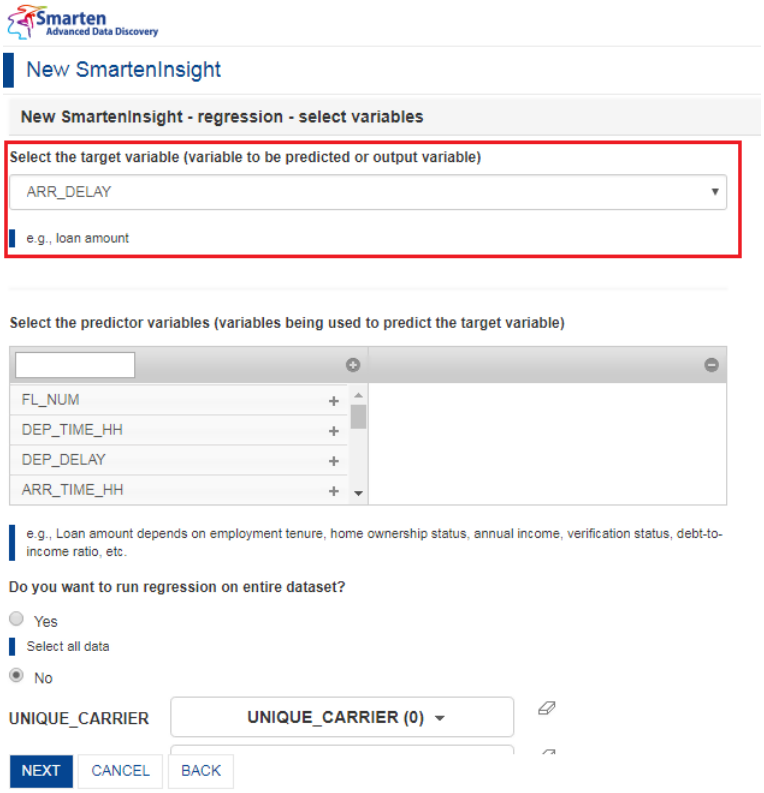
REGRESSION WITH SMARTENINSIGHT—SELECTING A SMARTENINSIGHT TYPE

2. Click **Regression**.
   The system displays the **New SmartenInsight** screen.



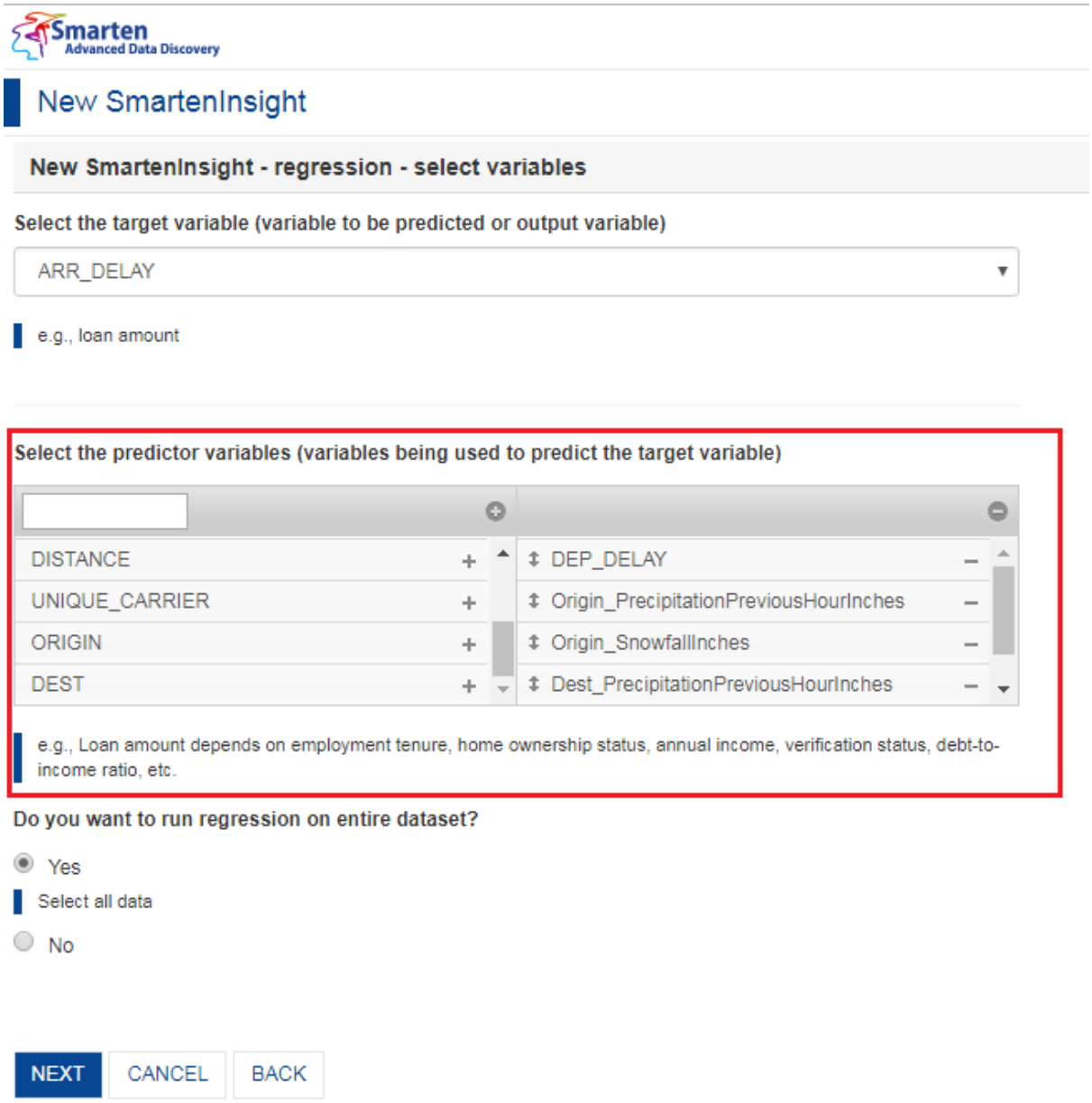
THE NEW SMARTENINSIGHT PAGE—SELECTING THE DATASET OR CUBE FOR SMARTENINSIGHT

3. Select the dataset or cube you want to use for SmartenInsight, and then click **NEXT**.
4. Select the variable to be predicted from the **Select the target variable (variable to be predicted or output variable)** list.



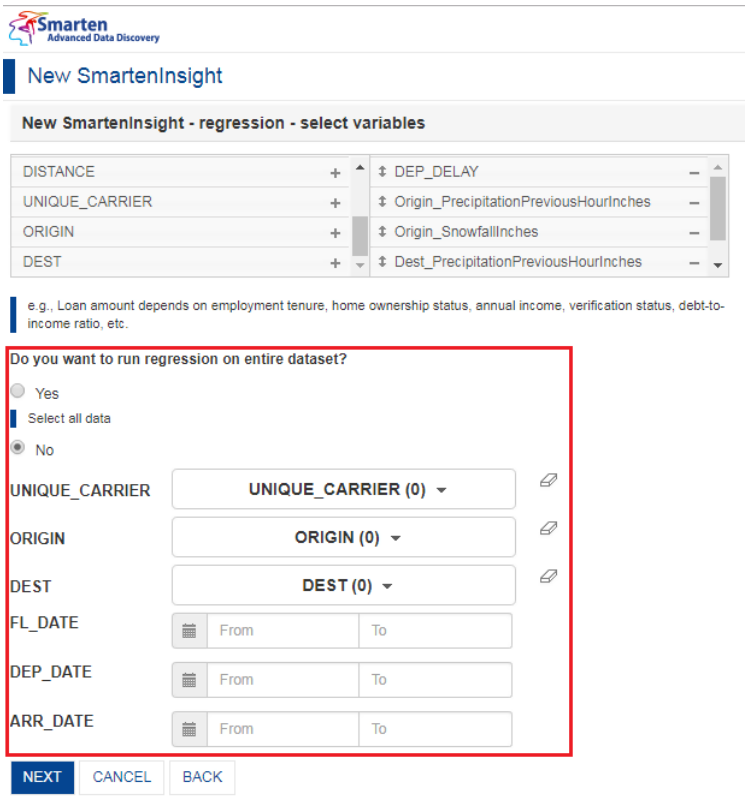
REGRESSION WITH SMARTENINSIGHT—SELECTING THE VARIABLE TO BE PREDICTED

5. Select the variables that you want to use to predict the target variable from the **Select the predictor variables (variables being used to predict the target variable)** section.



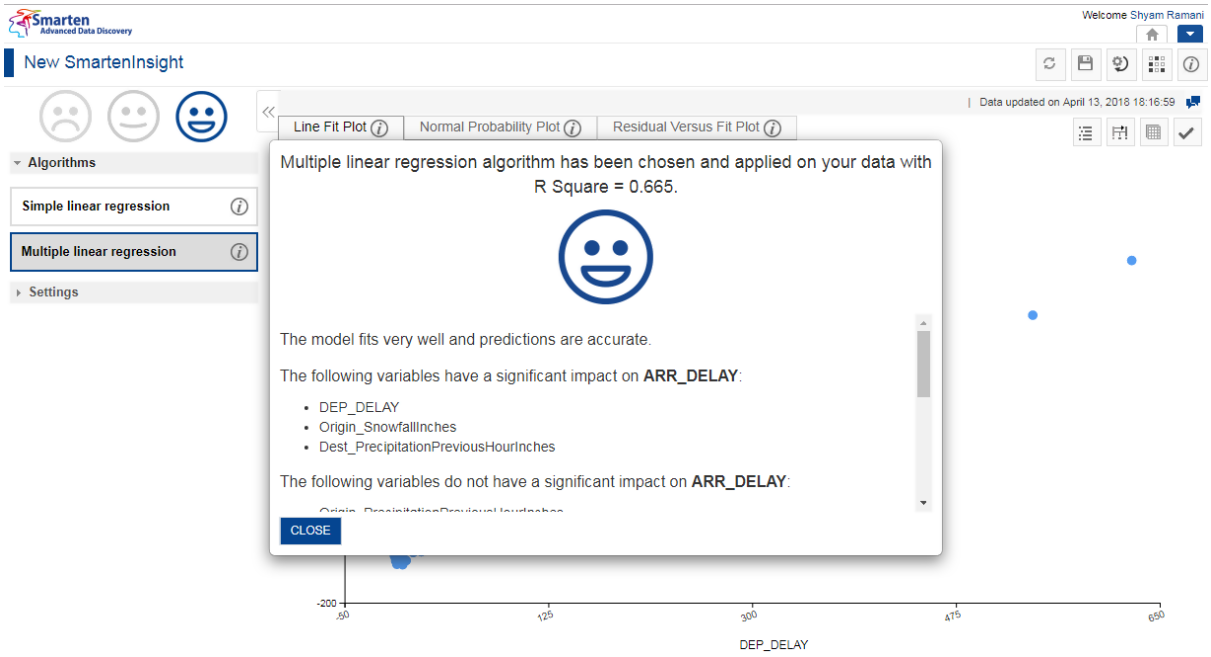
REGRESSION WITH SMARTENINSIGHT—SELECTING THE PREDICTOR VARIABLES

6. Select an option to specify whether or not you want to run the regression on the entire dataset, and then click **NEXT**.
   - If you have selected the **No** option, you can select the column filters for which you want to run regression.



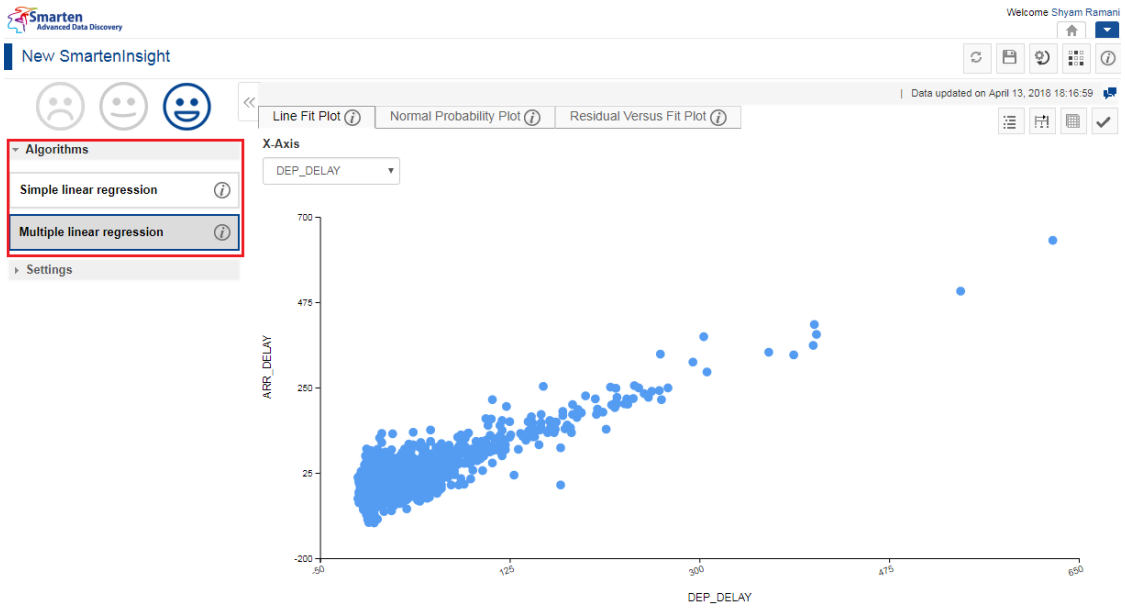
REGRESSION WITH SMARTENINSIGHT—SELECTING DIMENSION FOR REGRESSION

Based on the variables you have selected, the system selects the best suitable algorithm for predicting a variable based on the variable you have selected for predicting.



REGRESSION WITH SMARTENINSIGHT—THE SYSTEM DISPLAYING SUMMARY OF SMARTENINSIGHT

7. Click **CLOSE**.
   Review the regression generated.
8. You can select a different algorithm used for predicting the target variable from the **Algorithms** section.



ALGORITHMS FOR REGRESSION—SELECT AN ALGORITHM

4.7.1 Analyzing the Output of SmartenInsight—Regression

SmartenInsight provides information about the prediction of the target variable based on the predictor variables you have selected.

4.7.1.1 Interpretation

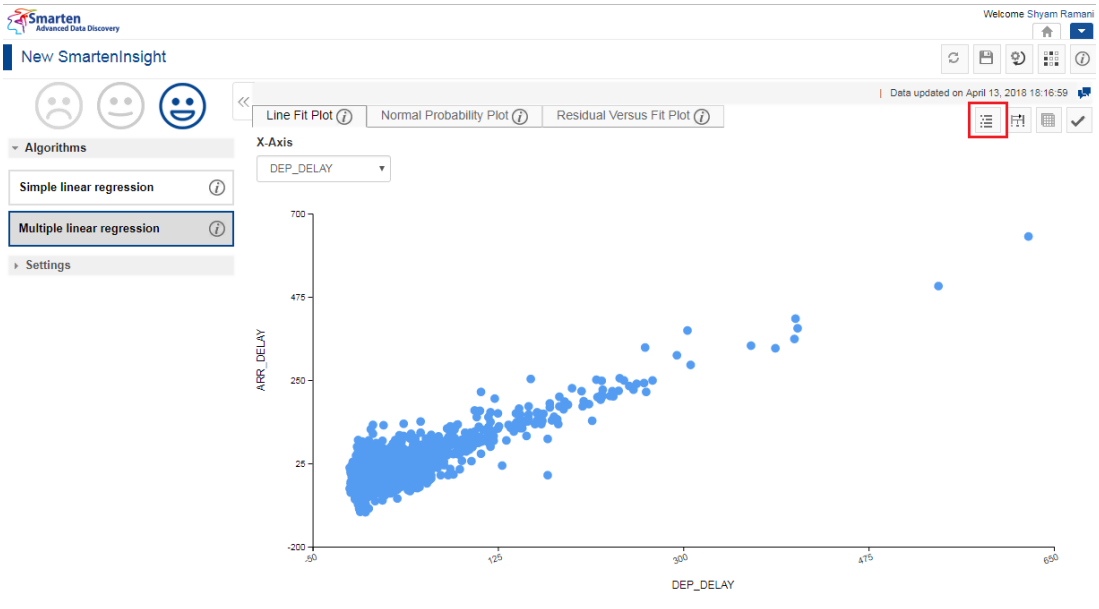
You can view the interpretation of the algorithm applied for regression. The interpretation provides information about insights of the model in simple language.

About this task

Use this task to view the interpretation of the SmartenInsight regression object.

Procedure

1. Open the SmartenInsight regression object for which you want to view interpretation.
2. Click the **Interpretation** icon on the toolbar.



INTERPRETING SMARTENINSIGHT—THE INTERPRETATION OPTION

The system displays the information in the **Interpretation** dialog box.

INTERPRETING SMARTENINSIGHT—THE INTERPRETATION DIALOG BOX

4.7.1.2 Model Summary

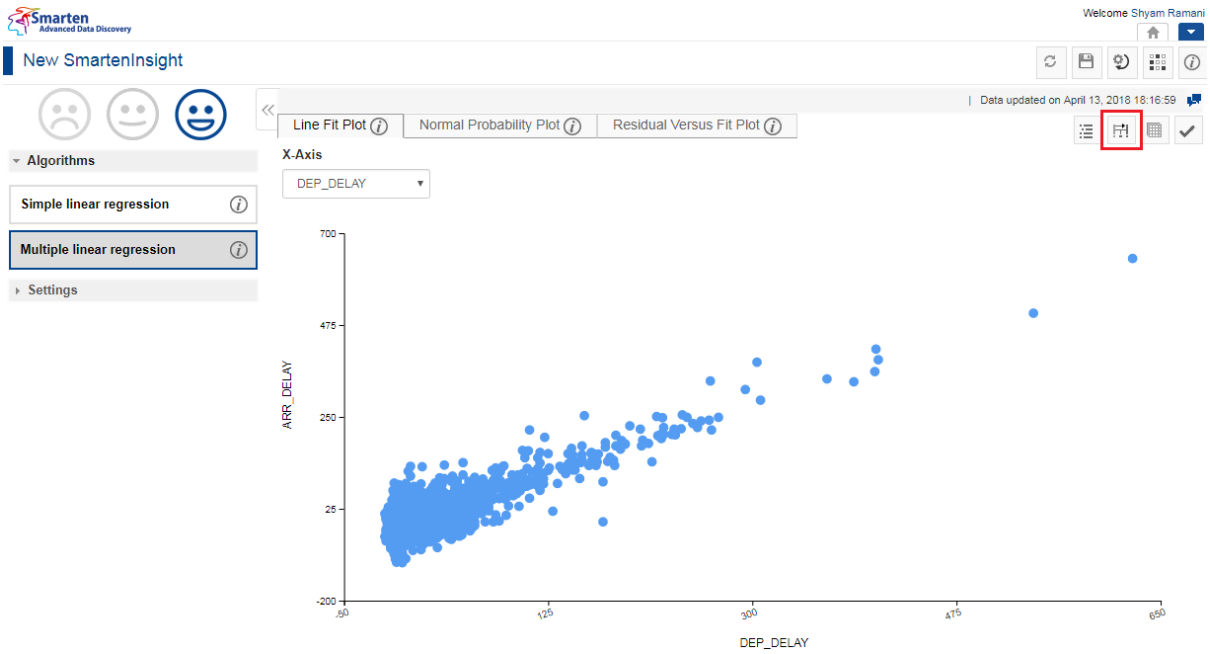
You can view the model summary of the SmartenInsight regression object.

About this task

Use this task to view the model summary of the SmartenInsight regression object.

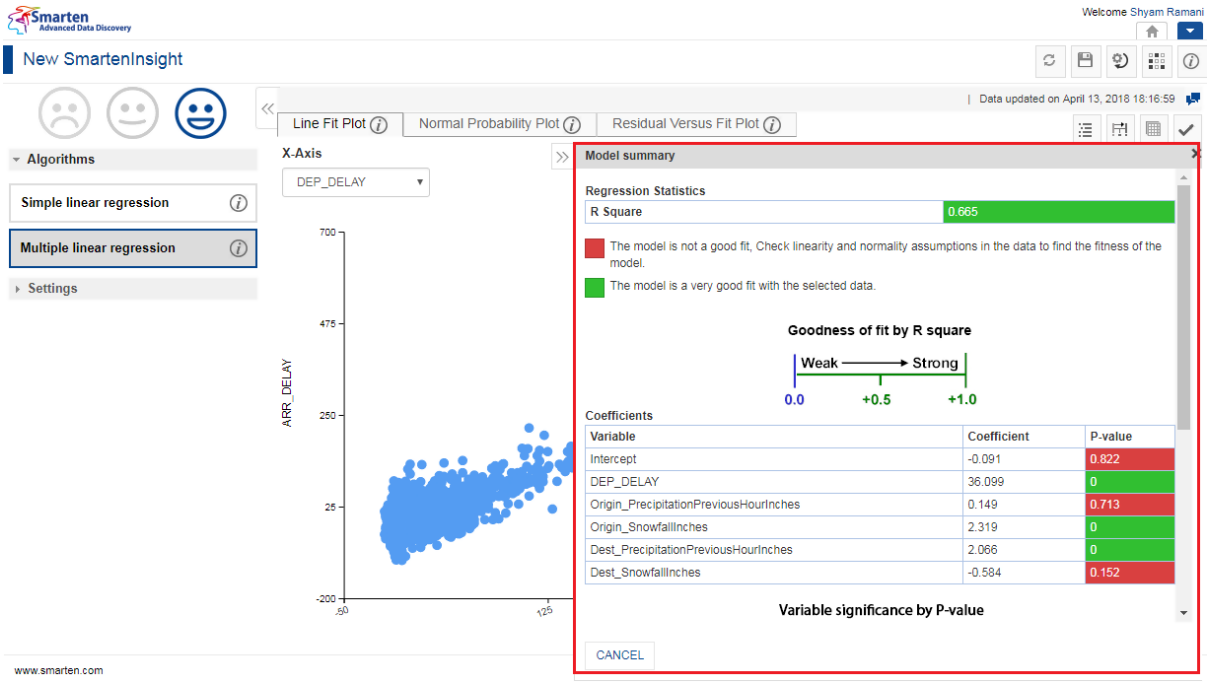
Procedure

1. Open the SmartenInsight regression object for which you want to view the model summary.
2. Click the Model summary icon on the toolbar.



MODEL SUMMARY OF SMARTENINSIGHT—THE MODEL SUMMARY OPTION

The system displays the information in the **Model summary** dialog box.



MODEL SUMMARY OF SMARTENINSIGHT—THE MODEL SUMMARY DIALOG BOX

4.7.1.3 Data

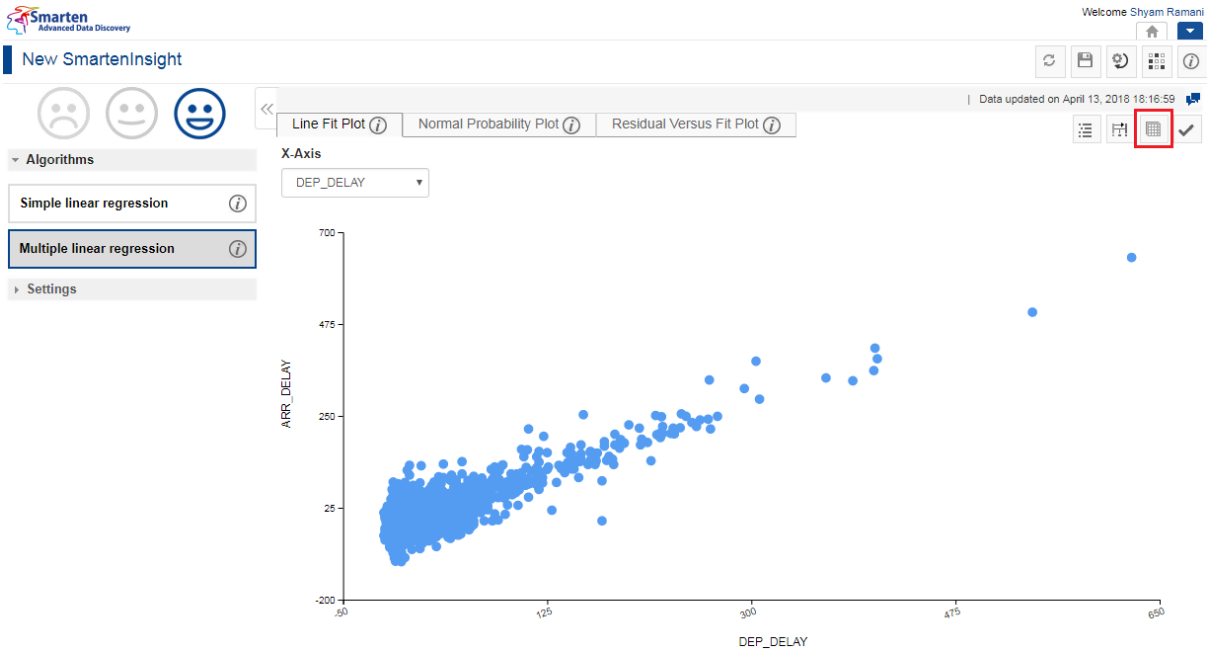
You can view the data used for the SmartenInsight regression object.

About this task

Use this task to view the model summary of the SmartenInsight regression object.

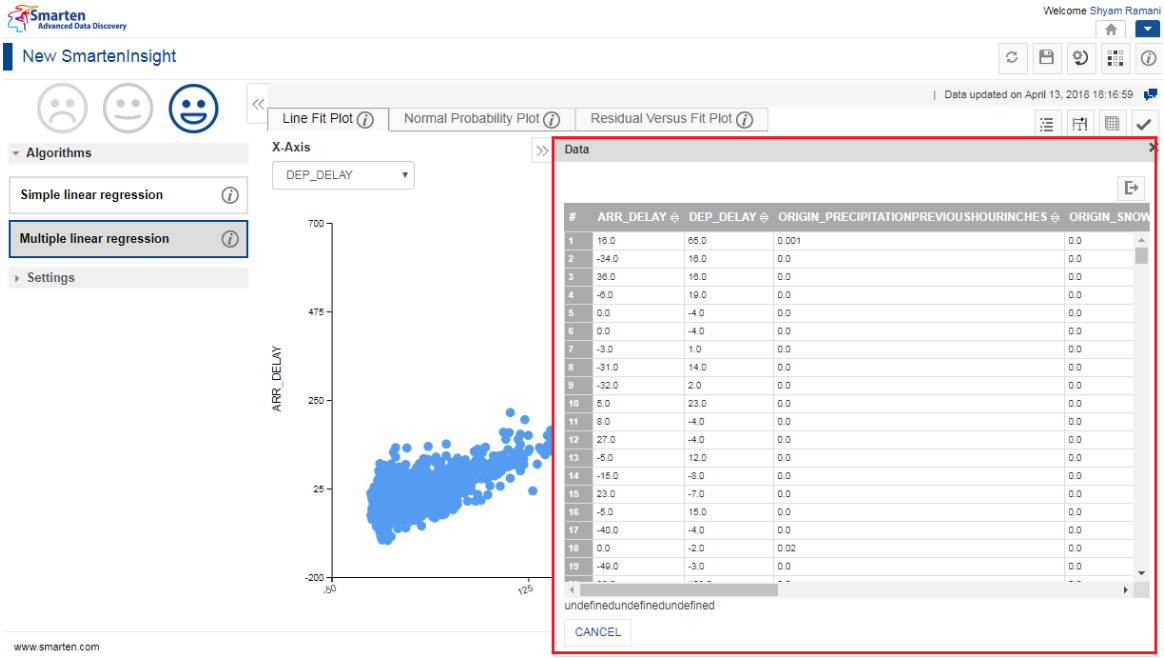
Procedure

1. Open the SmartenInsight regression object for which you want to view data.
2. Click the Data icon on the toolbar.



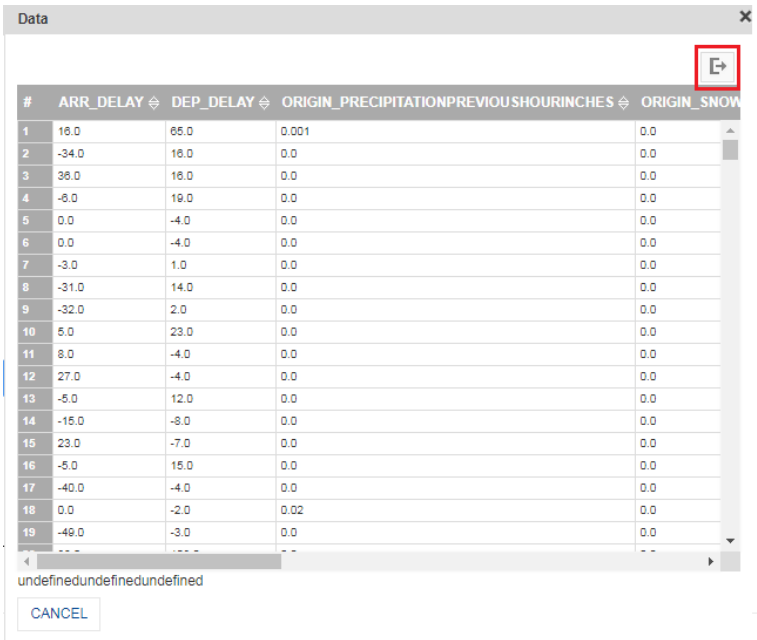
DATA OF SMARTENINSIGHT—THE DATA OPTION

The system displays the information in the **Data** dialog box.



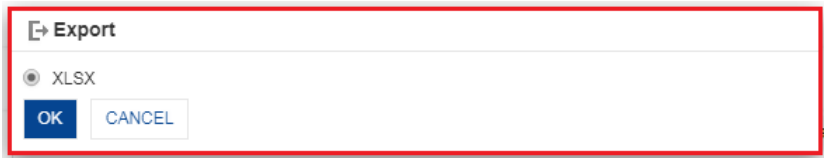
DATA OF SMARTENINSIGHT—THE DATA DIALOG BOX

3. You can click the Export icon to export the data.



EXPORT DATA—THE EXPORT ICON

The system displays the **Export** dialog box.



EXPORT DATA—THE EXPORT DIALOG BOX

4. Click **OK**.

4.7.1.4 Applying the Model for SmartenInsight

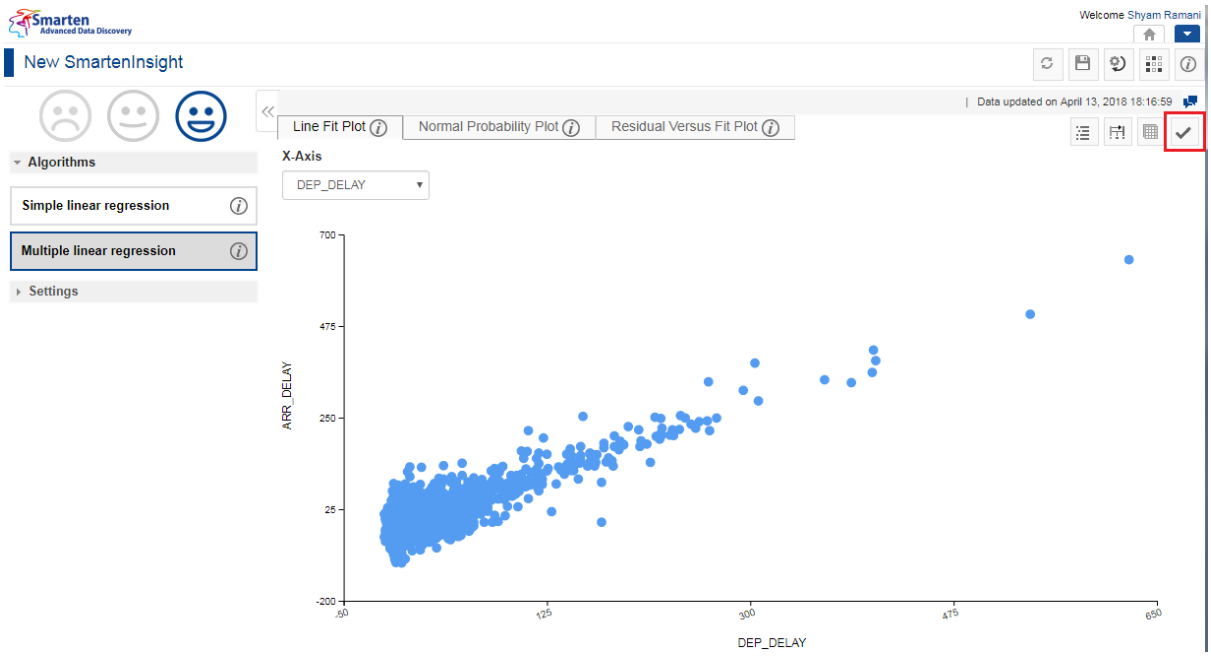
You can enter values for the input parameters and see the results of the model for regression.

About this task

Use this task to apply the model for the SmartenInsight regression object.

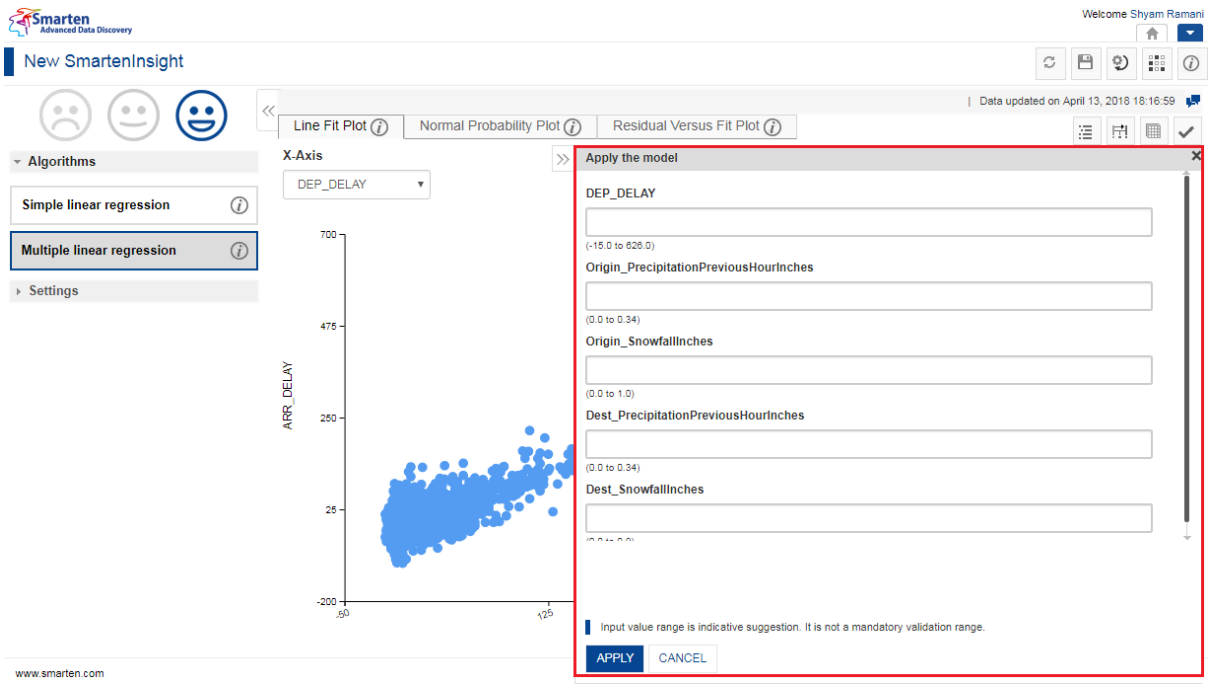
Procedure

1. Open the SmartenInsight regression object for which you want to apply the model.
2. Click the **Apply the model** icon on the toolbar.



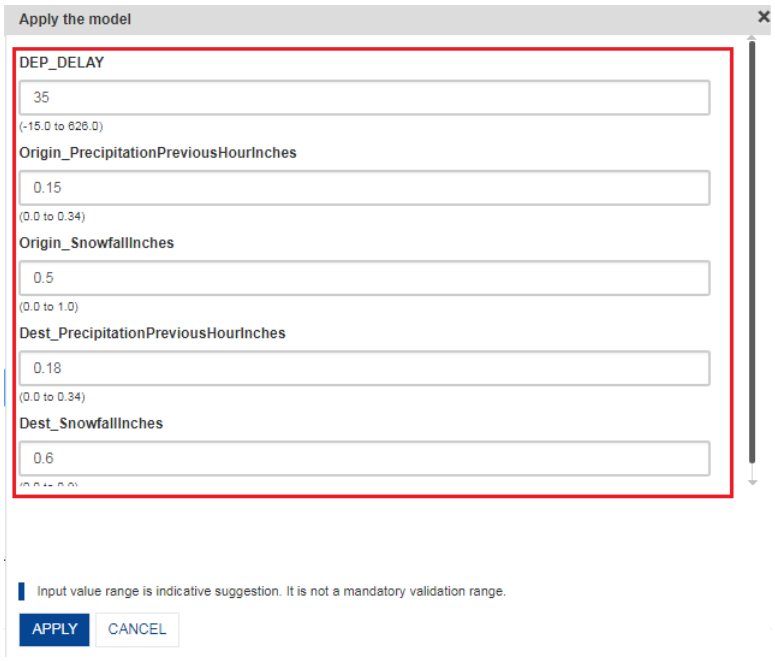
APPLYING MODEL FOR SMARTENINSIGHT—THE APPLY MODEL OPTION

The system displays the information in the **Apply the model** dialog box.



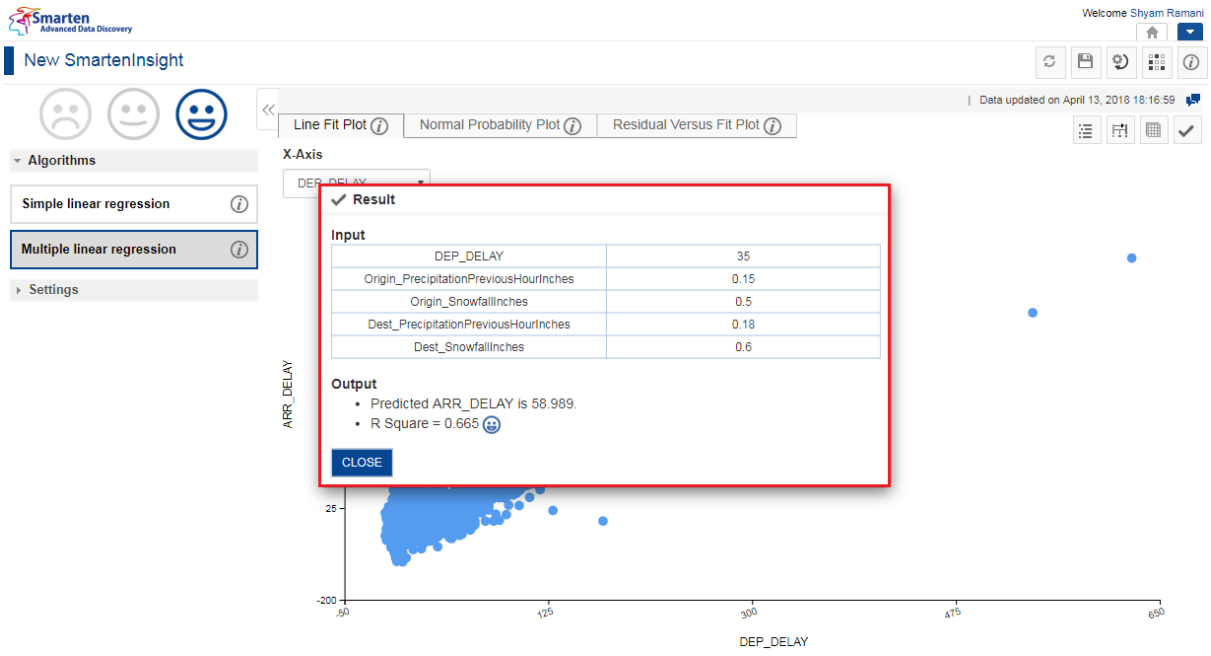
APPLYING MODEL FOR SMARTENINSIGHT—THE APPLY THE MODEL DIALOG BOX

3. Select an option from the list available in the **Apply the model** dialog box.
   The lists available depend on the variables you have selected for regression.
4. Specify values in the fields.
   The fields available are based on the variables you have selected for regression.



APPLYING MODEL FOR SMARTENINSIGHT—SPECIFYING VALUES FOR THE REGRESSION VARIABLES

5. Click **APPLY**.
   The system displays the **Result** dialog box.



APPLYING MODEL FOR SMARTENVIEW—THE RESULT DIALOG BOX

6. Click **CLOSE**.

4.7.1.5 Chart Configuration

You can configure properties for SmartenInsight titles. You can configure properties of titles, such as font, size, color, style, and text transformation.

The **Title** settings:

Setting	Description
Select title	Enables you to select the title for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Label** settings:

Setting	Description
Select label	Enables you to select the label for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Format** settings:

Setting	Description
Measure	Enables you to select the measure for which you want to change the format.
Comma separator	Enables you to select the option to use a comma as the separator in the value of the selected measure.
Comma format	Enables you to select the comma format to specify the comma format you want to use in the values of the selected measure.
Digits after decimal point	Enables you to specify the number of digits to be displayed after the decimal point.
Adjusted digits	Enables you to specify an option to adjust digits in the value of the selected measure.
Show suffix	Enables you to show suffix for the selected measure.

The **Quick** settings:

Setting	Description
Enable sampling	Enables you to apply sampling of data from the dataset.
Number of x axis ticks	Enables you to specify the number ticks to be available in the x axis.
Number of y axis ticks	Enables you to specify the number ticks to be available in the y axis.

4.7.2 Algorithms used for Regression

You can view the algorithm that is used for generating regression. The following algorithms are available:

- **Simple linear regression**: Simple linear regression is a technique that attempts to explore the relationship between one independent variable and one dependent variable.
- **Multiple linear regression**: Multiple linear regression is a technique that attempts to explore the relationship between one or more independent variables and one dependent variable.

4.8 Frequent pattern mining with SmartenInsight

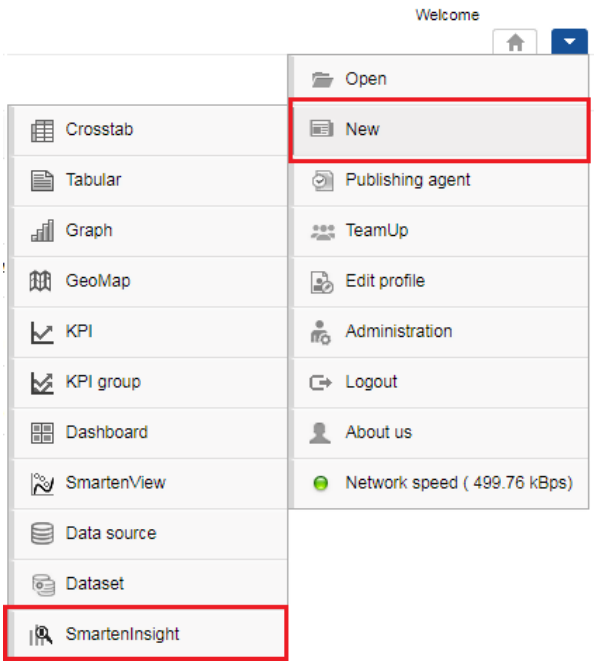
You can use SmartenInsight to find patterns from the selected dataset. For example, you can find the frequency of purchase of a product.

About this task

Use this task to create a frequent pattern mining model using SmartenInsight.

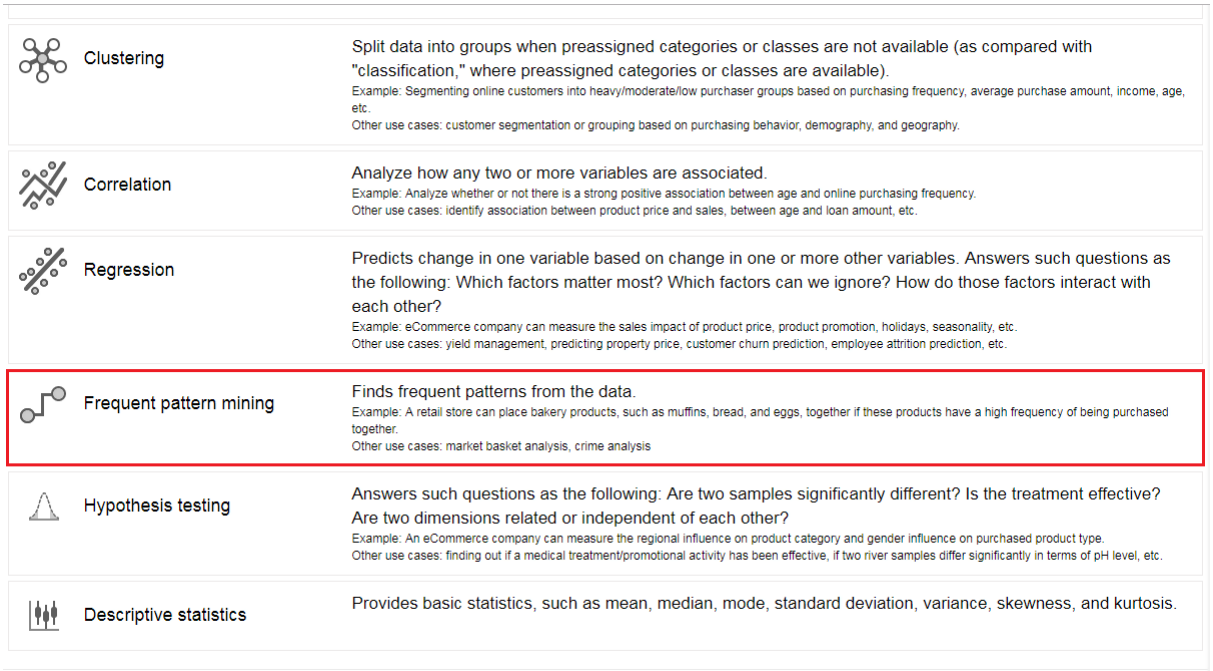
Procedure

1. Click **New** -> **SmartenInsight** from the menu.



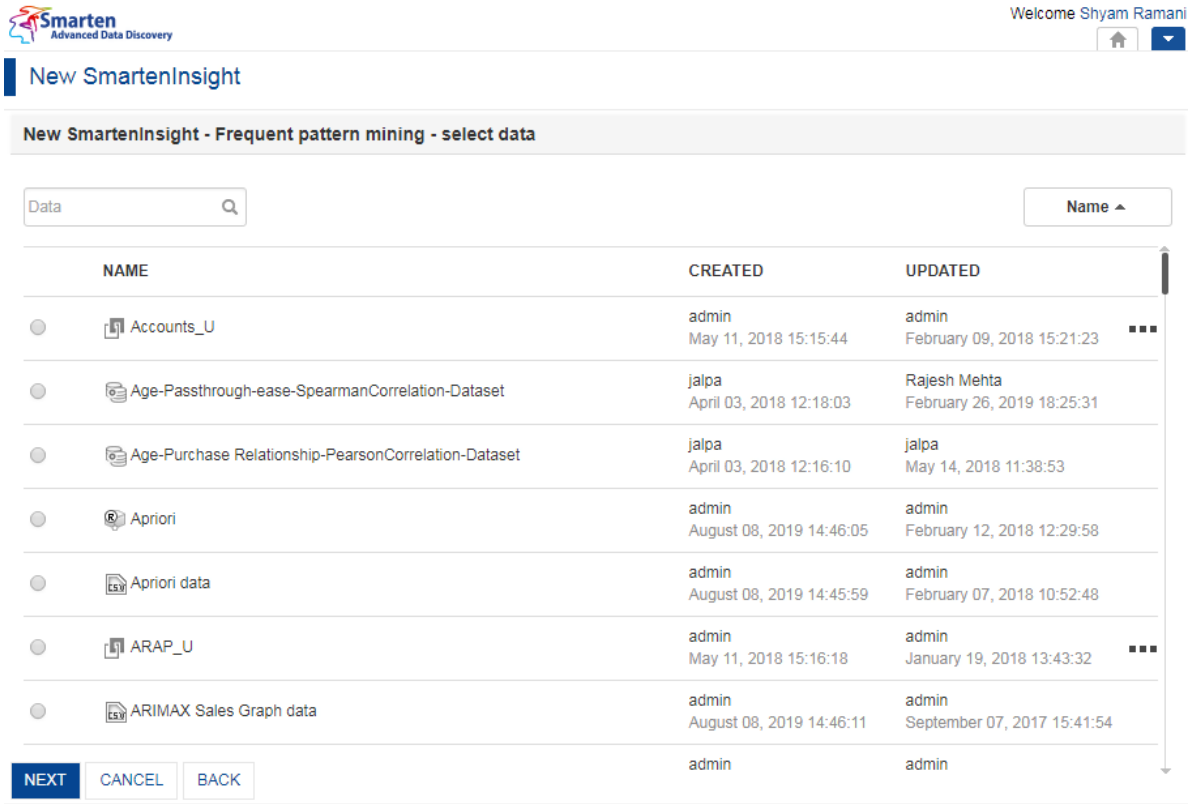
MENU OPTION—NEW SMARTENINSIGHT

The system displays the **What do you want to do** page.



FREQUENT PATTERN MINING WITH SMARTENINSIGHT—SELECTING A SMARTENINSIGHT TYPE

2. Click **Frequent pattern mining**.
   The system displays the **New SmartenInsight** screen.

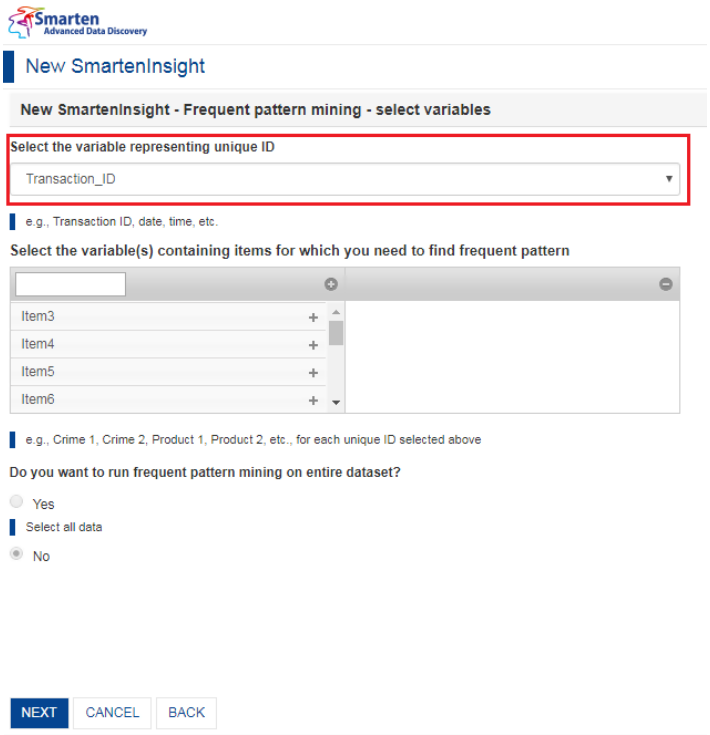


THE NEW SMARTENINSIGHT PAGE—SELECTING THE DATASET OR CUBE FOR SMARTENINSIGHT

3. Select the dataset or cube you want to use for SmartenInsight, and then click **NEXT**.

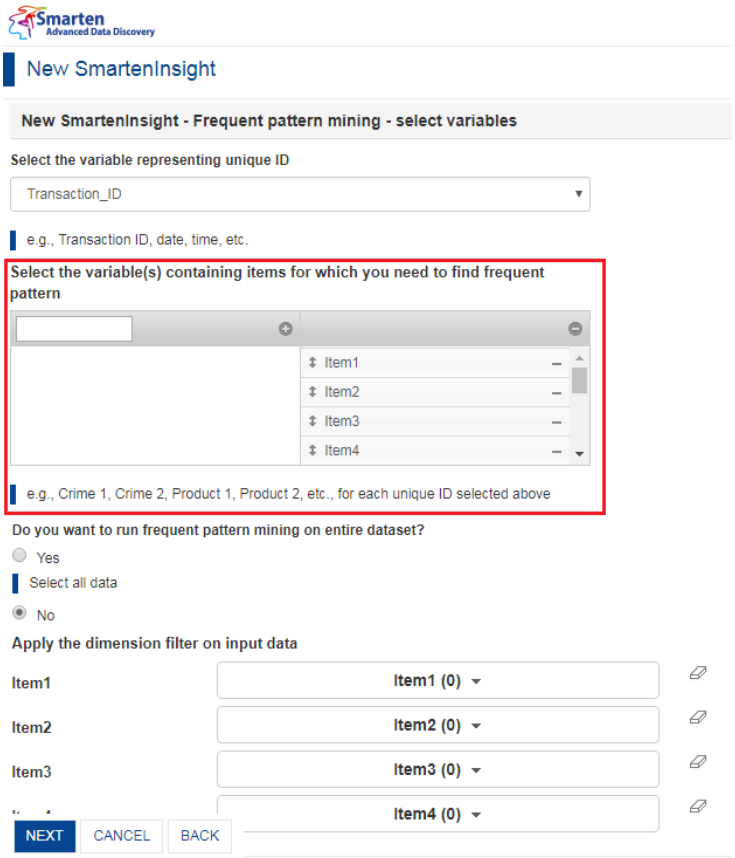
> Note:
> The dataset you select must contain at least one column that represents unique IDs.

4. Select the variable representing the unique ID from the **Select the variable representing unique ID** list.



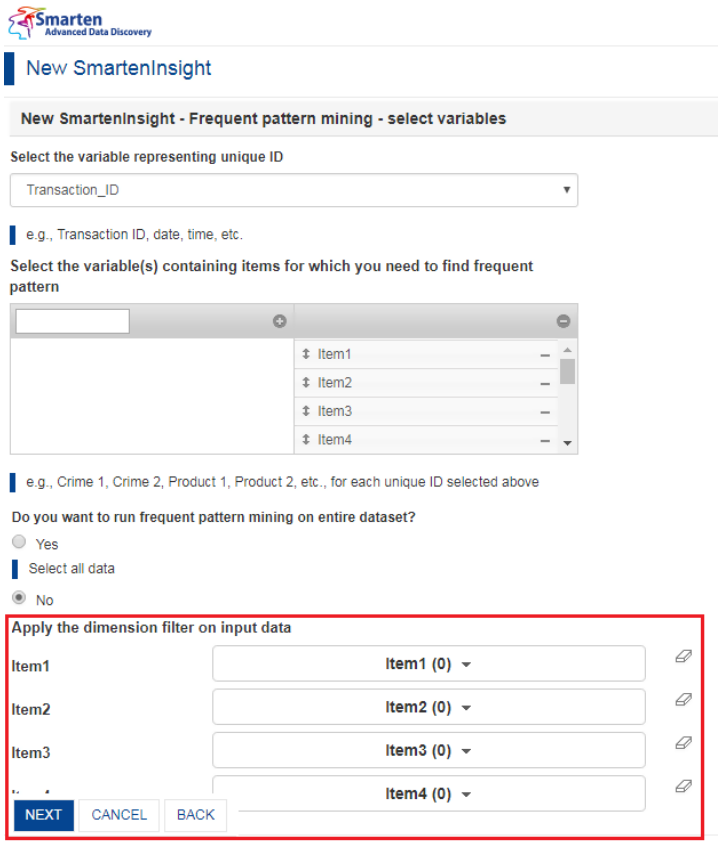
FREQUENT PATTERN MINING WITH SMARTENINSIGHT—SELECTING THE VARIABLE REPRESENTING UNIQUE ID

5. Select the variables for which you want to find frequent patterns from the **Select the variable(s) containing items for which you need to find frequent pattern** section.



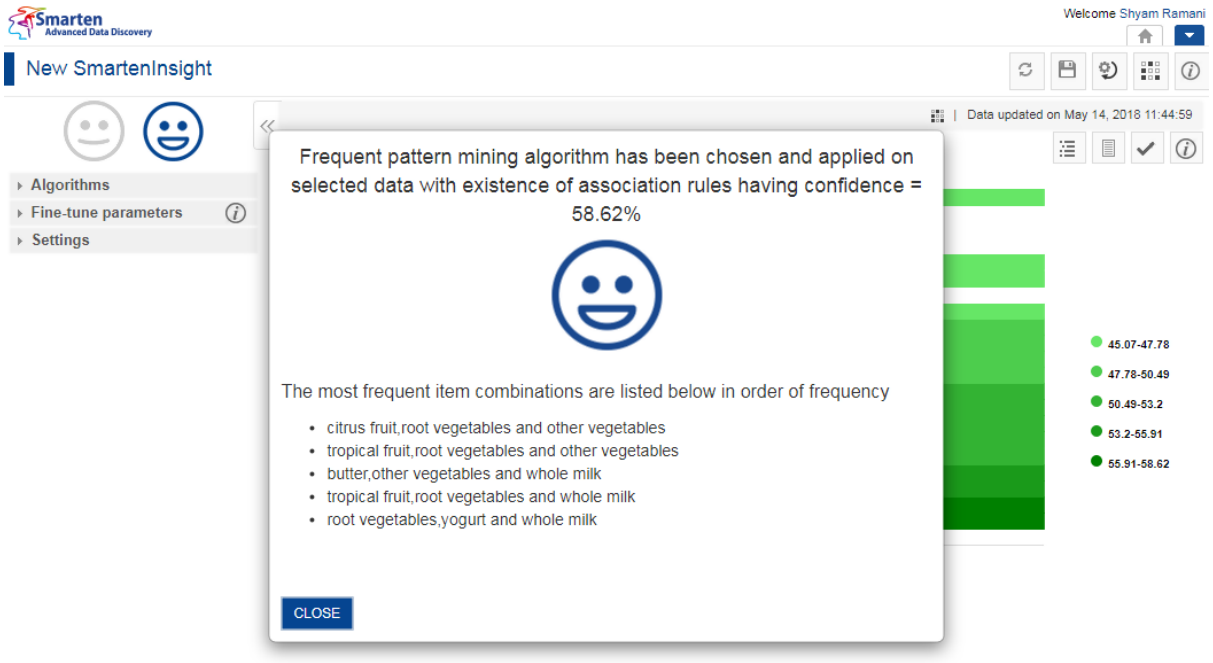
FREQUENT PATTERN MINING WITH SMARTENINSIGHT—SELECTING VARIABLES CONTAINING FREQUENT PATTERN

6. Select an option to specify whether or not you want to run the frequent pattern mining on the entire dataset, and then click **NEXT**.
   - If you have selected the **No** option, you can select the column filters for which you want to find the frequent pattern.



FREQUENT PATTERN MINING WITH SMARTENINSIGHT—SELECTING COLUMN FILTERS

Based on the variables you have selected, frequent patterns will be identified from the data.



FREQUENT PATTERN MINING WITH SMARTENINSIGHT—THE SYSTEM DISPLAYING SUMMARY OF SMARTENINSIGHT

7. Click **CLOSE**.
   Review the frequent pattern mining generated.

4.8.1 Analyzing the Output of SmartenInsight—Frequent pattern mining

SmartenInsight provides information about the frequent pattern based on the variables you have selected.

4.8.1.1 Interpretation

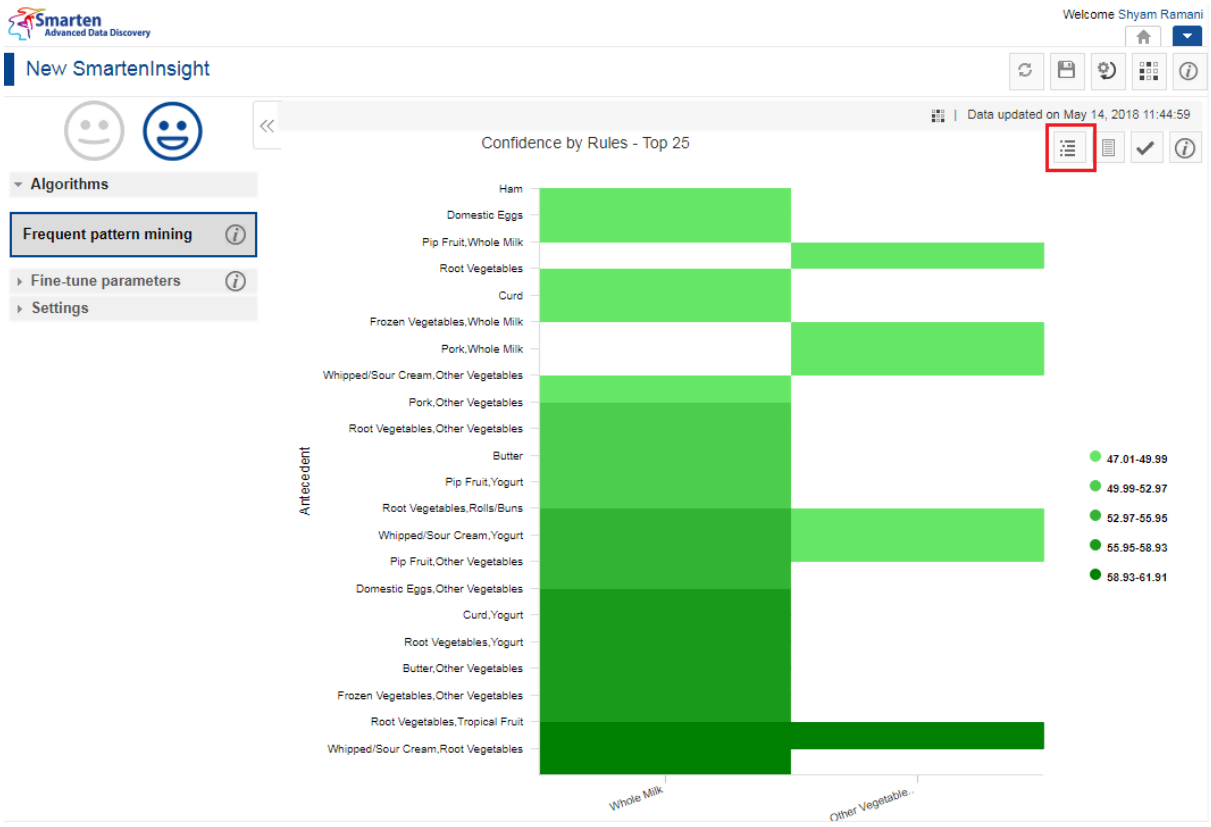
You can view the interpretation of the algorithm applied for frequent pattern mining. The interpretation provides information about insights of the model in simple language.

About this task

Use this task to view the interpretation of the SmartenInsight frequent pattern mining object.

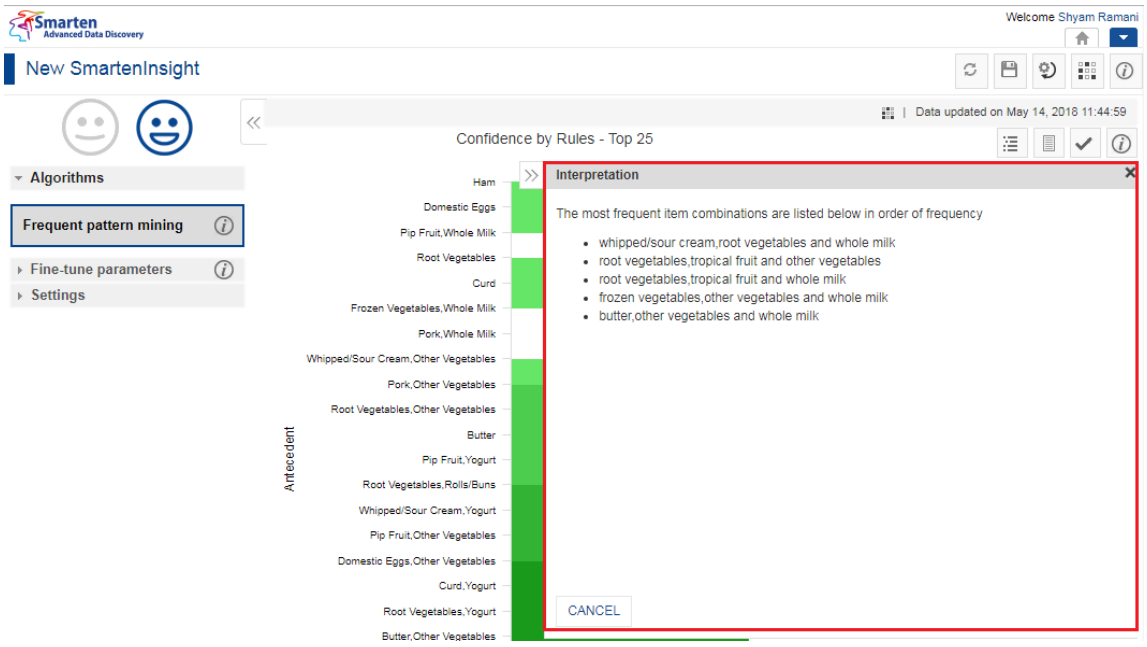
Procedure

1. Open the SmartenInsight frequent pattern mining object for which you want to view interpretation.
2. Click the **Interpretation** icon on the toolbar.



INTERPRETING SMARTENINSIGHT—THE INTERPRETATION OPTION

The system displays the information in the **Interpretation** dialog box.



INTERPRETING SMARTENINSIGHT—THE INTERPRETATION DIALOG BOX

4.8.1.2 Association Rules

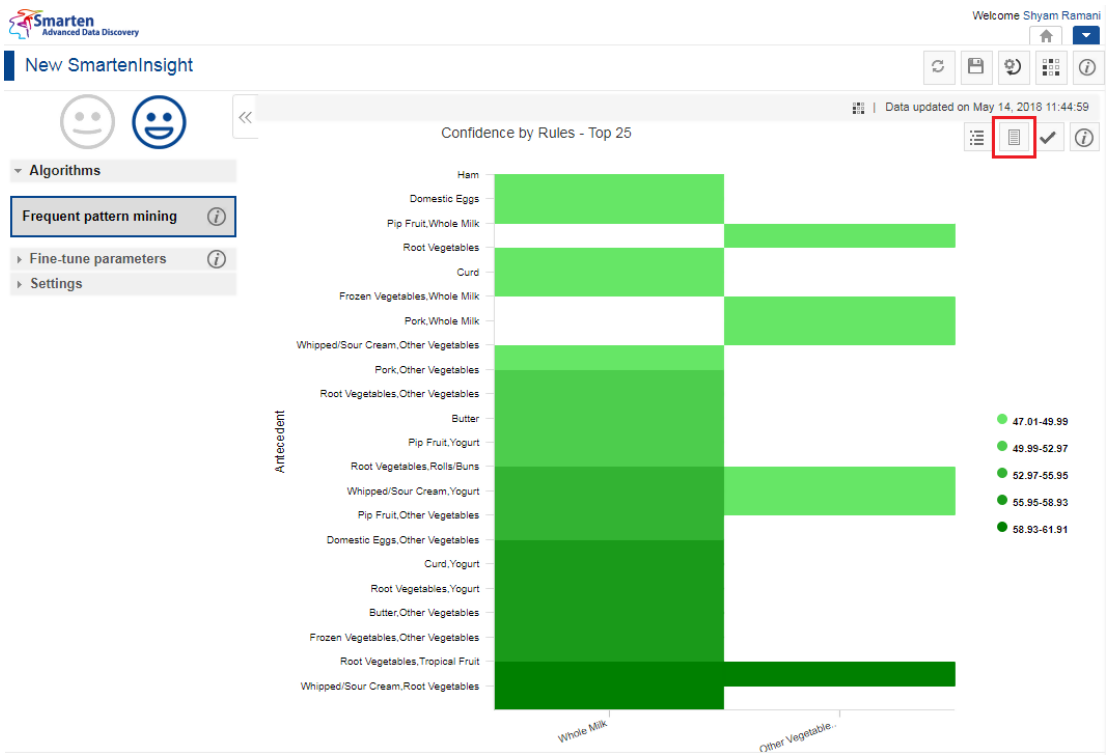
You can view the association rules of the SmartenInsight frequent pattern mining object.

About this task

Use this task to view the association rule of the SmartenInsight frequent pattern mining object.

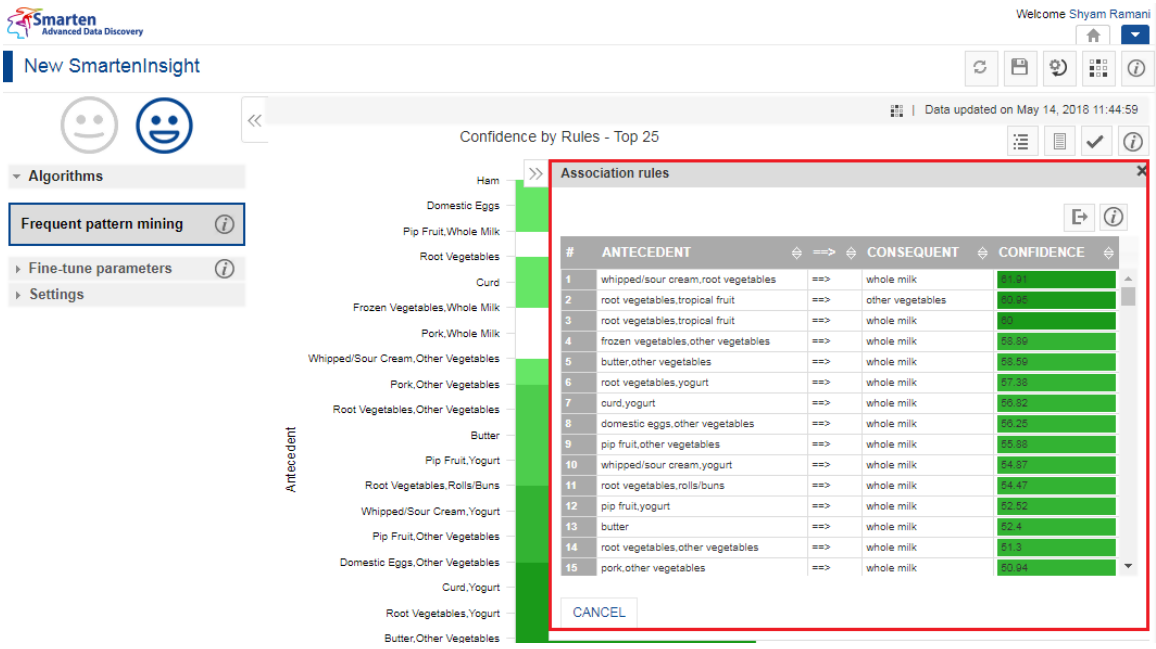
Procedure

1. Open the SmartenInsight frequent pattern mining object for which you want to view the association rule.
2. Click the Association rule icon on the toolbar.



MODEL SUMMARY OF SMARTENINSIGHT—THE ASSOCIATION RULE OPTION

The system displays the information in the **Association rules** dialog box.



MODEL SUMMARY OF SMARTENINSIGHT—THE ASSOCIATION RULES DIALOG BOX

4.8.1.3 Applying the Model for SmartenInsight

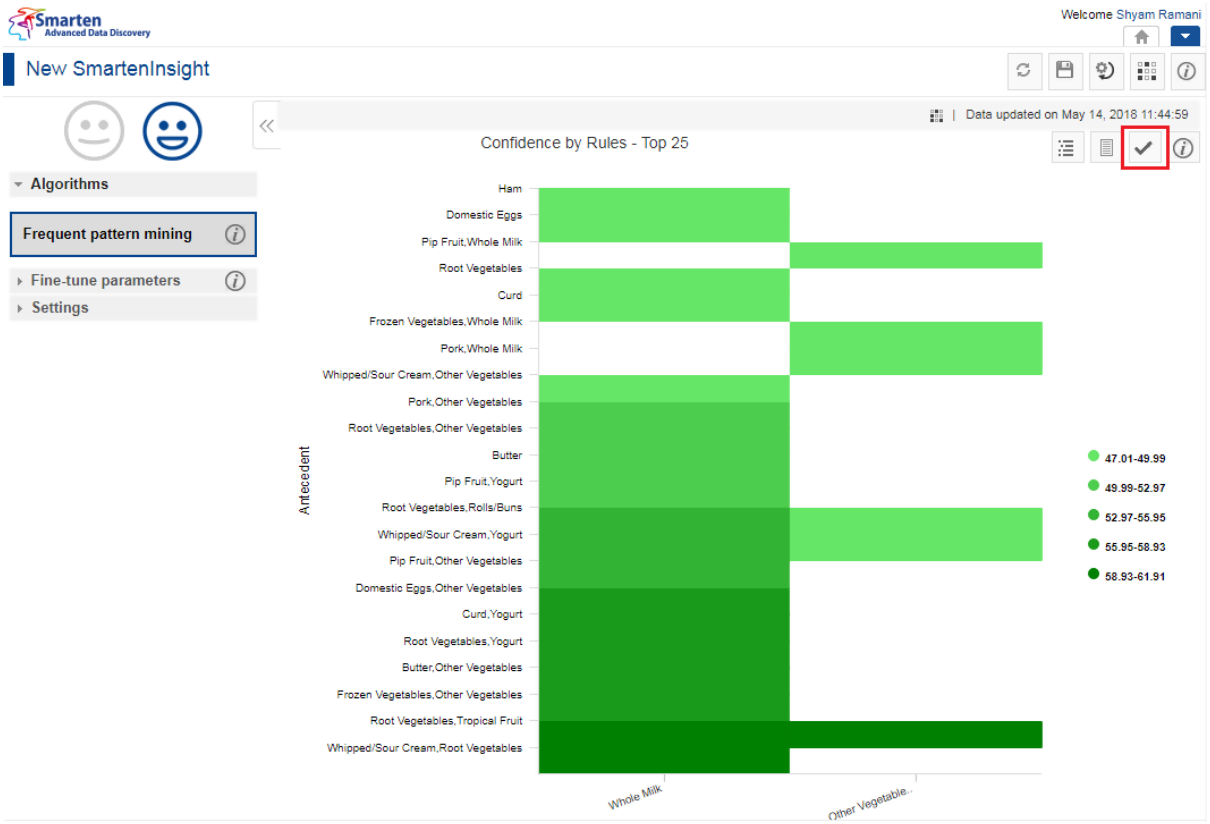
You can enter values for the input parameters and see the results of the model for frequent pattern mining.

About this task

Use this task to apply the model for SmartenInsight frequent pattern mining object.

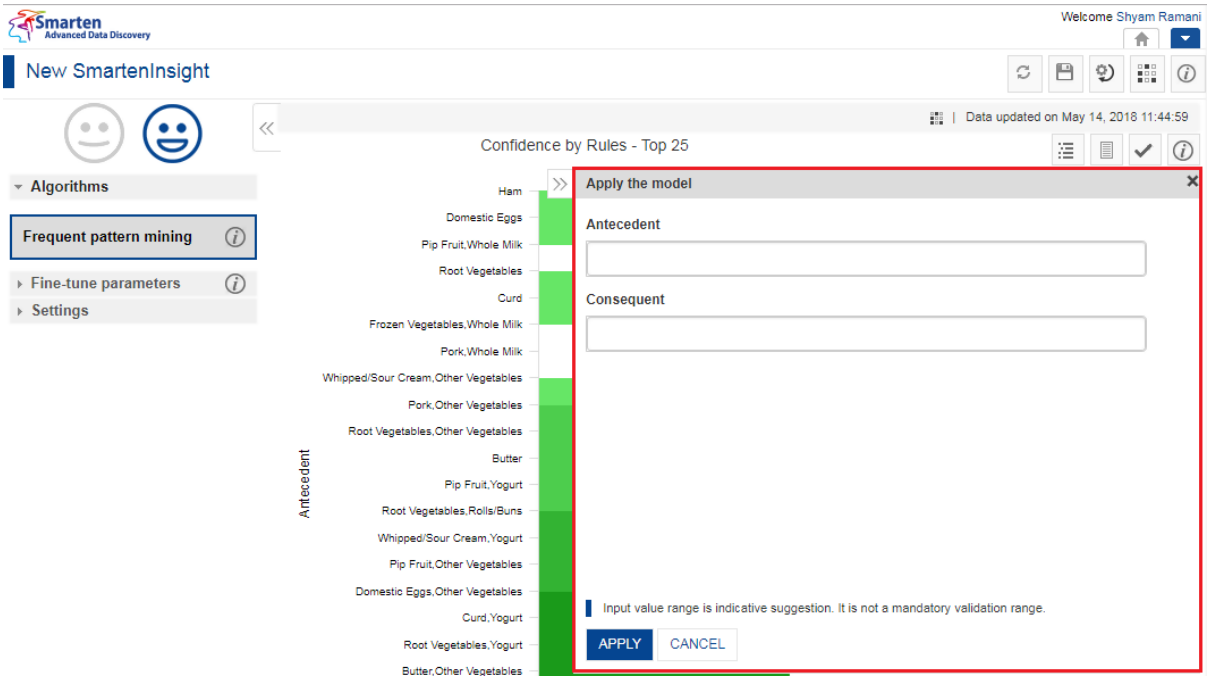
Procedure

1. Open the SmartenInsight frequent pattern mining object for which you want to apply the model.
2. Click the **Apply the model** icon on the toolbar.



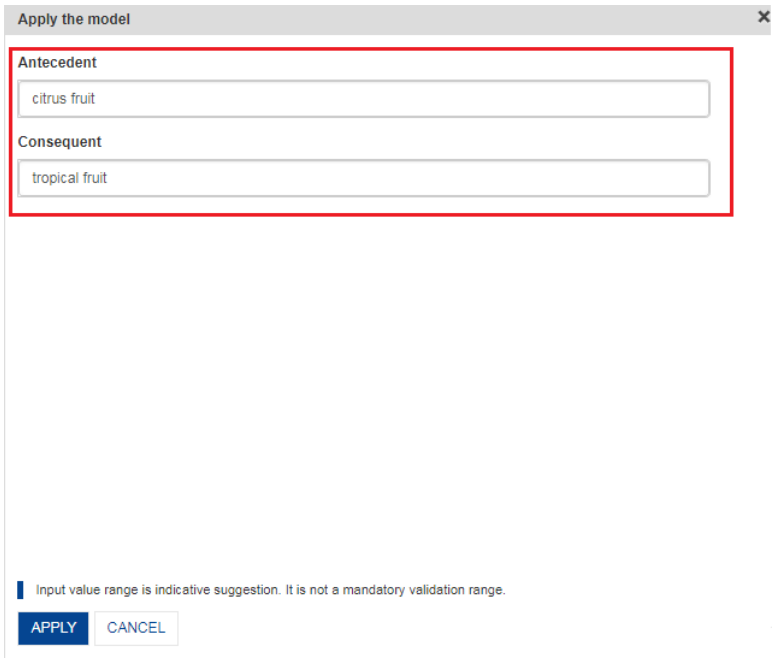
APPLYING MODEL FOR SMARTENINSIGHT—THE APPLY MODEL OPTION

The system displays the information in the **Apply the model** dialog box.



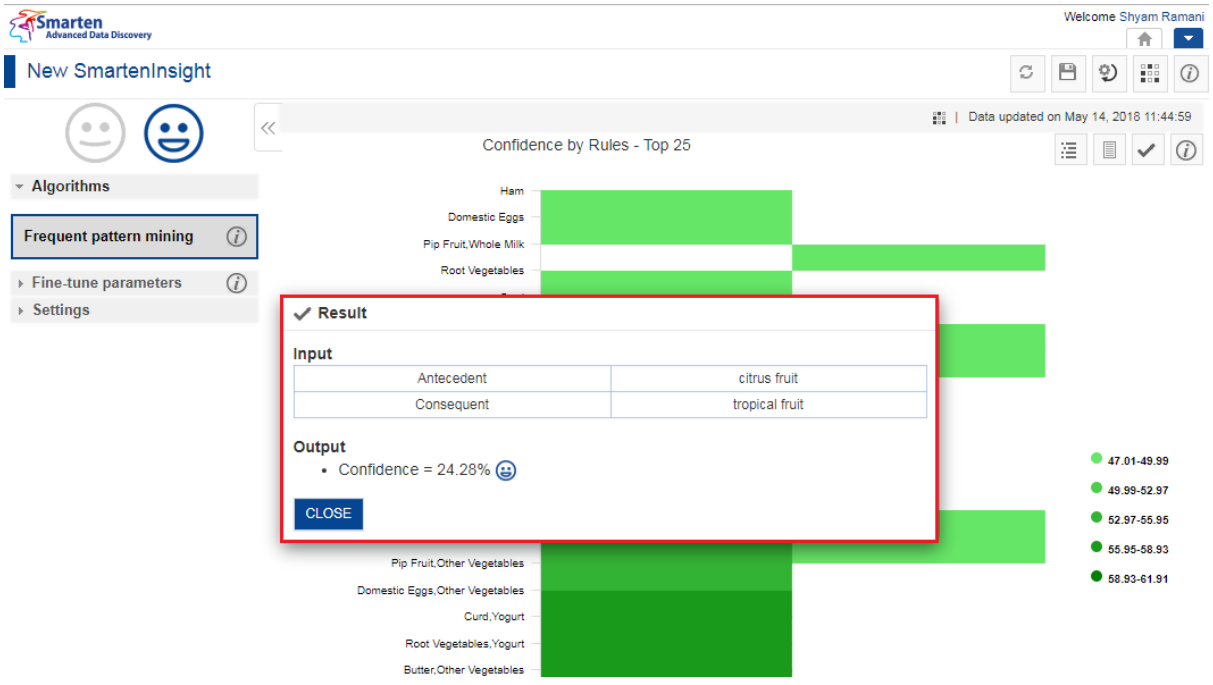
APPLYING MODEL FOR SMARTENINSIGHT—THE APPLY THE MODEL DIALOG BOX

3. Select an option from the list available in the **Apply the model** dialog box.
   The lists available depend on the variables you have selected for frequent pattern mining.
4. Specify values in the fields.
   The fields available are based on the variables you have selected for frequent pattern mining.



APPLYING MODEL FOR SMARTENINSIGHT—SPECIFYING VALUES FOR THE FREQUENT PATTERN MINING VARIABLES

5. Click **APPLY**.
   The system displays the **Result** dialog box.



APPLYING MODEL FOR SMARTENINSIGHT—THE RESULT DIALOG BOX

6. Click **CLOSE**.

4.8.1.4 Chart Information

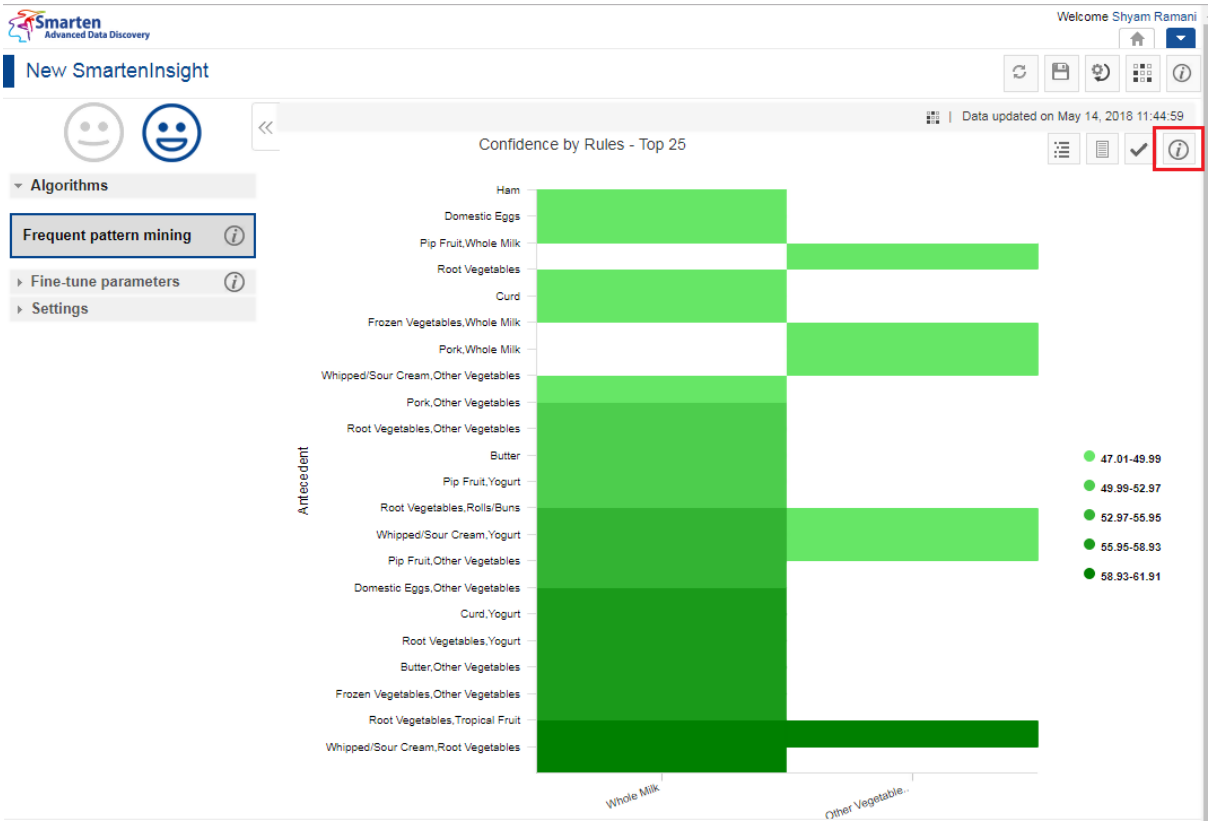
You can view the information and help to interpret the chart that the system has generated for the model.

About this task

Use this task to view information about the chart for SmartenInsight.

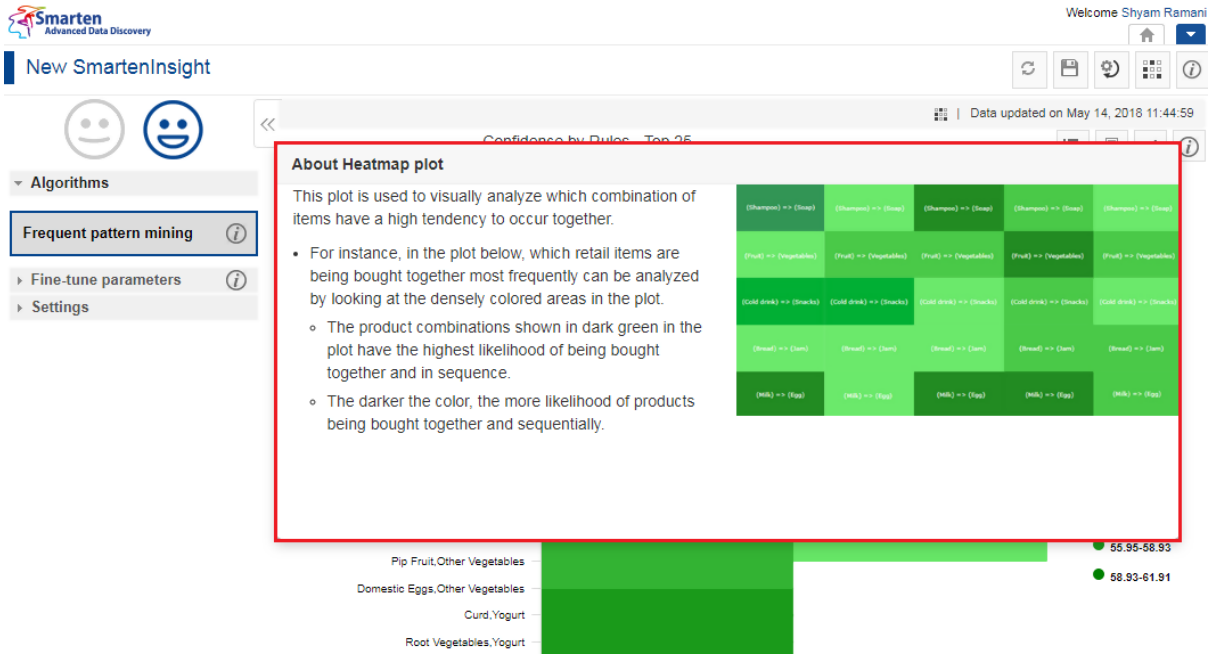
Procedure

1. Open the SmartenInsight correlation object for which you want to view information.
2. Click the Information icon on the toolbar.



INFORMATION OF CHART—THE INFORMATION OPTION

The system displays the information and guide to interpreting the chart in a dialog box.



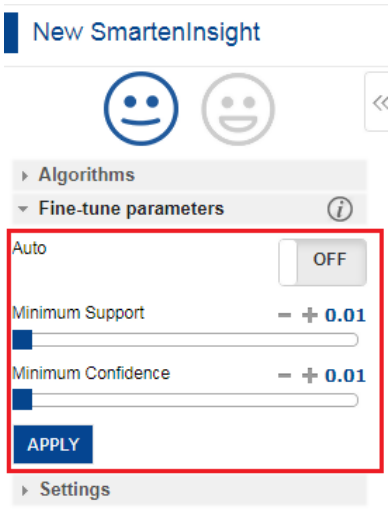
INFORMATION OF CHART—THE ABOUT LINE PLOT DIALOG BOX

4.8.1.5 Fine-tuning

You can modify the values for various parameters in the frequent pattern mining SmartenInsight as per your requirements.

Fine-tuning parameters:

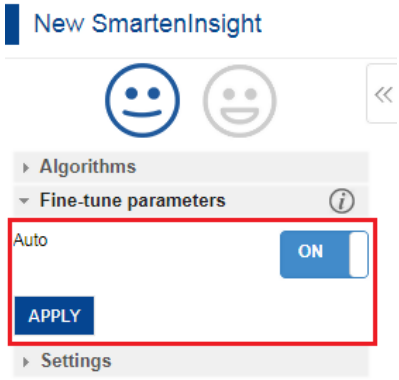
You can manually specify a value for frequent pattern mining fine-tuning parameter when the Auto option is turned off:



FINE-TUNE PARAMETERS—FREQUENT PATTERN MINING WITH AUTO MODE TURNED OFF

Parameter	Description
Minimum Support	Enables you to specify a value for minimum support.
Minimum Confidence	Enables you to specify a value for minimum confidence.

The system automatically selects a value of frequent pattern mining fine-tuning parameter when the Auto mode is turned on.



FINE-TUNE PARAMETERS—FREQUENT PATTERN MINING WITH AUTO MODE TURNED ON

4.8.1.6 Chart Configuration

You can configure properties for SmartenInsight titles. You can configure properties of titles, such as font, size, color, style, and text transformation.

The **Title** settings:

Setting	Description
Select title	Enables you to select the title for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Label** settings:

Setting	Description
Select label	Enables you to select the label for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Quick** settings:

Setting	Description
Enable sampling	Enables you to apply sampling of data from the dataset.

4.8.2 Algorithm used for frequent pattern mining

You can view the algorithm that is used for generating frequent pattern mining. The following algorithm is available:

- **Frequent pattern mining**: Frequent pattern mining is a method that is used to find frequent patterns from a dataset.

4.9 Hypothesis testing with SmartenInsight

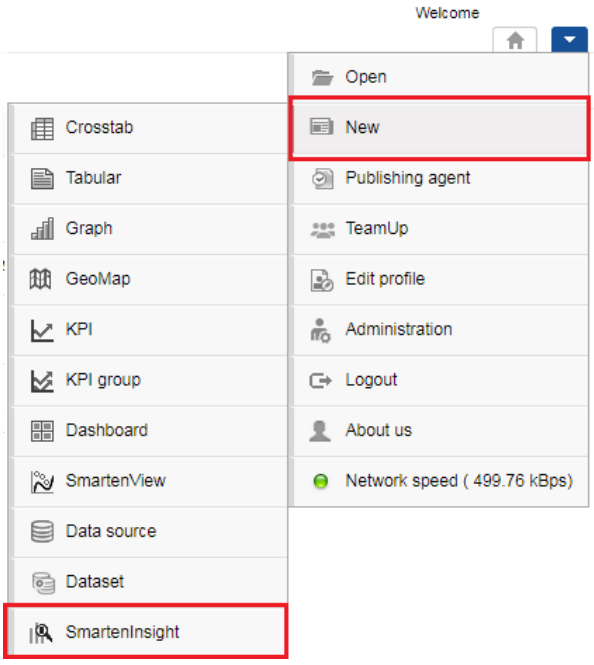
You can use SmartenInsight to analyze the data within a dataset and answer questions, such as whether or not two samples are different, is a treatment effective, if two dimensions are related or independent of each other, and much more.

About this task

Use this task to create a Hypothesis testing model using SmartenInsight.

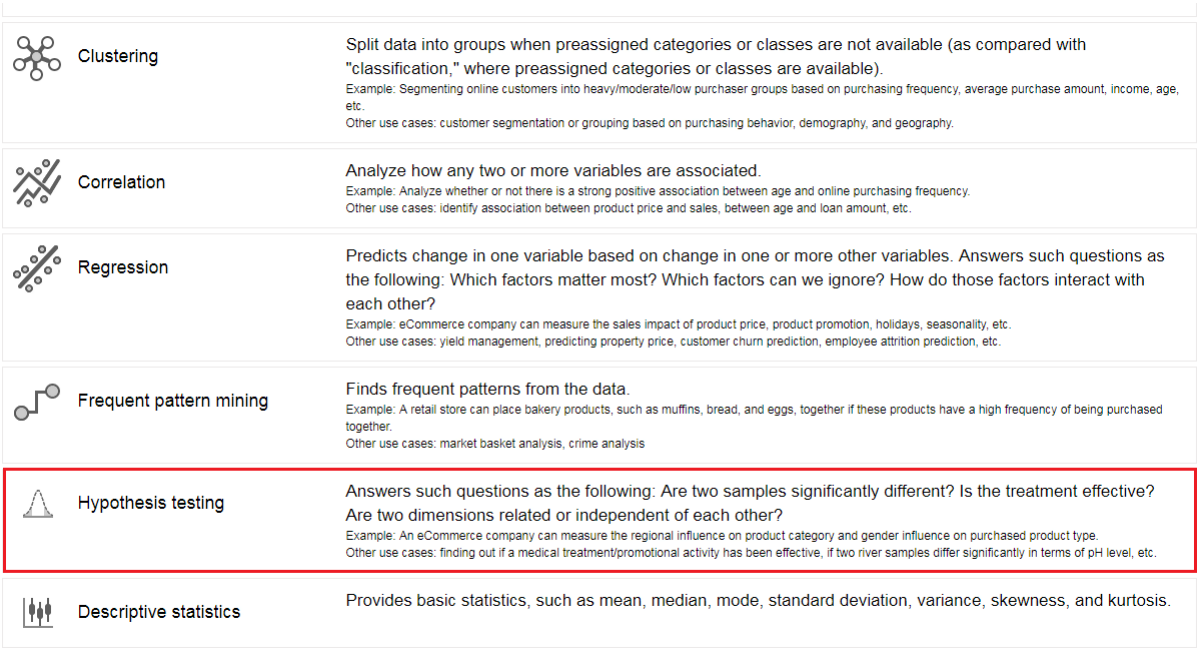
Procedure

1. Click **New** -> **SmartenInsight** from the menu.



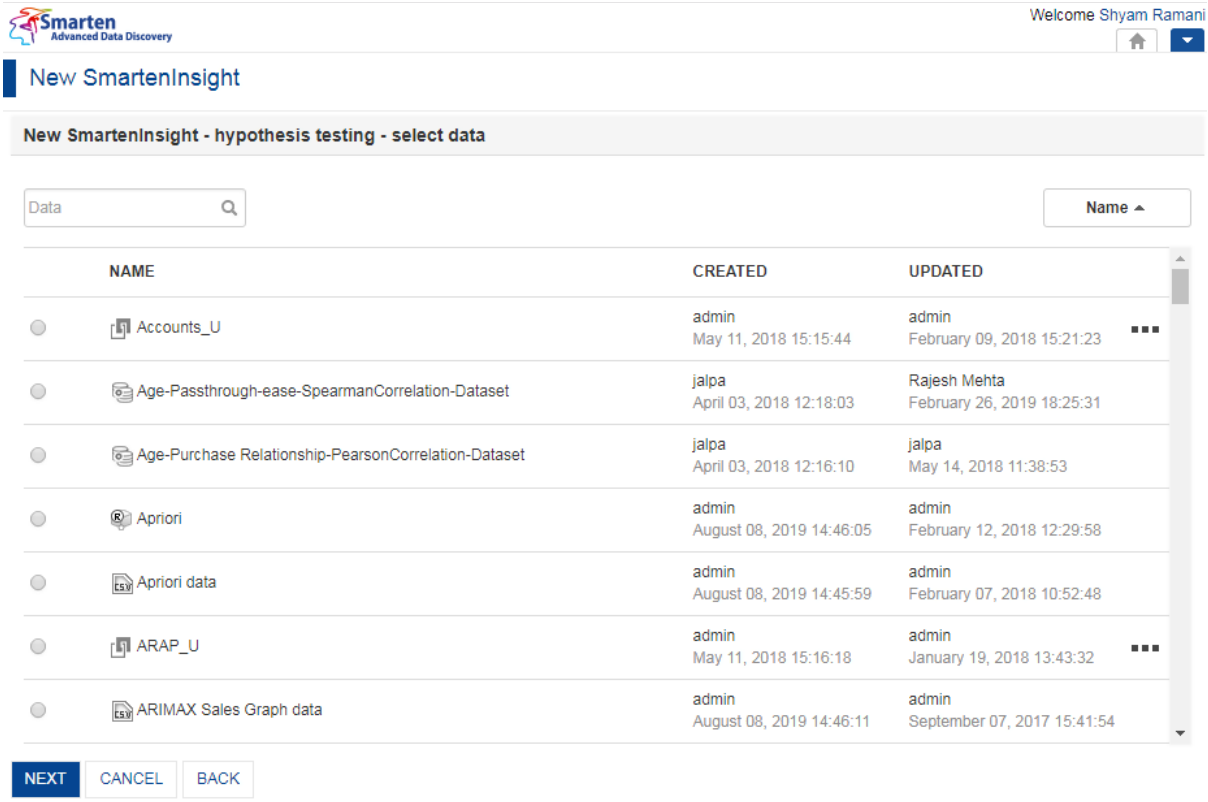
MENU OPTION—NEW SMARTENINSIGHT

The system displays the **What do you want to do** page.



HYPOTHESIS TESTING WITH SMARTENINSIGHT—SELECTING A SMARTENINSIGHT TYPE

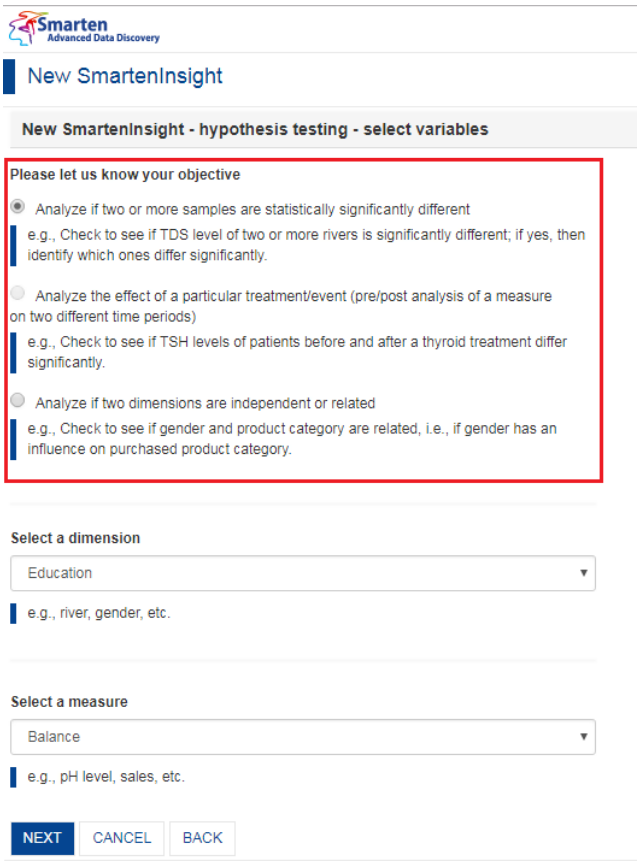
2. Click **Hypothesis testing**.
   The system displays the **New SmartenInsight** screen.



THE NEW SMARTENINSIGHT PAGE—SELECTING THE DATASET OR CUBE FOR SMARTENINSIGHT

3. Select the dataset or cube you want to use for SmartenInsight, and then click **NEXT**.
4. Select an option to specify the objective:
   - Analyze if two or more samples are statistically significantly different—**Sample significance analysis**
   - Analyze the effect of a particular treatment/event (pre/post analysis of a measure on two different time periods)—**Pre-post analysis**

- Analyze if two dimensions are independent or related—**Correlation between dimensions**



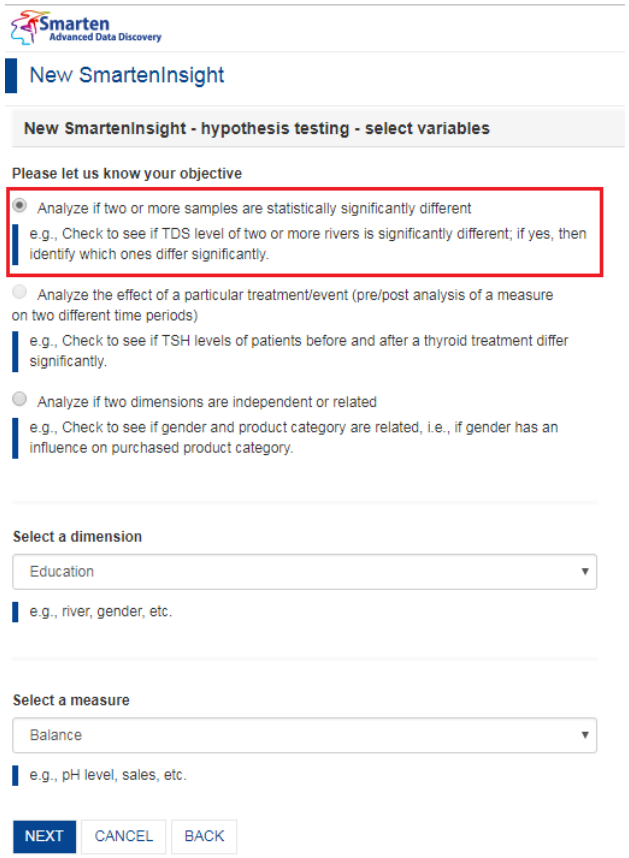
HYPOTHESIS TESTING WITH SMARTENINSIGHT—SELECTING THE OBJECTIVE

4.9.1 Hypothesis Testing—Sample Significance Analysis

You can perform hypothesis testing to analyze if two or more samples from the selected dataset are statistically significantly different.

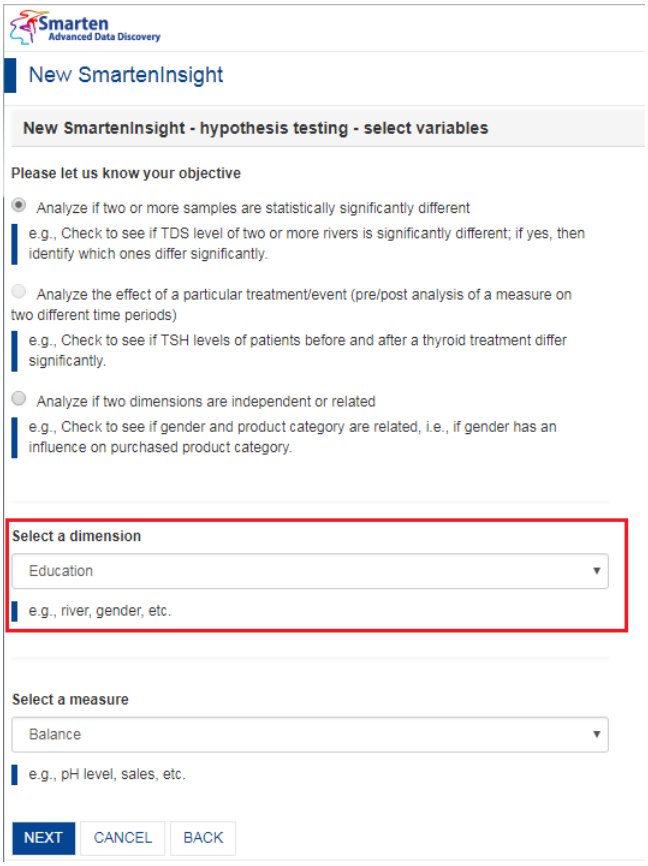
Procedure

1. Select the **Analyze if two or more samples are statistically significantly different** option from the **New SmartenInsight** page.



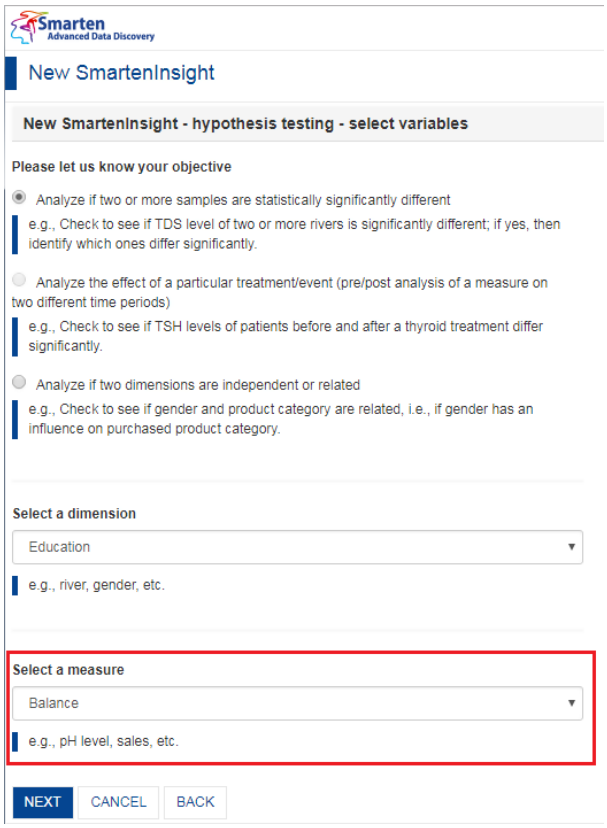
SAMPLE SIGNIFICANCE ANALYSIS WITH SMARTENINSIGHT—SELECTING THE OBJECTIVE

2. Select the dimension you want from the **Select a dimension** list.



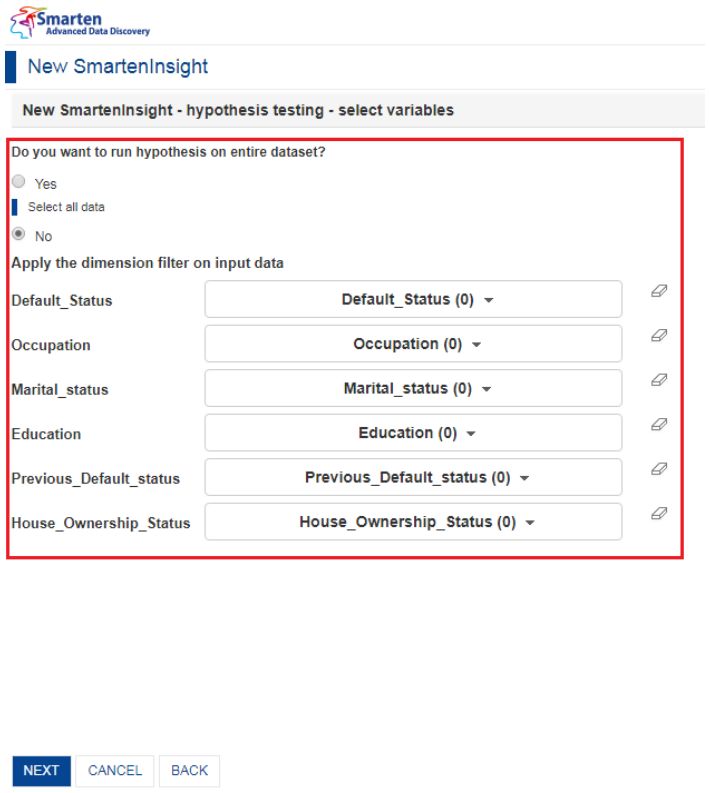
SAMPLE SIGNIFICANCE ANALYSIS WITH SMARTENINSIGHT—SELECTING A DIMENSION

3. Select the measure you want to use from the **Select a measure** list, and then click **NEXT**.



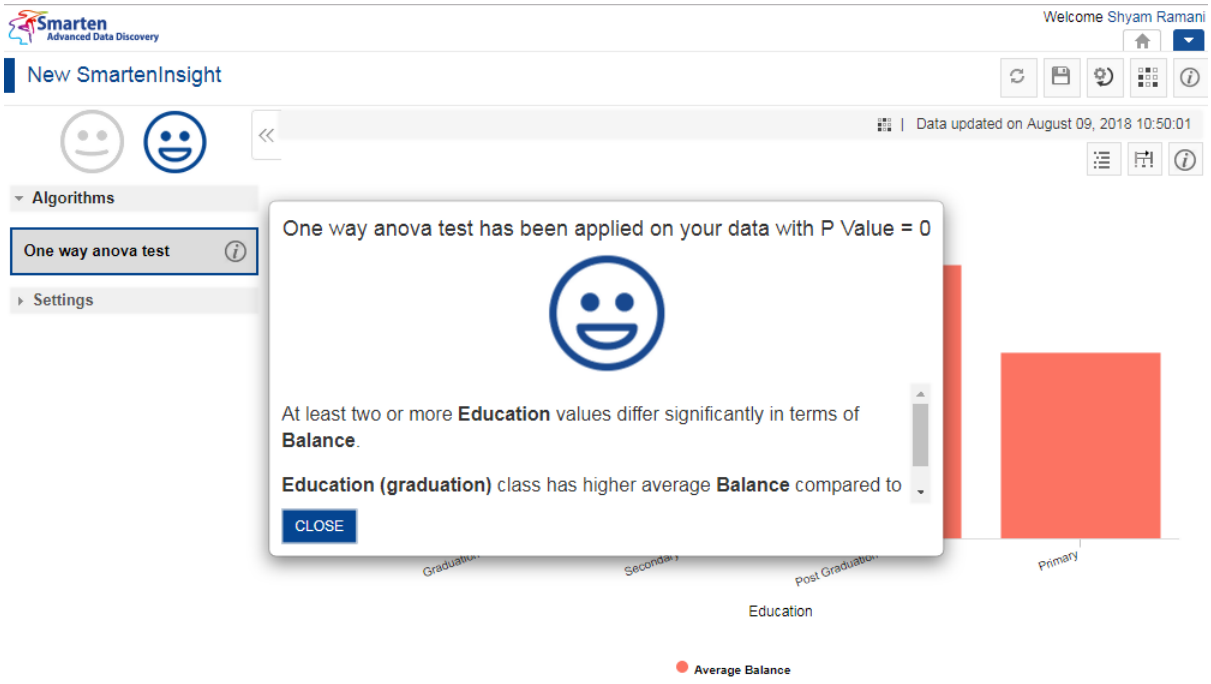
SAMPLE SIGNIFICANCE ANALYSIS WITH SMARTENINSIGHT—SELECTING A MEASURE

4. Select an option to specify whether or not you want to perform hypothesis testing on the entire dataset, and then click **NEXT**.
    - If you have selected the **No** option, you can select the column filters for which you want to perform hypothesis testing.



SAMPLE SIGNIFICANCE ANALYSIS WITH SMARTENINSIGHT—APPLYING DIMENSION FILTER ON INPUT DATA

5. Click **NEXT**.
   Based on the variables you have selected, the system selects the best suitable algorithm for hypothesis testing and displays a summary.



SAMPLE SIGNIFICANCE ANALYSIS WITH SMARTENINSIGHT—THE SYSTEM DISPLAYING SUMMARY OF SMARTENINSIGHT

6. Click **CLOSE**.
   Review the Hypothesis testing generated.

4.9.1.1 Analyzing the Output of SmartenInsight—Sample Significance Analysis

SmartenInsight provides information about the hypothesis based on the objective you have selected.

4.9.1.1.1 Interpretation

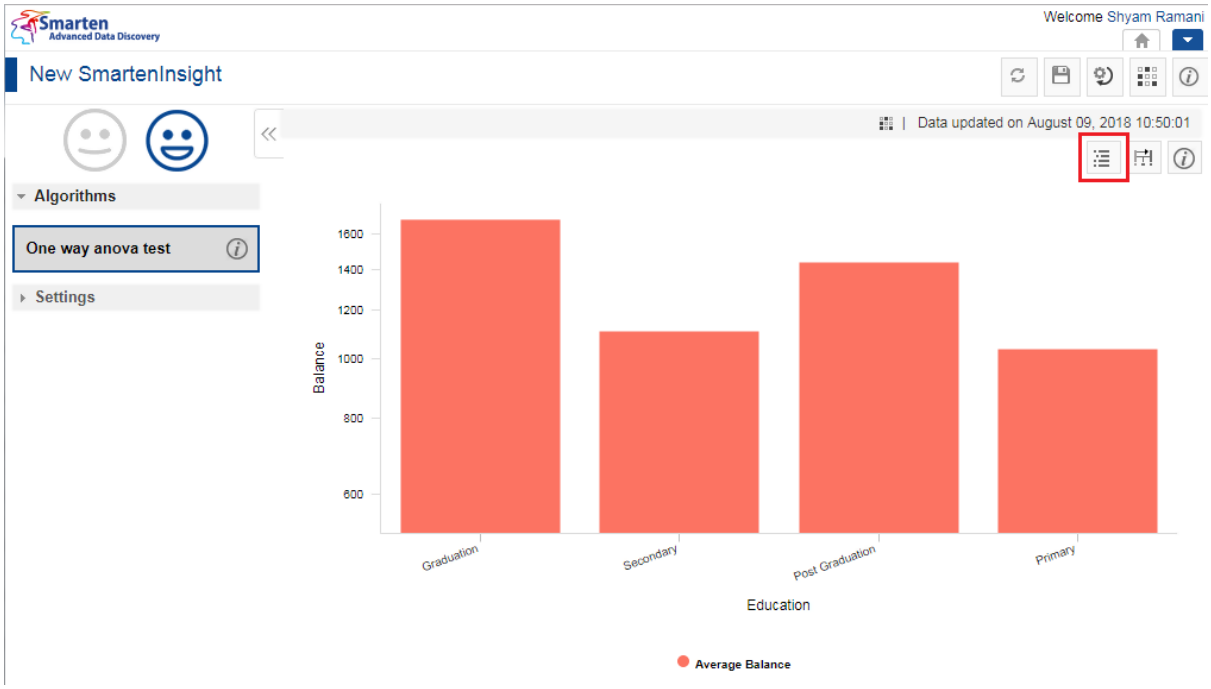
You can view the interpretation of the algorithm applied for sample significance analysis. The interpretation provides information about insights of the model in simple language.

About this task

Use this task to view the interpretation of the SmartenInsight sample significance analysis object.

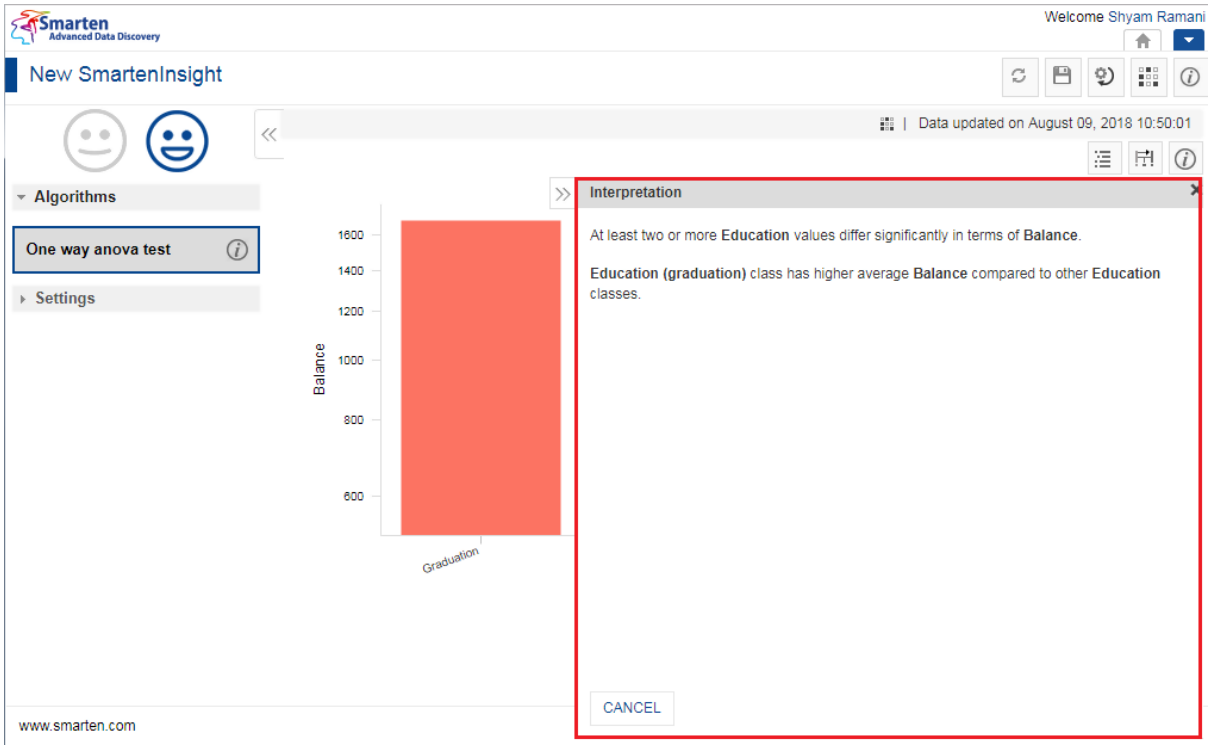
Procedure

1. Open the SmartenInsight sample significance analysis object for which you want to view interpretation.
2. Click the **Interpretation** icon on the toolbar.



INTERPRETING SAMPLE SIGNIFICANCE ANALYSIS SMARTENINSIGHT—THE INTERPRETATION OPTION

The system displays the information in the **Interpretation** dialog box.



INTERPRETING SAMPLE SIGNIFICANCE ANALYSIS SMARTENINSIGHT—THE INTERPRETATION DIALOG BOX

4.9.1.1.2 Model Summary

You can view the model summary of the SmartenInsight sample significance analysis object.

About this task

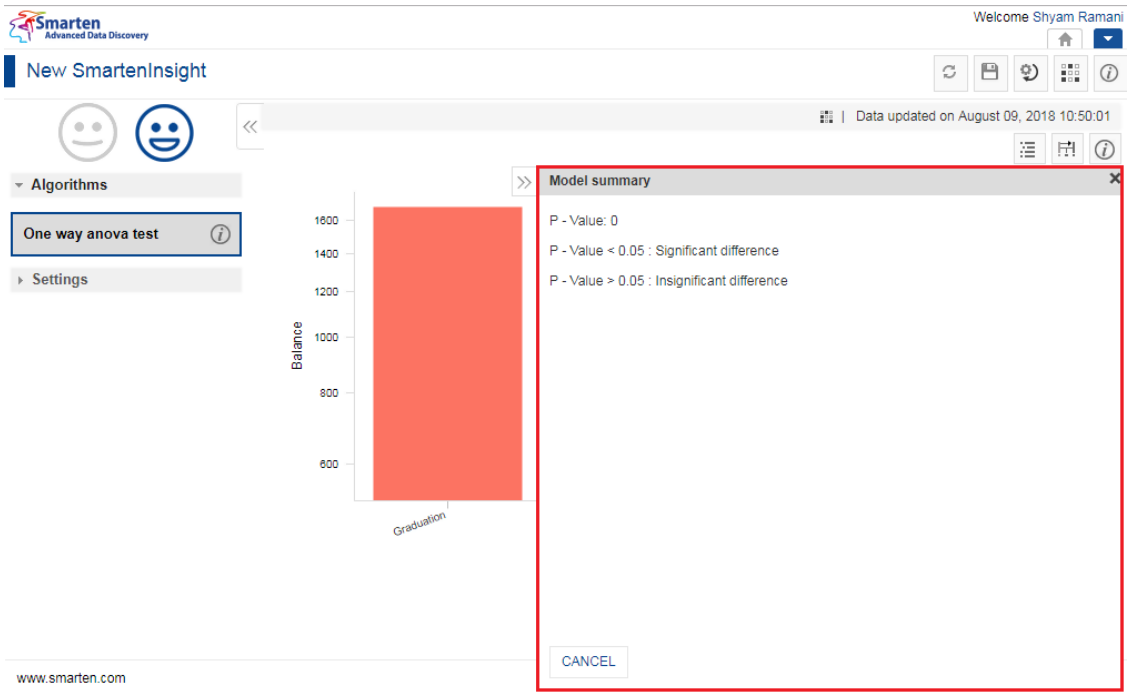
Use this task to view the model summary of the SmartenInsight sample significance analysis object.

Procedure

1. Open the SmartenInsight sample significance analysis object for which you want to view the model summary.
2. Click the Model summary icon on the toolbar.

MODEL SUMMARY OF SAMPLE SIGNIFICANCE ANALYSIS SMARTENINSIGHT—THE MODEL SUMMARY OPTION

The system displays the information in the **Model summary** dialog box.



MODEL SUMMARY OF SAMPLE SIGNIFICANCE ANALYSIS SMARTENINSIGHT—THE MODEL SUMMARY DIALOG BOX

4.9.1.1.3 Chart Information

You can view the information and help to interpret the chart that the system has generated for the model.

About this task

Use this task to view information about the chart for SmartenInsight.

Procedure

1. Open the SmartenInsight Sample Significance Analysis object for which you want to view information.
2. Click the Information icon on the toolbar.

CHART INFORMATION OF SAMPLE SIGNIFICANCE ANALYSIS—THE INFORMATION OPTION

The system displays the information and guide to interpreting the chart in a dialog box.

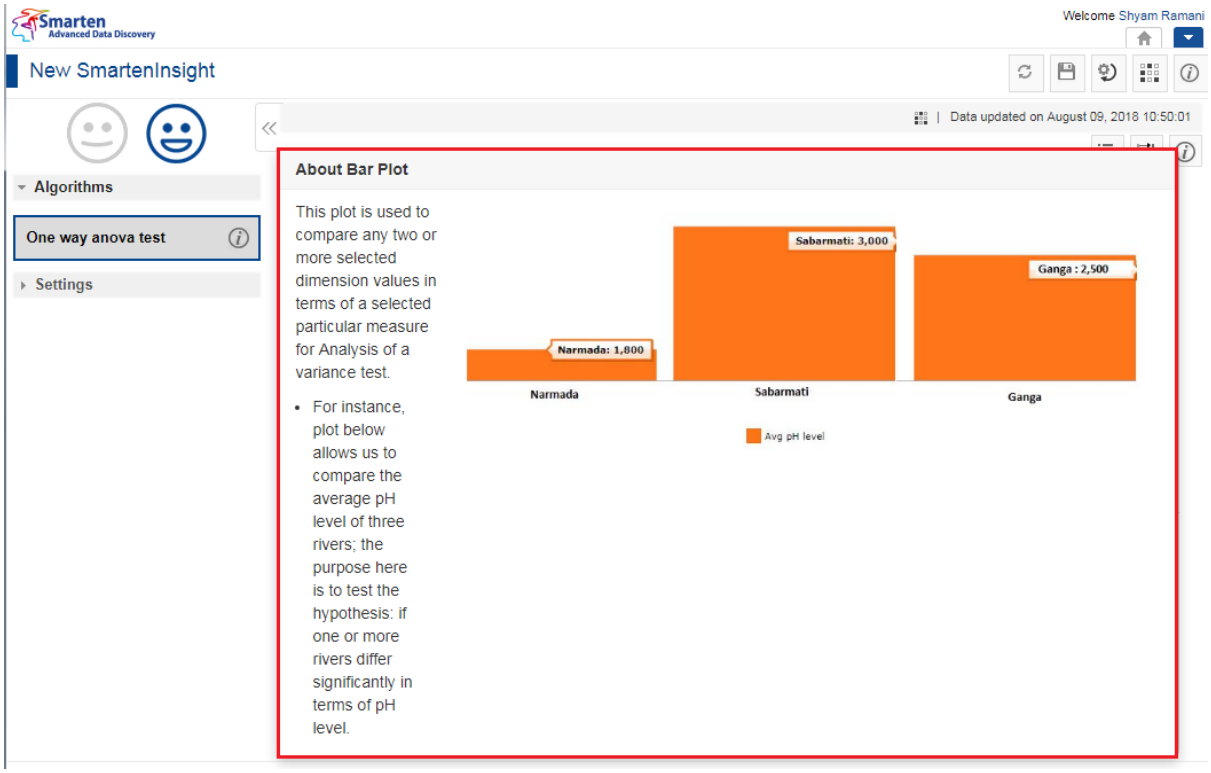


CHART INFORMATION OF SAMPLE SIGNIFICANCE ANALYSIS—THE ABOUT BAR PLOT DIALOG BOX

4.9.1.2 Chart Configuration

You can configure properties for SmartenInsight titles. You can configure properties of titles, such as font, size, color, style, and text transformation.

The **Title** settings:

Setting	Description
Select title	Enables you to select the title for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Label** settings:

Setting	Description
Select label	Enables you to select the label for which you want to configure properties.
Name	Enables you to select the font you want to apply.

Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Format** settings:

Setting	**Description**
Measure	Enables you to select the measure for which you want to change the format.
Comma separator	Enables you to select the option to use a comma as the separator in the value of the selected measure.
Comma format	Enables you to select the comma format to specify the comma format you want to use in the values of the selected measure.
Digits after decimal point	Enables you to specify the number of digits to be displayed after the decimal point.
Adjusted digits	Enables you to specify an option to adjust digits in the value of the selected measure.
Show suffix	Enables you to show suffix for the selected measure.

The **Quick** settings:

Setting	**Description**
Enable sampling	Enables you to apply sampling of data from the dataset.
Category Axis pagination	Enables you to specify a value for category axis pagination.
Legend pagination	Enables you to specify a value for legend pagination.

4.9.1.3 Algorithms used for Sample Significance Analysis

You can view the algorithm that is used for generating sample significance analysis. The following algorithm is available:

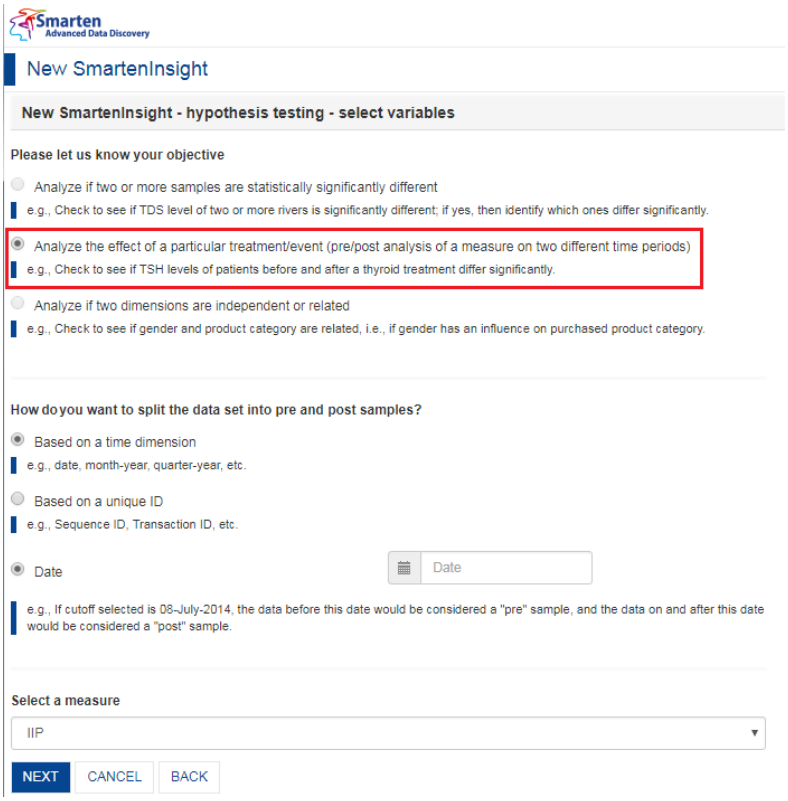
- **One way anova test**: The One way anova test compares the means of three samples to analyze if at least two samples differ significantly.
- **Independent sample t-test:** An Independent sample t-test compares the means of two samples to check if both samples differ significantly or not.

4.9.2 Hypothesis Testing—Pre-post Analysis

You can perform hypothesis testing to analyze pre and post analysis of a measure from the selected dataset at different time periods.

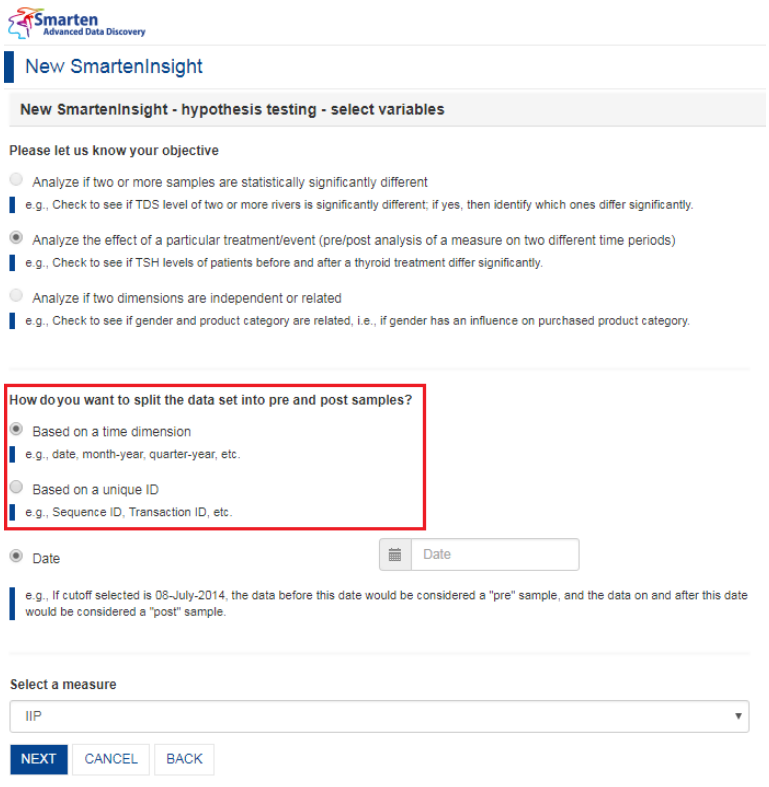
Procedure

1. Select the **Analyze the effect of a particular treatment or event (pre/post analysis of a measure on two different time periods)** option from the **New SmartenInsight** page.



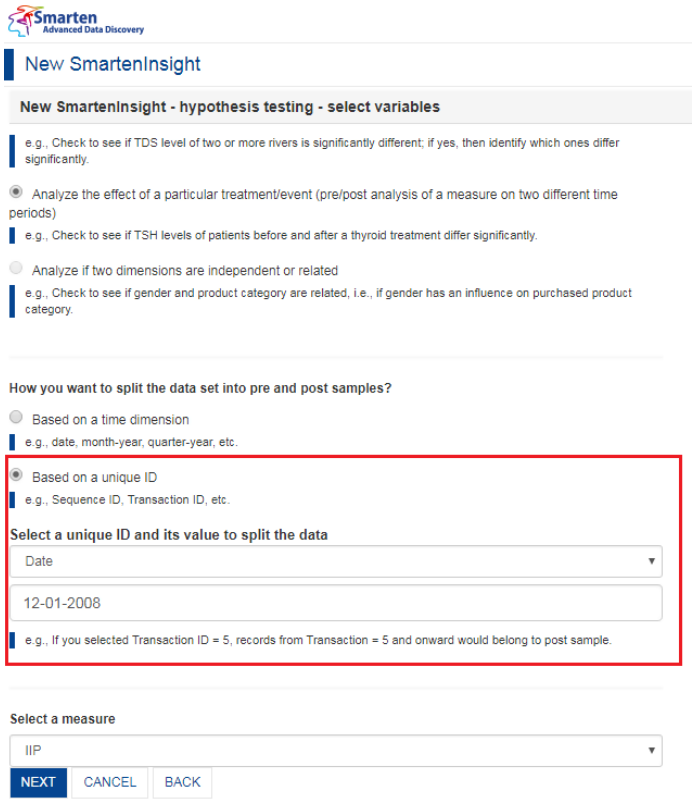
PRE-POST ANALYSIS WITH SMARTENINSIGHT—SELECTING THE OBJECTIVE

2. Select the **Based on a time dimension** or **Based on a unique ID** option to specify how you want to split the data set into pre and post samples.



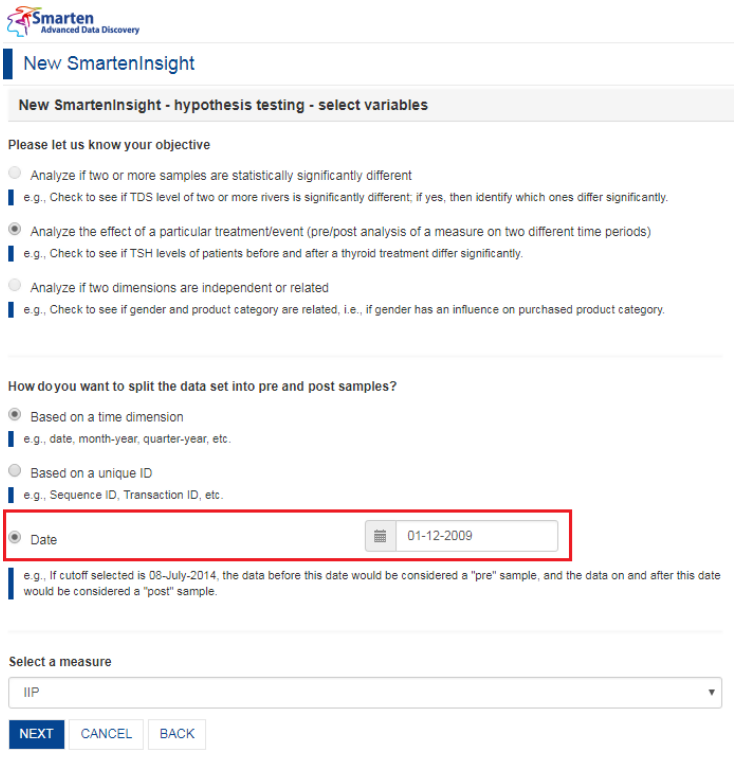
PRE-POST ANALYSIS WITH SMARTENINSIGHT—SELECTING THE OPTION TO SPLIT THE DATASET

3. If you have selected the **Based on unique ID** option to split the data based on a unique ID:
    a) Select an option from the **Select a unique ID and its value to split the data** list to specify the ID that you want to use to split the data.
    b) Specify the value for the ID you have selected.



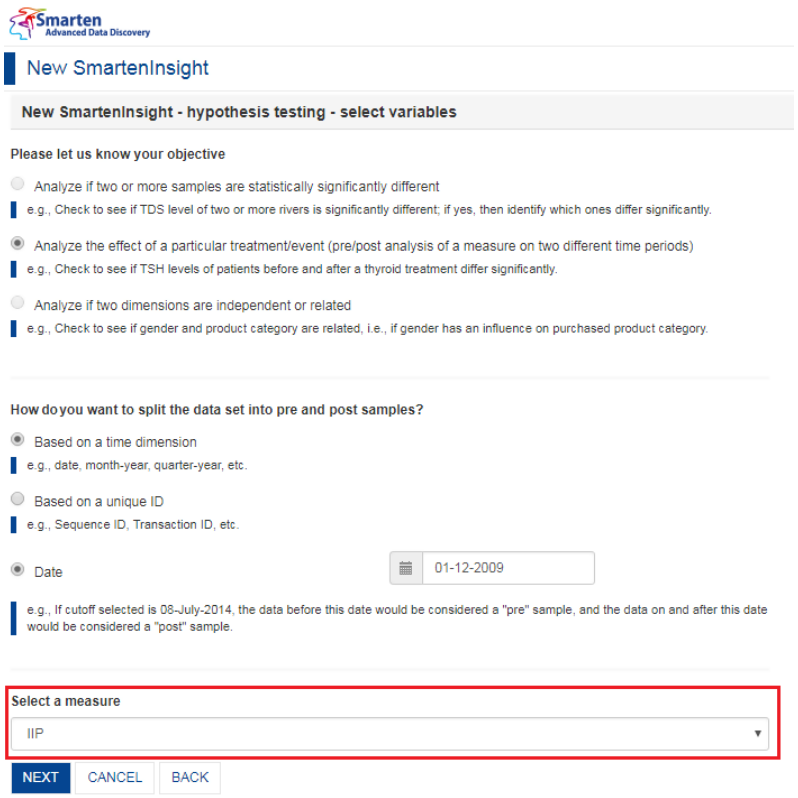
PRE-POST ANALYSIS WITH SMARTENINSIGHT—OPTION TO SPLIT THE DATASET BASED ON UNIQUE ID

4. For **Based on a time dimension** option, select a date column and select a date from the calendar field.



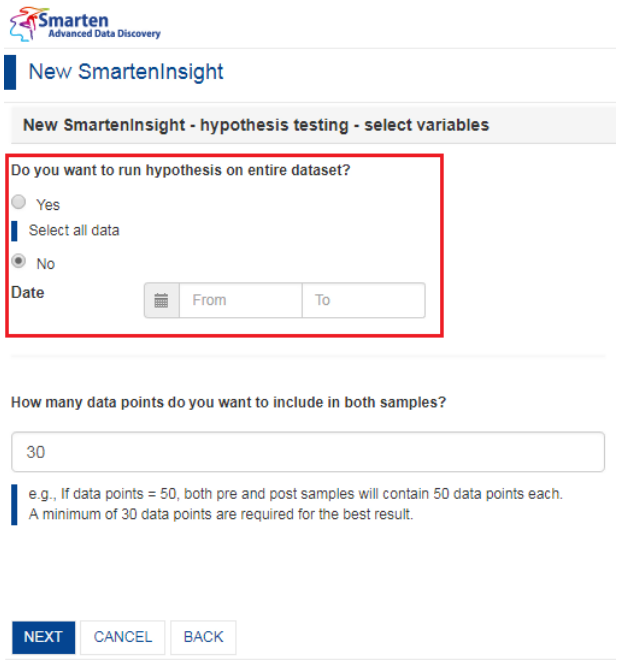
PRE-POST ANALYSIS WITH SMARTENINSIGHT—OPTION TO SPLIT THE DATASET BASED ON TIME DIMENSION

5. Select the measure you want to use from the **Select a measure** list, and then click **NEXT**.



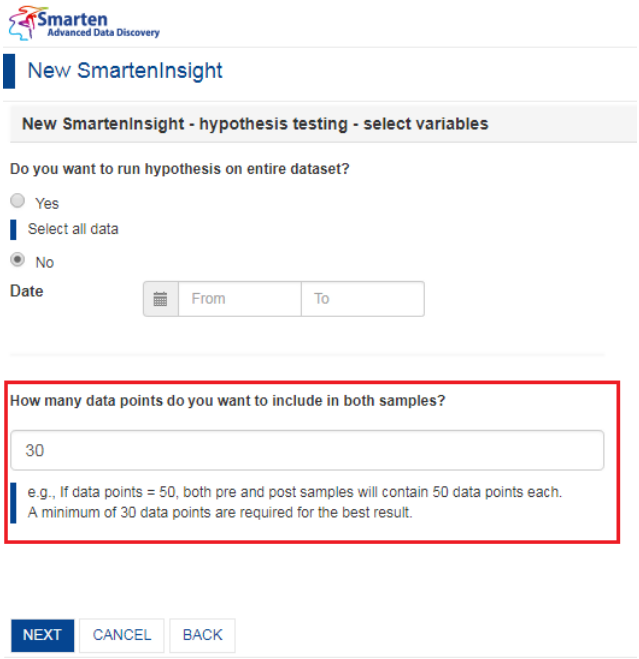
PRE-POST ANALYSIS WITH SMARTENINSIGHT—SELECTING A MEASURE

6. Select an option to specify whether or not you want to perform hypothesis testing on the entire dataset.
    - If you have selected the **No** option, you can select the column filters for which you want to perform hypothesis testing.



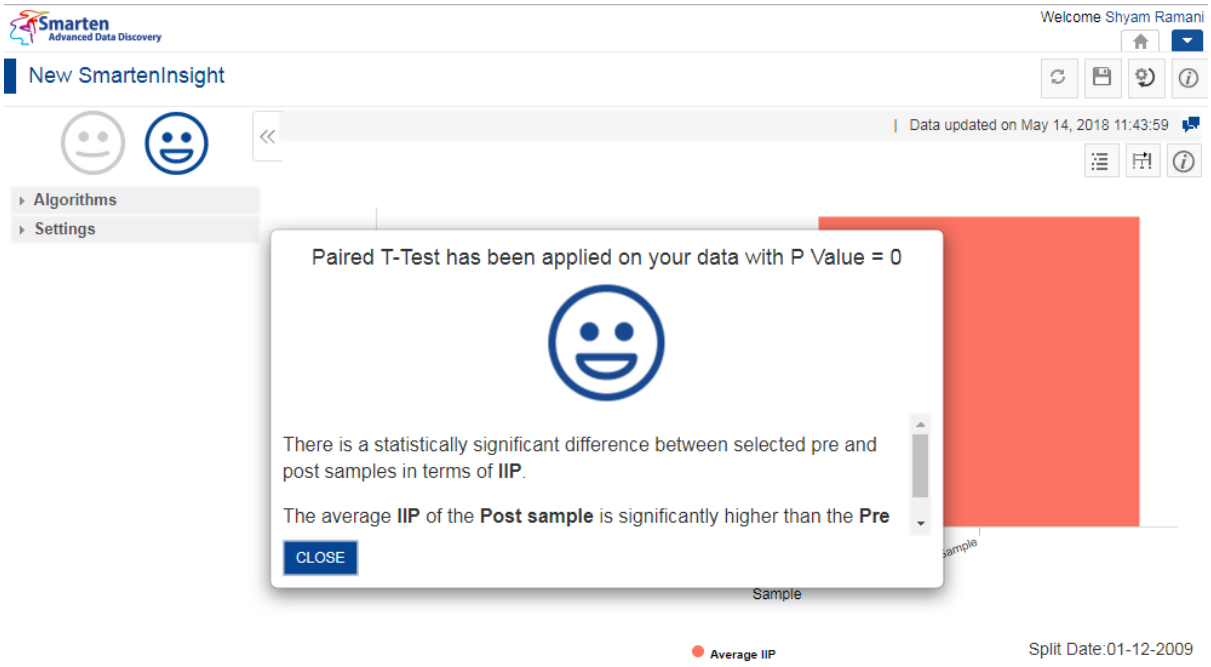
PRE-POST ANALYSIS WITH SMARTENINSIGHT—APPLYING DIMENSION FILTER ON INPUT DATA

7. Provide a value in the **How many data points do you want to include in both samples?** field to specify the number of data points to be included in the samples.



PRE-POST ANALYSIS WITH SMARTENINSIGHT—SPECIFY THE NUMBER OF DATA POINTS

8. Click **NEXT**.
   Based on the variables you have selected, the system selects the best suitable algorithm for hypothesis testing and displays a summary.



PRE-POST ANALYSIS WITH SMARTENINSIGHT—THE SYSTEM DISPLAYING SUMMARY OF SMARTENINSIGHT

9. Click **CLOSE**.
   Review the Hypothesis testing generated.

4.9.2.1 Analyzing the Output of SmartenInsight—Pre-Post Analysis

The SmartenInsight provides information about the hypothesis based on the objective you have selected.

4.9.2.1.1 Interpretation

You can view the interpretation of the algorithm applied for pre-post analysis. The interpretation provides information about insights of the model in simple language.

About this task

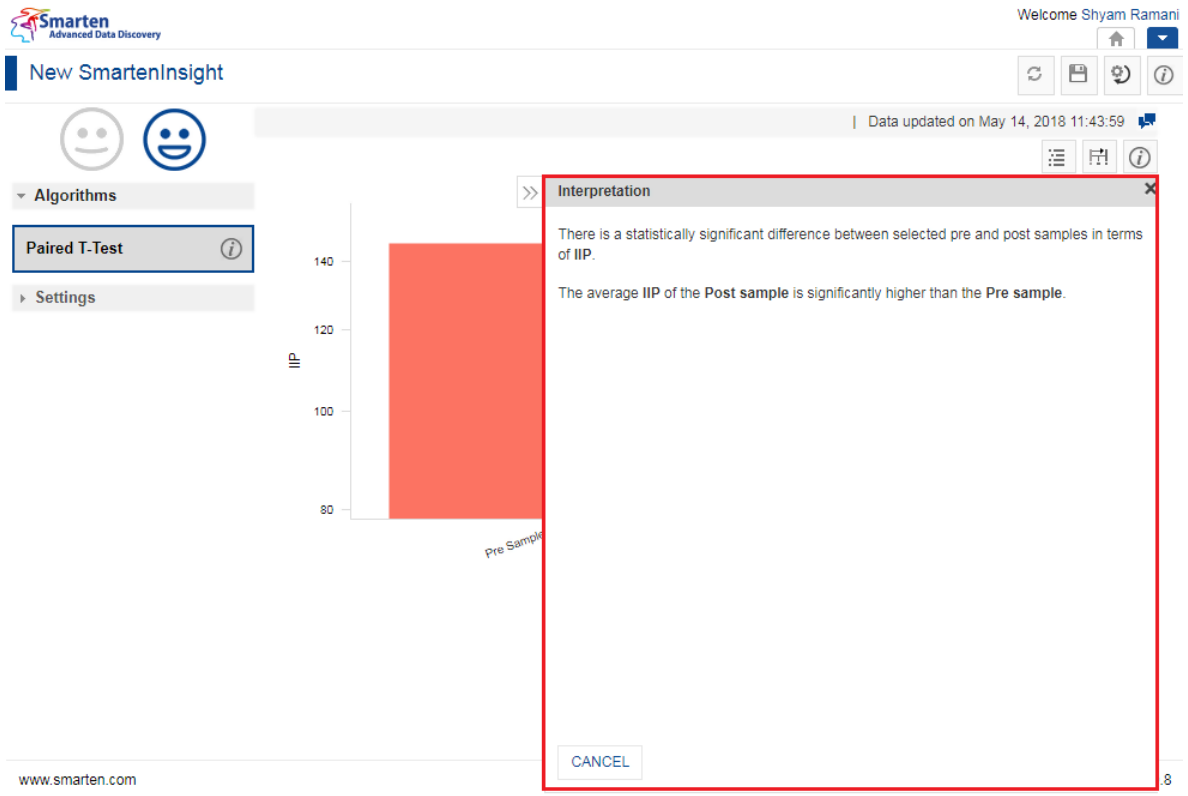
Use this task to view the interpretation of the SmartenInsight pre-post analysis.

Procedure

1. Open the SmartenInsight pre-post analysis for which you want to view interpretation.
2. Click the **Interpretation** icon on the toolbar.

INTERPRETING PRE-POST ANALYSIS SMARTENINSIGHT—THE INTERPRETATION OPTION

The system displays the information in the **Interpretation** dialog box.



INTERPRETING PRE-POST ANALYSIS SMARTENINSIGHT—THE INTERPRETATION DIALOG BOX

4.9.2.1.2 Model Summary

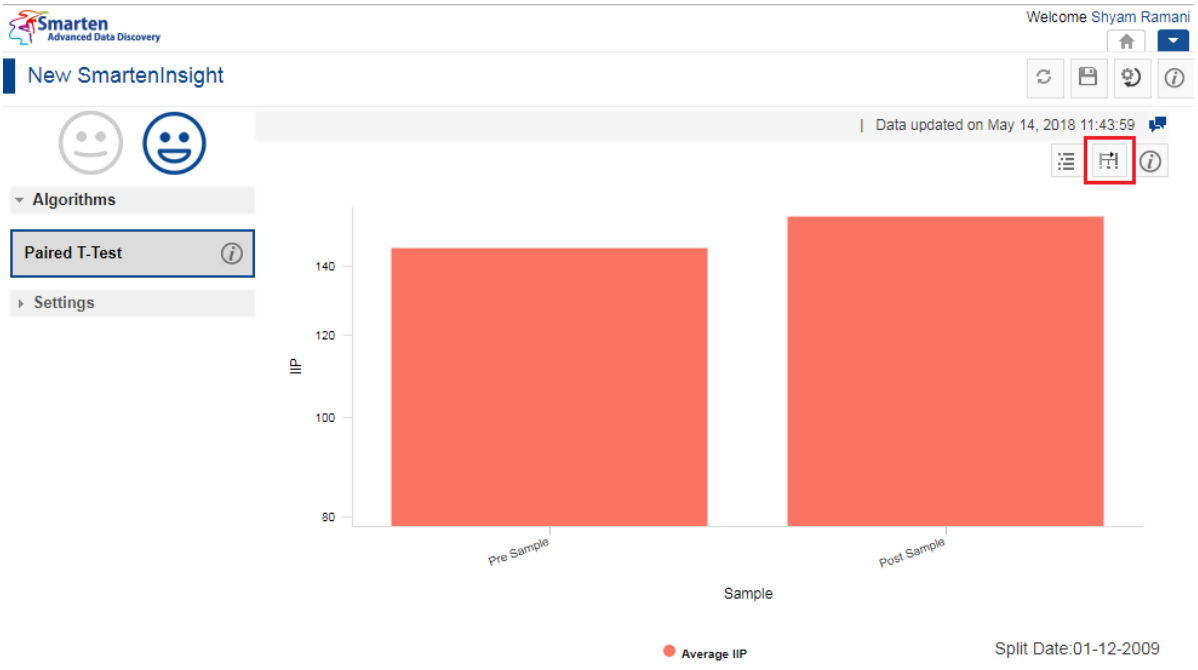
You can view the model summary of the SmartenInsight pre-post analysis.

About this task

Use this task to view the model summary of the SmartenInsight pre-post analysis.

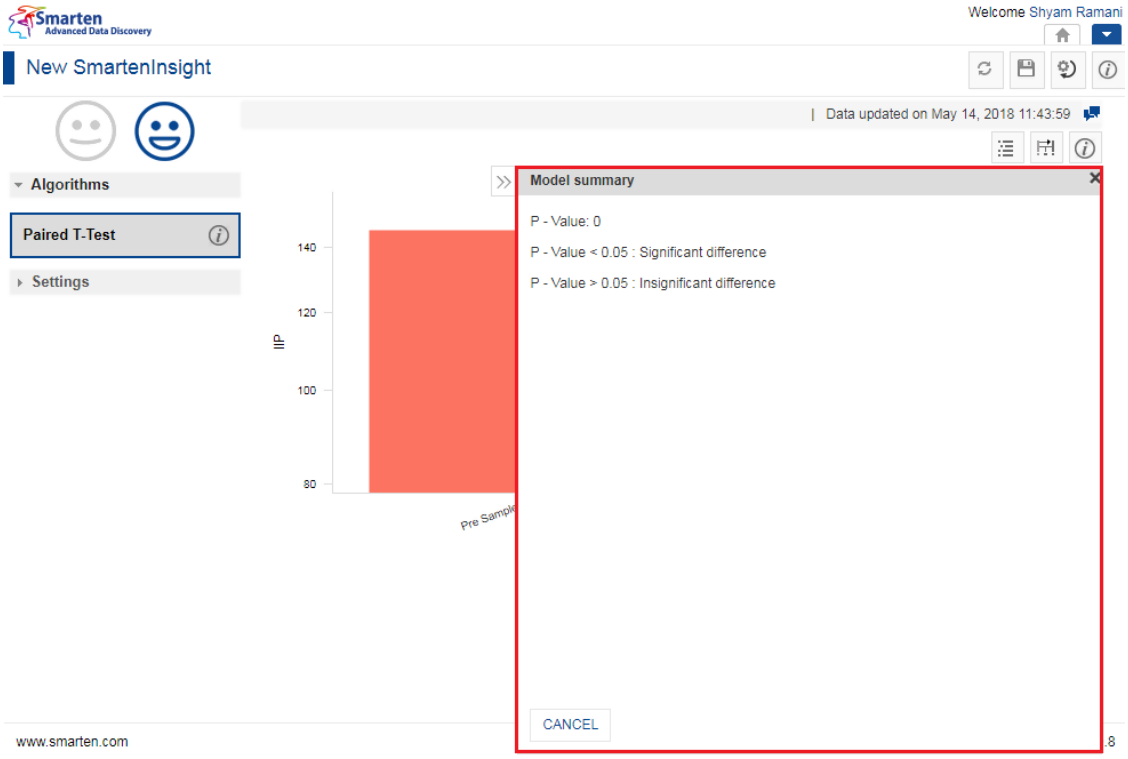
Procedure

1. Open the SmartenInsight pre-post analysis for which you want to view the model summary.
2. Click the Model summary icon on the toolbar.



MODEL SUMMARY OF PRE-POST ANALYSIS SMARTENINSIGHT—THE MODEL SUMMARY OPTION

The system displays the information in the **Model summary** dialog box.



MODEL SUMMARY OF PRE-POST ANALYSIS SMARTENINSIGHT—THE MODEL SUMMARY DIALOG BOX

4.9.2.1.3 Chart Information

You can view the information and help to interpret the chart that the system has generated for the model.

About this task

Use this task to view information about the chart for SmartenInsight.

Procedure

1. Open the SmartenInsight pre-post analysis for which you want to view information.
2. Click the Information icon on the toolbar.

CHART INFORMATION OF PRE-POST ANALYSIS—THE INFORMATION OPTION

The system displays the information and guide to interpreting the chart in a dialog box.

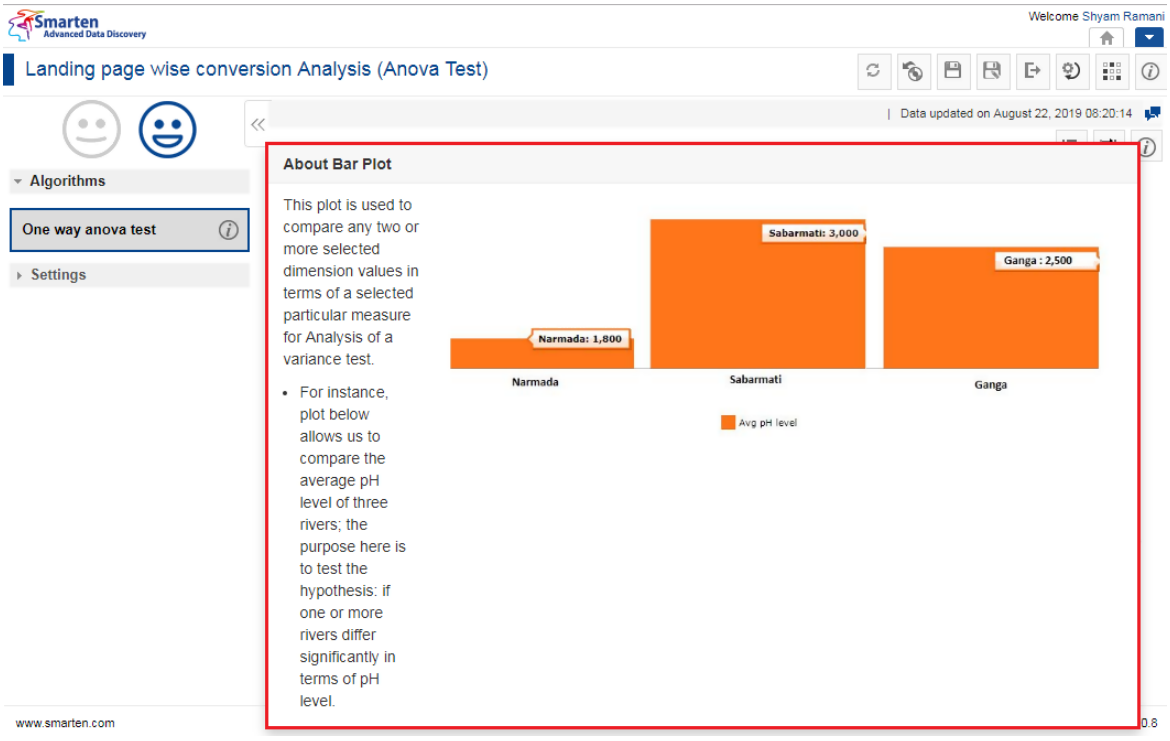


CHART INFORMATION OF PRE-POST ANALYSIS—THE ABOUT BAR PLOT DIALOG BOX

4.9.2.2 Chart Configuration

You can configure properties for SmartenInsight titles. You can configure properties of titles, such as font, size, color, style, and text transformation.

The **Title** settings:

Setting	Description
Select title	Enables you to select the title for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Label** settings:

Setting	Description
Select label	Enables you to select the label for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Format** settings:

Setting	Description
Measure	Enables you to select the measure for which you want to change the format.
Comma separator	Enables you to select the option to use a comma as the separator in the value of the selected measure.
Comma format	Enables you to select the comma format to specify the comma format you want to use in the values of the selected measure.
Digits after decimal point	Enables you to specify the number of digits to be displayed after the decimal point.
Adjusted digits	Enables you to specify an option to adjust digits in the value of the selected measure.
Show suffix	Enables you to show suffix for the selected measure.

4.9.2.3 Algorithms used for Pre-post Analysis

You can view the algorithm that is used for generating hypothesis testing. The following algorithm is available:

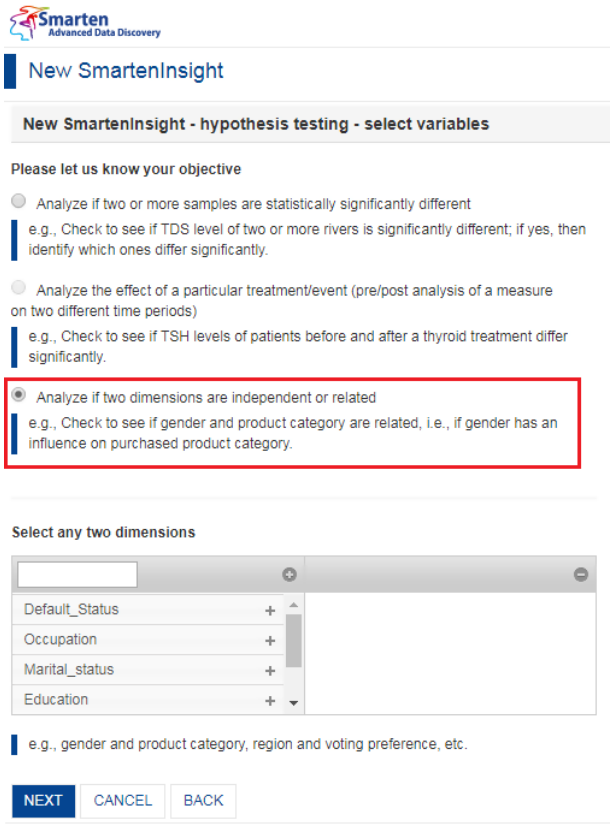
- **Paired T-test**: The Paired T-test analyzes the effect of a particular treatment or event.

4.9.3 Hypothesis Testing—Correlation Between Dimensions

You can perform hypothesis testing to analyze the correlation between dimensions from the selected dataset.

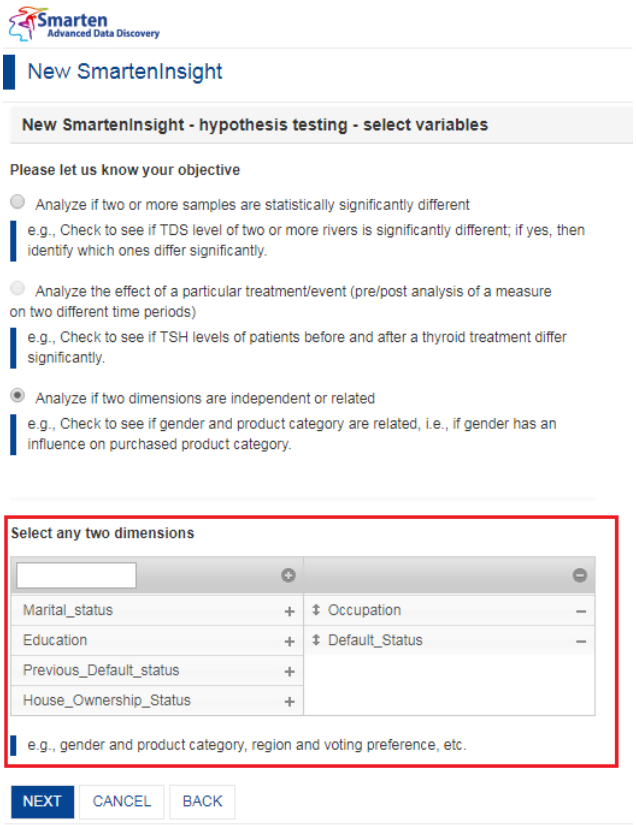
Procedure

1. Select the **Analyze if the two dimensions are independent of related** option from the **New SmartenInsight** page.



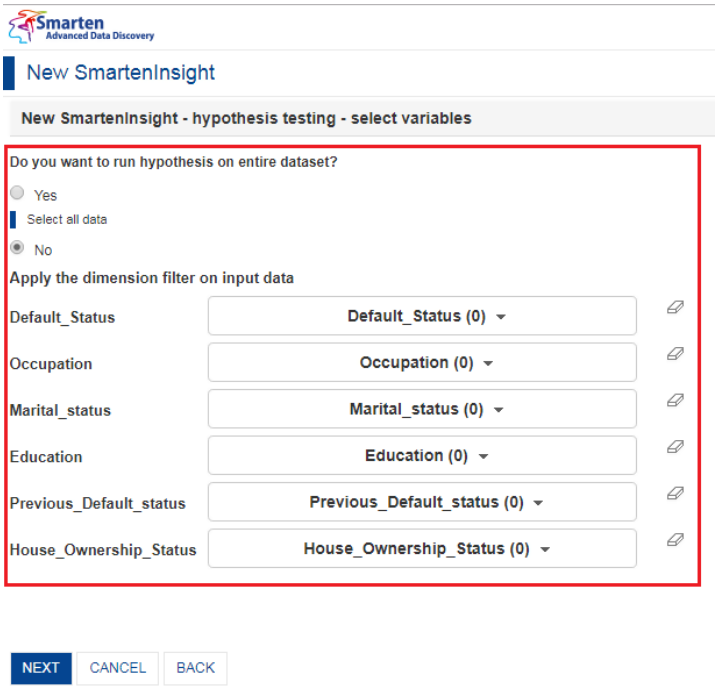
CORRELATION BETWEEN DIMENSIONS WITH SMARTENINSIGHT—SELECTING THE OBJECTIVE

2. Select the dimensions you want to analyze from the **Select any two dimensions** section, and then click **NEXT**.



CORRELATION BETWEEN DIMENSIONS WITH SMARTENINSIGHT—SELECTING THE DIMENSIONS

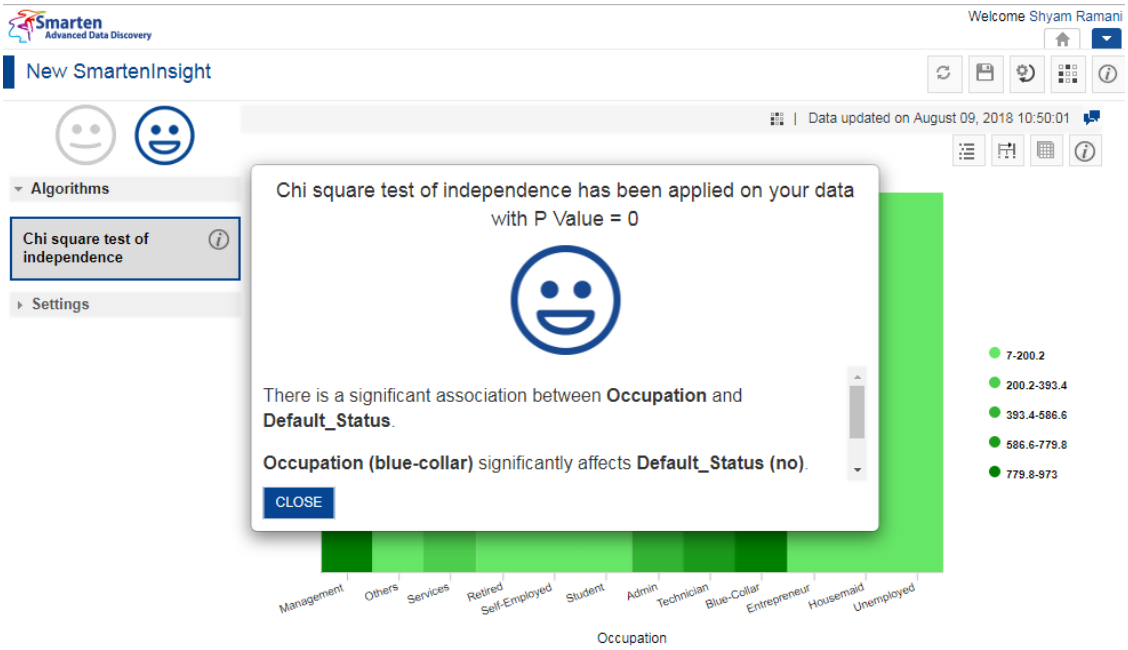
3. Select an option to specify whether or not you want to perform hypothesis testing on the entire dataset.
    - If you have selected the **No** option, you can select the column filters for which you want to perform hypothesis testing.



CORRELATION BETWEEN DIMENSIONS WITH SMARTENINSIGHT—APPLYING DIMENSION FILTER ON INPUT DATA

4. Click **NEXT**.

Based on the variables you have selected, the system selects the best suitable algorithm for correlation between dimensions and displays a summary.



CORRELATION BETWEEN DIMENSIONS WITH SMARTENINSIGHT—THE SYSTEM DISPLAYING SUMMARY OF SMARTENINSIGHT

5. Click **CLOSE**.
   Review the hypothesis testing generated.

4.9.3.1 Analyzing the Output of SmartenInsight—Correlation Between Dimensions

SmartenInsight provides information about the hypothesis based on the objective you have selected.

4.9.3.1.1 Interpretation

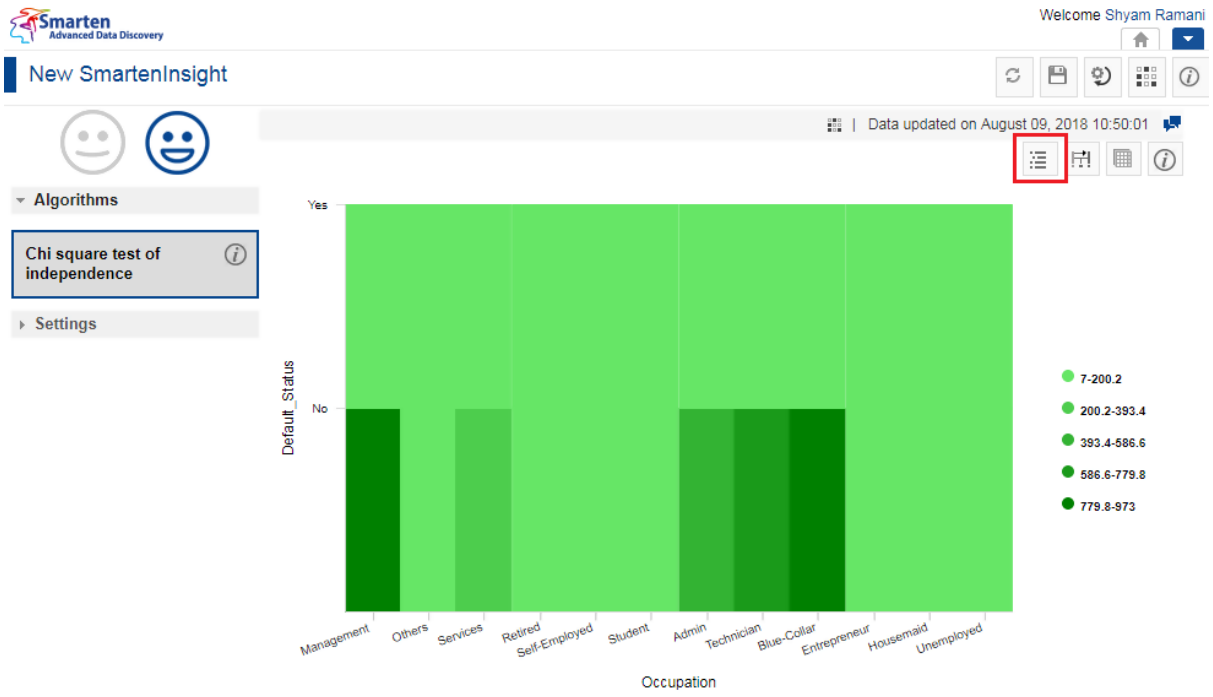
You can view the interpretation of the algorithm applied for correlation between dimensions. The interpretation provides information about insights of the model in simple language.

About this task

Use this task to view the interpretation of the SmartenInsight correlation between dimensions.

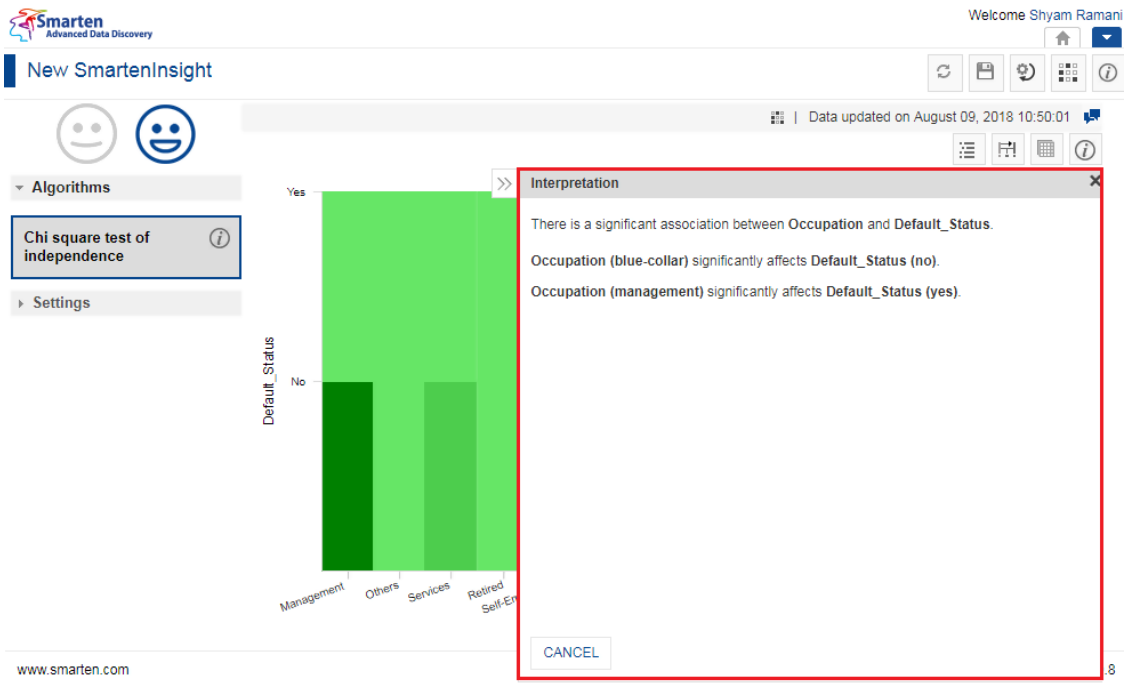
Procedure

1. Open the SmartenInsight correlation between dimensions for which you want to view interpretation.
2. Click the **Interpretation** icon on the toolbar.



INTERPRETING CORRELATION BETWEEN DIMENSIONS SMARTENINSIGHT—THE INTERPRETATION OPTION

The system displays the information in the **Interpretation** dialog box.



INTERPRETING CORRELATION BETWEEN DIMENSIONS SMARTENINSIGHT—THE INTERPRETATION DIALOG BOX

4.9.3.1.2 Model Summary

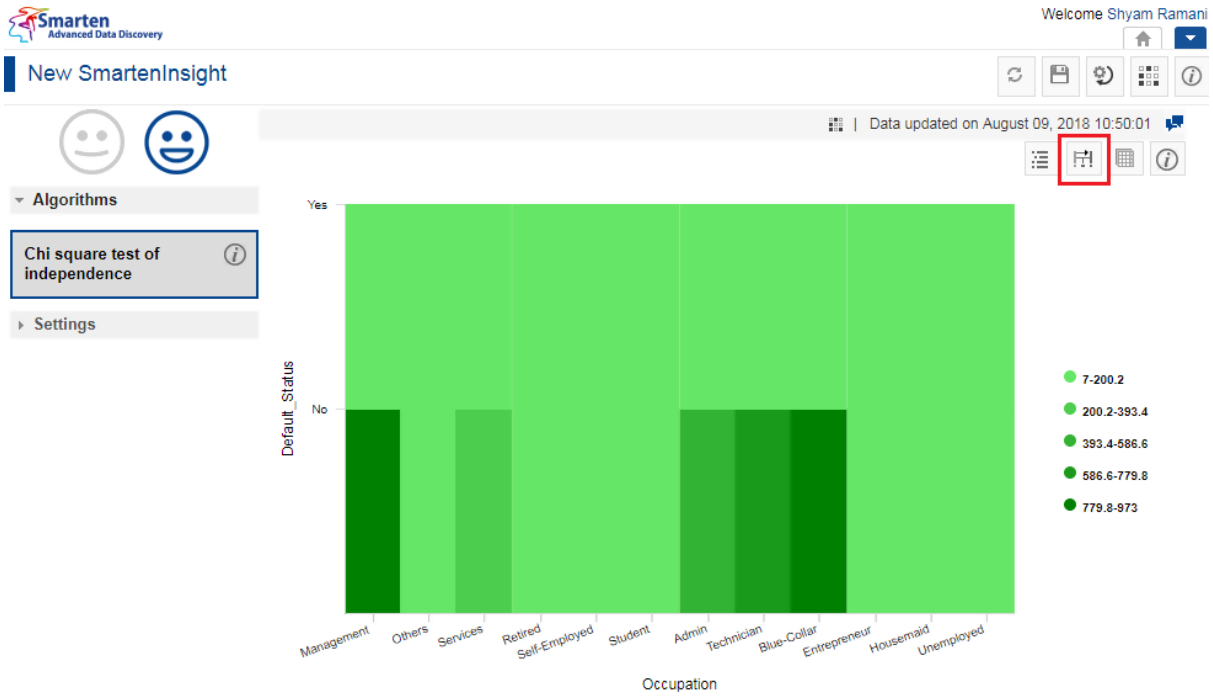
You can view the model summary of the SmartenInsight correlation between dimensions.

About this task

Use this task to view the model summary of the SmartenInsight correlation between dimensions.

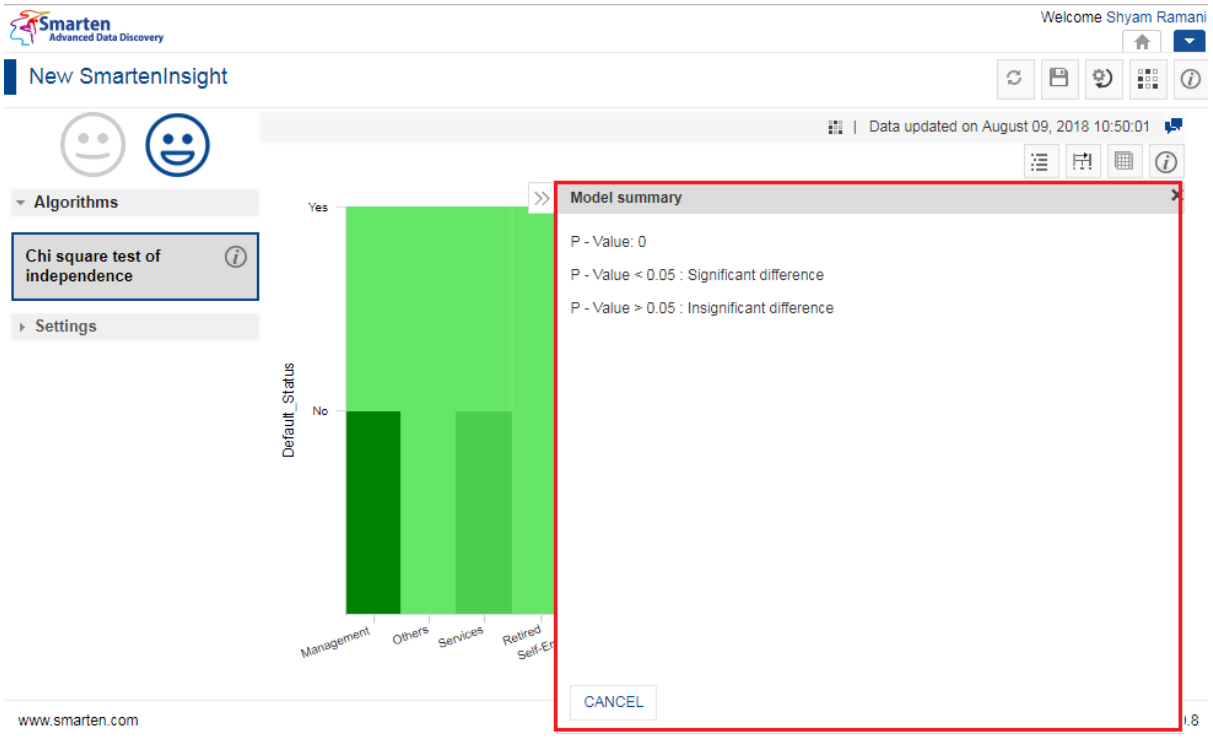
Procedure

1. Open the SmartenInsight correlation between dimensions for which you want to view the model summary.
2. Click the Model summary icon on the toolbar.



MODEL SUMMARY OF CORRELATION BETWEEN DIMENSIONS SMARTENINSIGHT—THE MODEL SUMMARY OPTION

The system displays the information in the **Model Summary** dialog box.



MODEL SUMMARY OF CORRELATION BETWEEN DIMENSIONS SMARTENINSIGHT—THE MODEL SUMMARY DIALOG BOX

4.9.3.2 Data

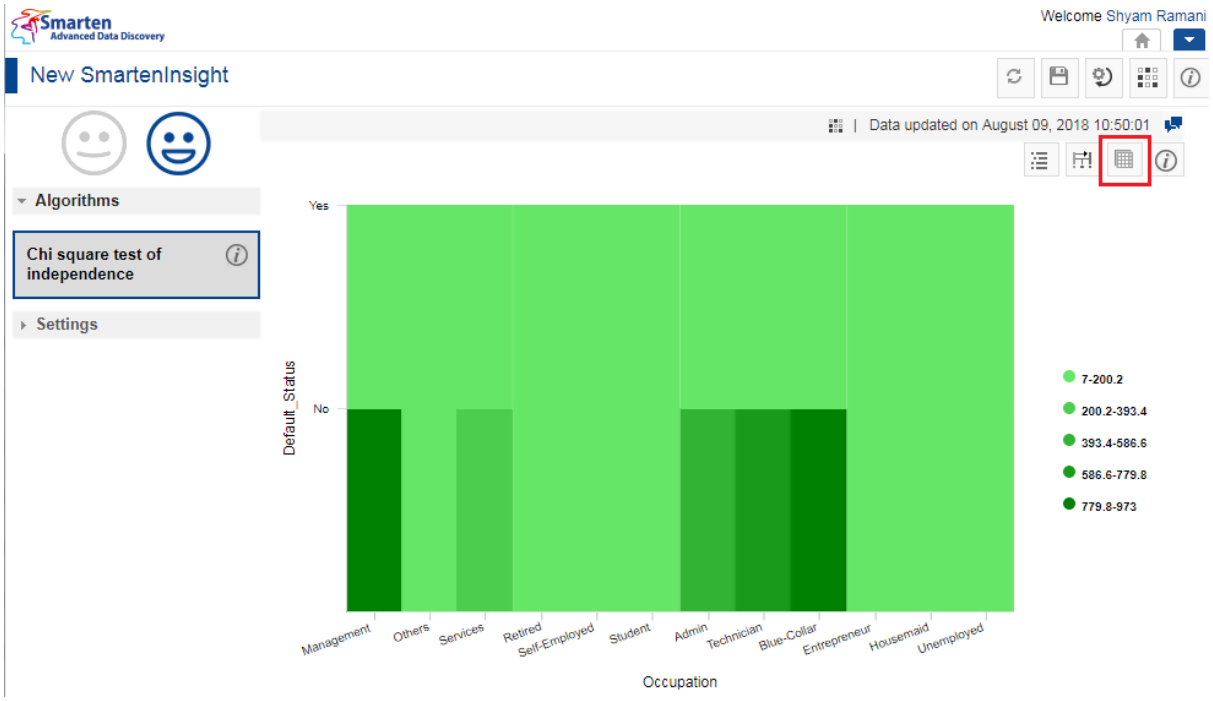
You can view the data used for the SmartenInsight analyzing correlation between dimensions.

About this task

Use this task to view the model summary of the SmartenInsight correlation between dimensions object.

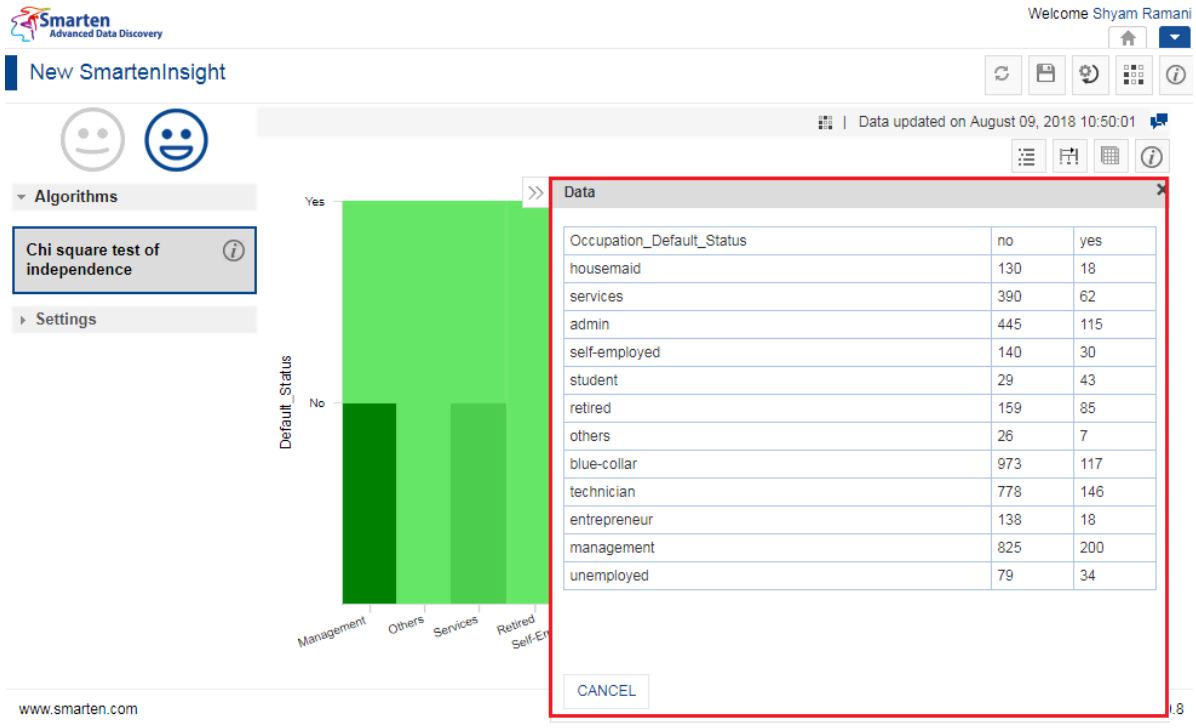
Procedure

1. Open the SmartenInsight correlation between dimensions object for which you want to view data.
2. Click the Data icon on the toolbar.



DATA OF CORRELATION BETWEEN DIMENSIONS SMARTENINSIGHT—THE DATA OPTION

The system displays the information in the **Data** dialog box.



DATA OF CORRELATION BETWEEN DIMENSIONS SMARTENINSIGHT—THE DATA DIALOG BOX

4.9.3.2.1 Chart Information

You can view the information and help to interpret the chart that the system has generated for the model.

About this task

Use this task to view information about the chart for SmartenInsight.

Procedure

1. Open the SmartenInsight pre-post analysis for which you want to view information.
2. Click the Information icon on the toolbar.

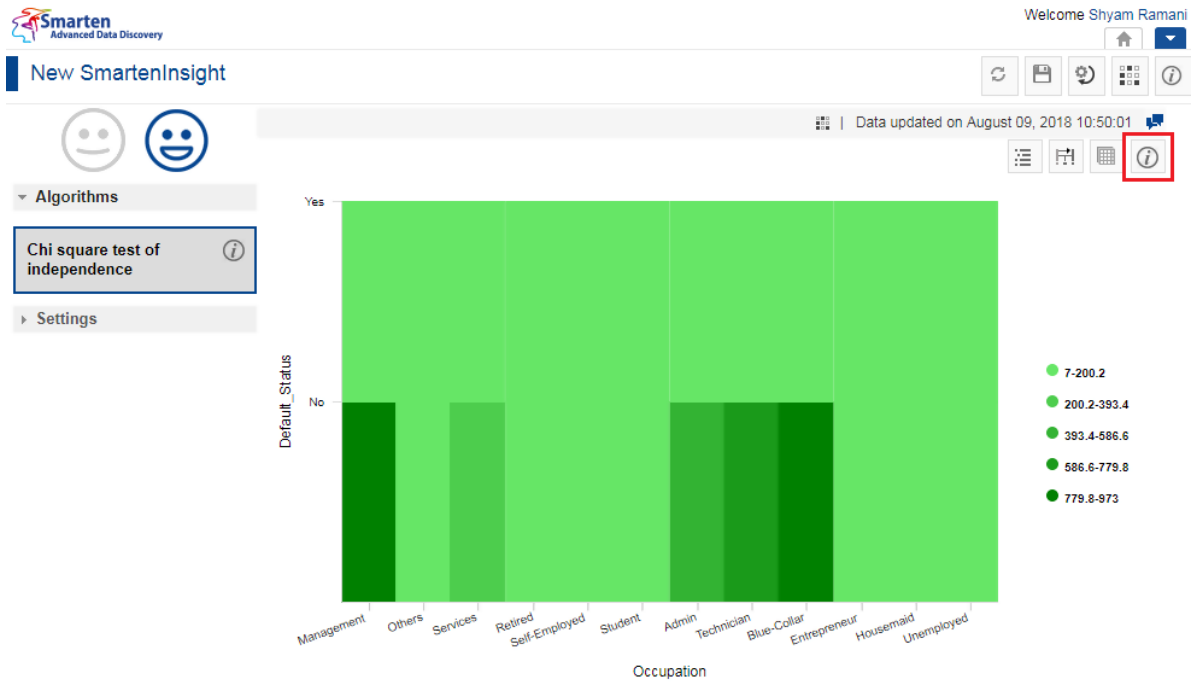


CHART INFORMATION OF CORRELATION BETWEEN DIMENSIONS—THE INFORMATION OPTION

The system displays the information and guide to interpreting the chart in a dialog box.

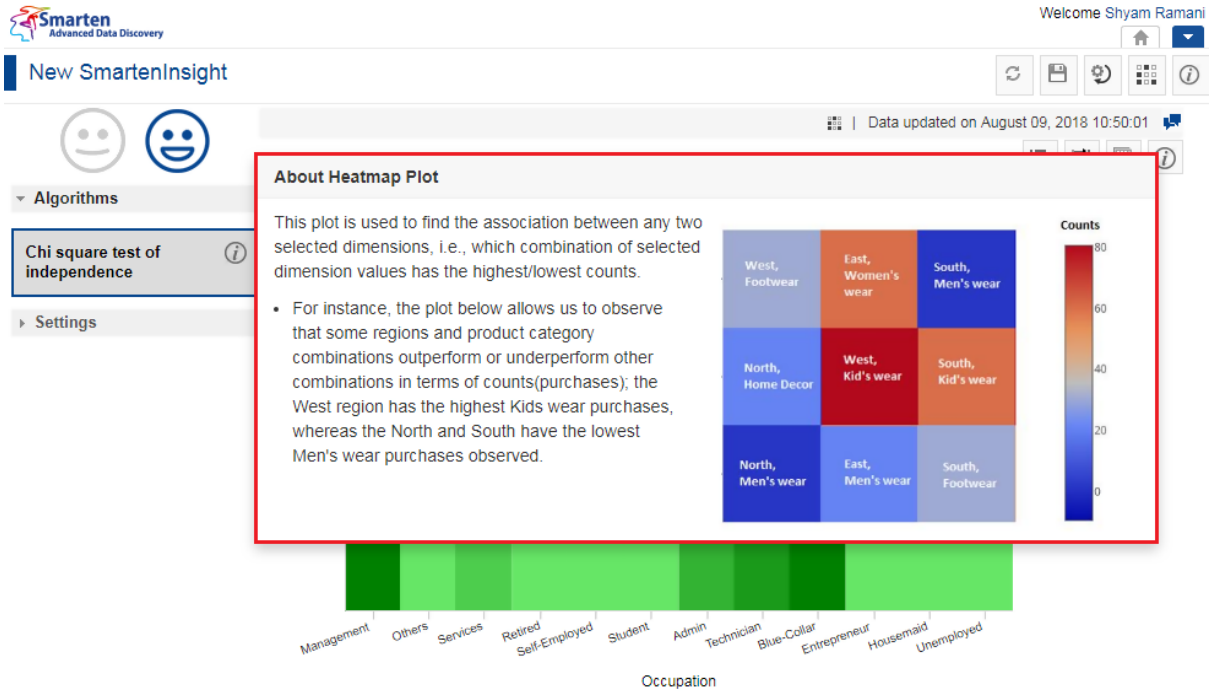


CHART INFORMATION OF CORRELATION BETWEEN DIMENSIONS—THE ABOUT HEATMAP PLOT DIALOG BOX

4.9.3.3 Chart Configuration

You can configure properties for SmartenInsight titles. You can configure properties of titles, such as font, size, color, style, and text transformation.

The **Title** settings:

Setting	Description
Select title	Enables you to select the title for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Label** settings:

Setting	Description
Select label	Enables you to select the label for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.

Text transform	Enables you to select an option to transform the font.

The **Quick** settings:

Setting	Description
Enable sampling	Enables you to apply sampling of data from the dataset.

4.9.3.4 Algorithms used for Correlation Between Dimensions

You can view the algorithm that is used for generating hypothesis testing. The following algorithm is available:

- **Chi square test of independence**: The Chi square test determines if the two dimensions you have selected are independent or related.

4.10 Descriptive Statistics with SmartenInsight

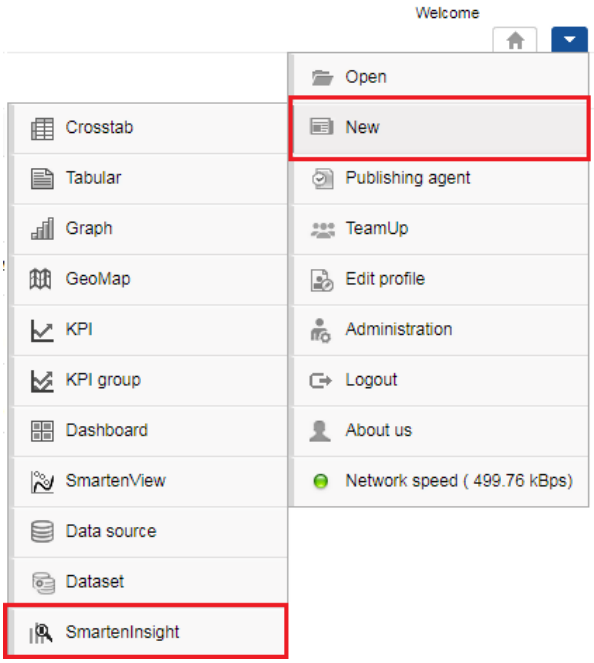
You can use SmartenInsight to analyze a dataset with descriptive statistics. For example, you can find the mean, median, mode, standard deviation, variance, skewness, and kurtosis.

About this task

Use this task to create basic statistics using SmartenInsight.

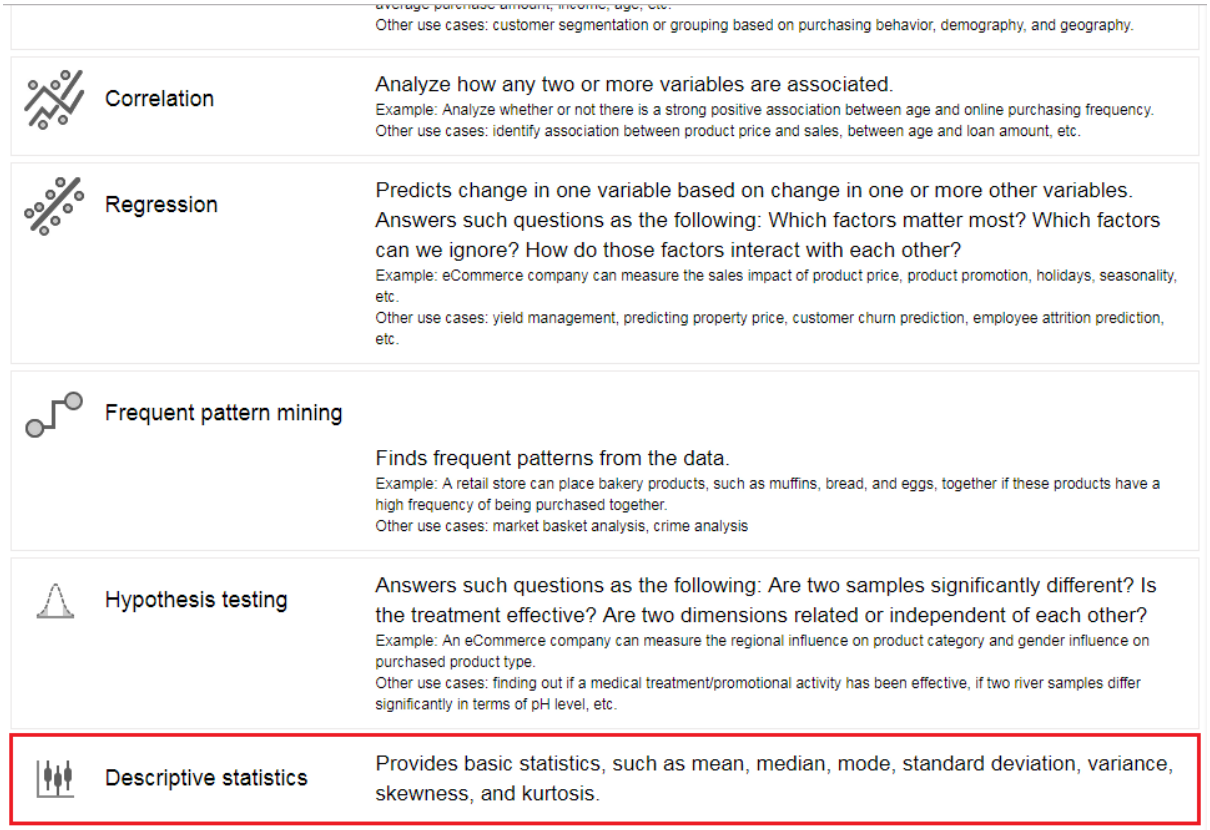
Procedure

1. Click **New** -> **SmartenInsight** from the menu.



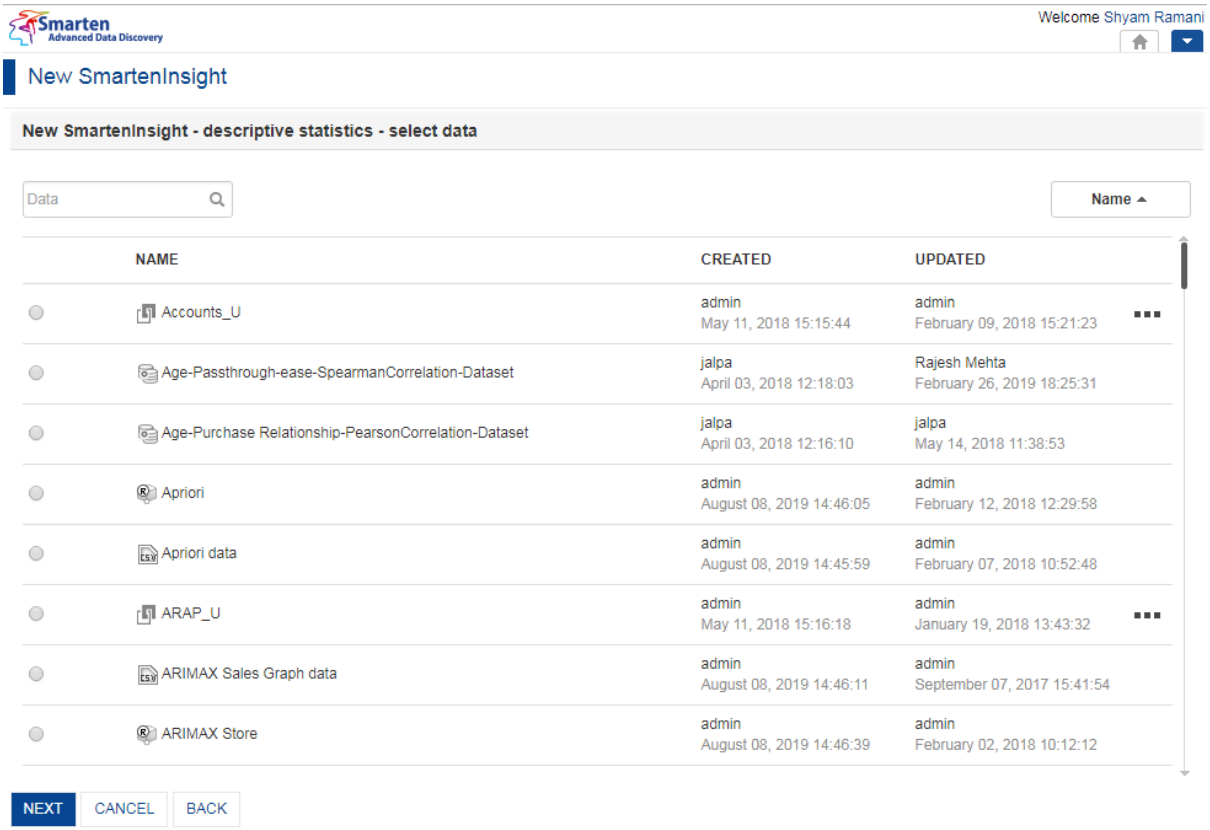
MENU OPTION—NEW SMARTENINSIGHT

The system displays the **What do you want to do** page.



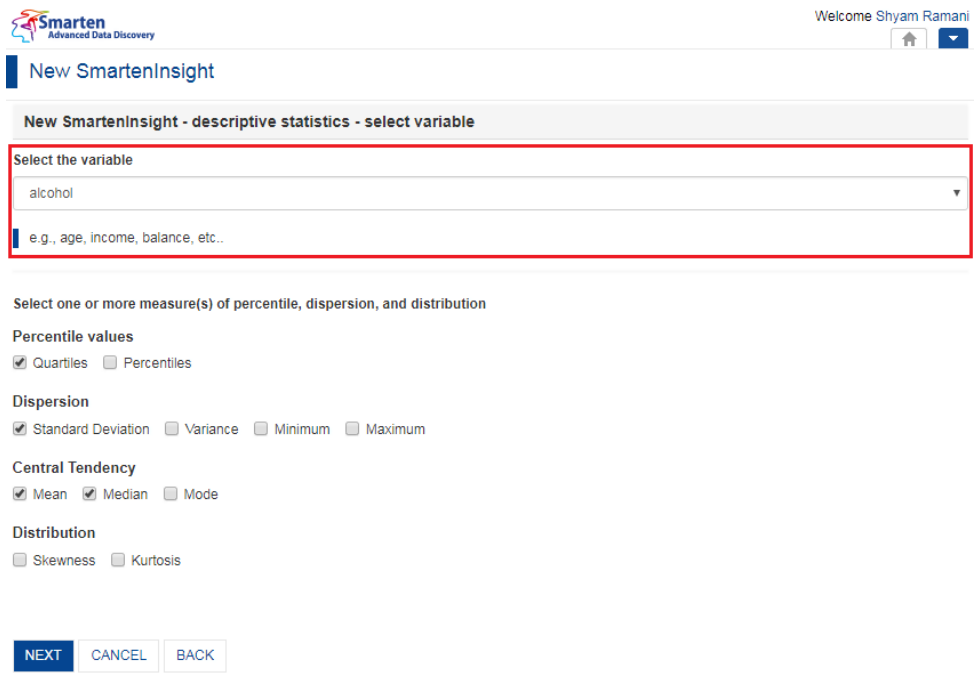
DESCRIPTIVE STATISTICS WITH SMARTENINSIGHT—SELECTING A SMARTENINSIGHT TYPE

2. Click **Descriptive statistics**.
   The system displays the **New SmartenInsight** screen.



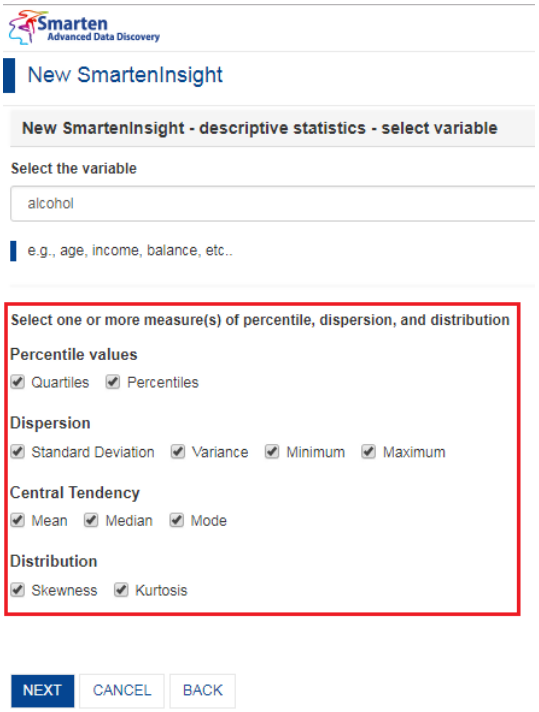
THE NEW SMARTENINSIGHT PAGE—SELECTING THE DATASET OR CUBE FOR SMARTENINSIGHT

3. Select the dataset or cube you want to use for SmartenInsight, and then click **NEXT**.
4. Select the variable you want to use from the **Select the variable** list.



DESCRIPTIVE STATISTICS WITH SMARTENINSIGHT—SELECTING THE VARIABLE

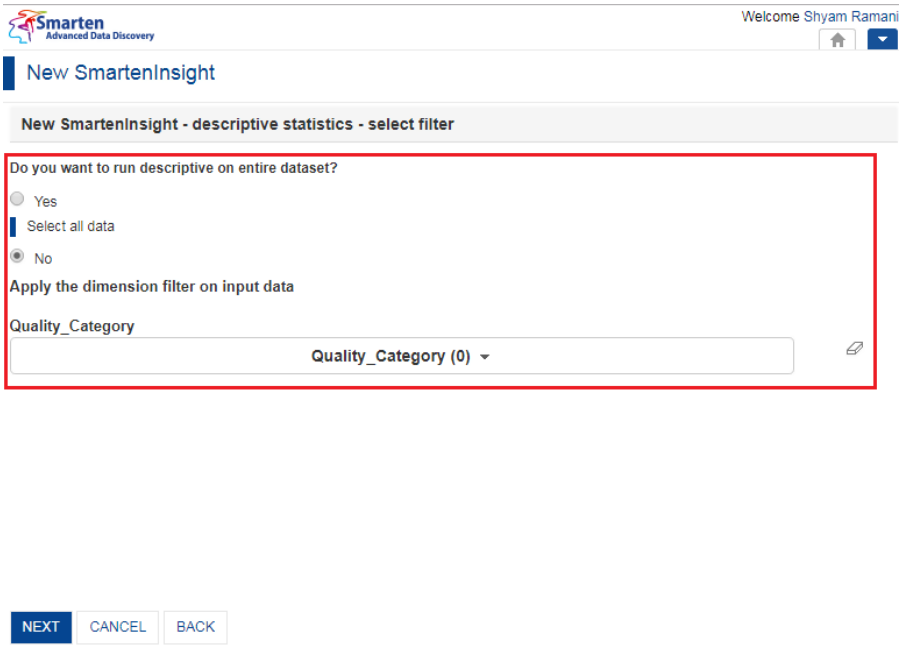
5. Select one or more option for **Percentile values**, **Dispersion**, **Central Tendency**, and **Distribution**, and then click **NEXT**.



DESCRIPTIVE STATISTICS WITH SMARTENINSIGHT—SELECTING OPTIONS FOR PERCENTILE, DISPERSION, AND DISTRIBUTION

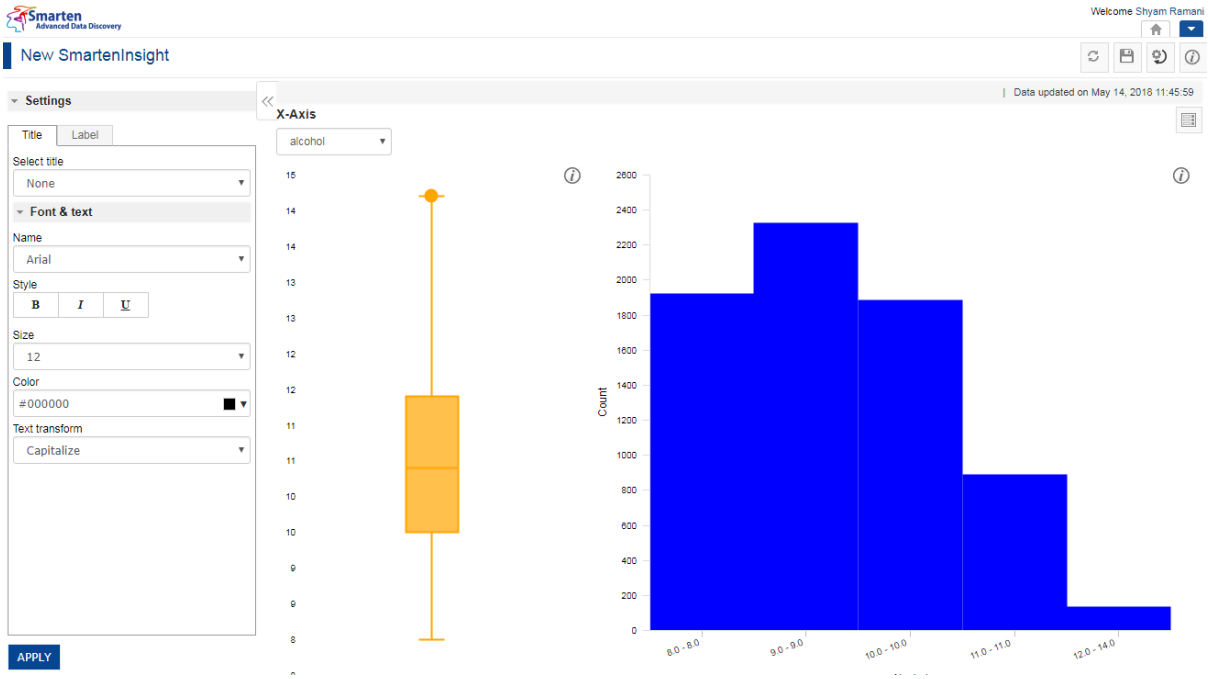
6. Select an option to specify whether or not you want to run the descriptive statistics on the entire dataset, and then click **NEXT**.

- If you have selected the **No** option, you can select the column filters for which you want to find descriptive statistics.



DESCRIPTIVE STATISTICS WITH SMARTENINSIGHT—APPLYING DIMENSION FILTER ON INPUT DATA

7. Based on the variables you have selected, the system calculates basic statistics from the data.



DESCRIPTIVE STATISTICS WITH SMARTENINSIGHT—THE SYSTEM DISPLAYING SUMMARY OF SMARTENINSIGHT

4.10.1 Analyzing the Output of SmartenInsight—Descriptive Statistics

SmartenInsight provides information about the descriptive statistics based on the variables you have selected.

4.10.1.1 Summary Statistics

You can view the summary statistics of the basic statistics calculated from the selected dataset. The summary provides information about the mean, median, standard deviation, and quartiles for the selected variable.

About this task

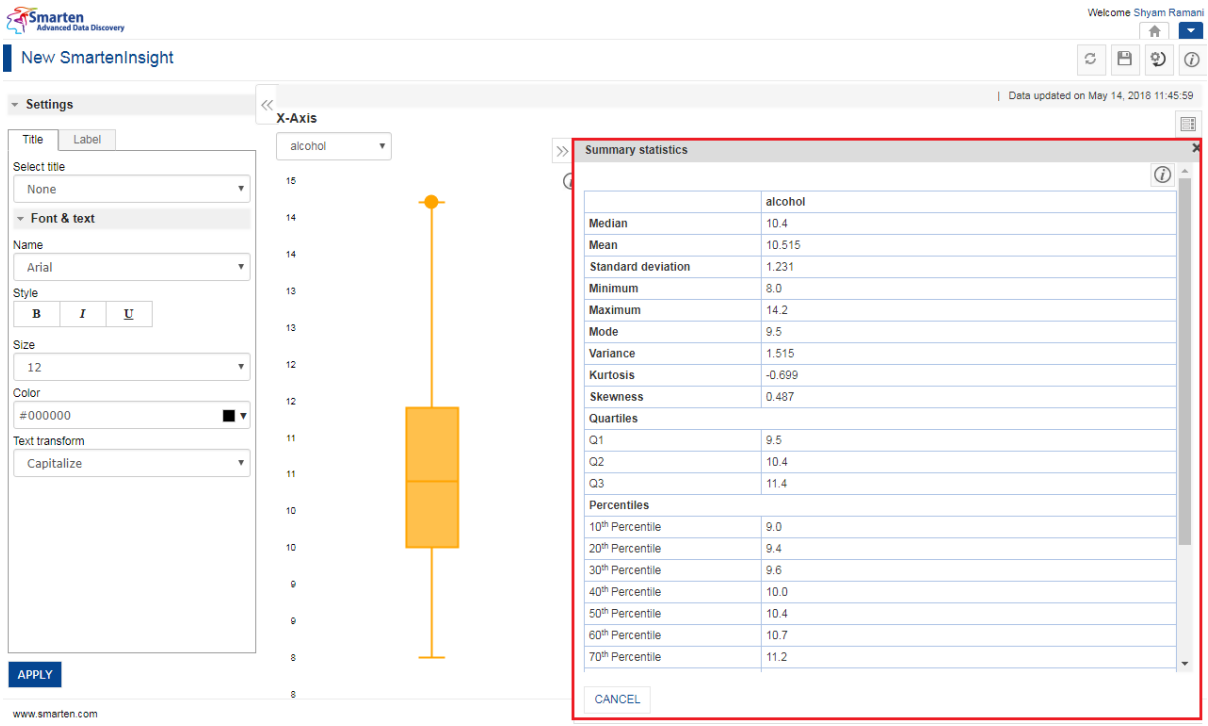
Use this task to view the summary statistics for the selected dataset.

Procedure

1. Open the SmartenInsight descriptive statistics object for which you want to view summary statistics.
2. Click the **Summary Statistics** icon on the toolbar.

SUMMARY OF SMARTENINSIGHT—THE SUMMARY STATISTICS OPTION

The system displays the information in the **Summary statistics** dialog box.



SUMMARY OF SMARTENINSIGHT—THE SUMMARY STATISTICS DIALOG BOX

The following table provides information about the **statistical functions**:

Statistic Term	Description
Median	Represents the value in the middle when the data items are arranged in ascending order.
Mean	Represents the average of all the data items in the data.
Standard deviations	Represents the measure of how spread out a dataset is.
Minimum	Represents the minimum value among the data items in the data.
Maximum	Represents the maximum value among the data items in the data.
Mode	Represents the most frequently occurring value in a series of data.
Variance	Represents how spread out the data in the data set is.
Kurtosis	Represents a measure of the peakedness of a dataset.
Skewness	Represents a measure of symmetry; a dataset is symmetric if it looks the same to the left and right of the center point.
Quartiles	Represents specific percentiles that divide the dataset into four equal parts.
Percentiles	Represents a percentage position in a list of data.

4.10.1.1 Chart Configuration

You can configure properties for SmartenInsight titles. You can configure properties of titles, such as font, size, color, style, and text transformation.

The **Title** settings:

Setting	Description
Select title	Enables you to select the title for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

The **Label** settings:

Setting	Description
Select label	Enables you to select the label for which you want to configure properties.
Name	Enables you to select the font you want to apply.
Style	Enables you to select the style you want to apply to the font.
Size	Enables you to select the size of the font.
Color	Enables you to select the color for the font.
Text transform	Enables you to select an option to transform the font.

4.11 Refresh SmartenInsight

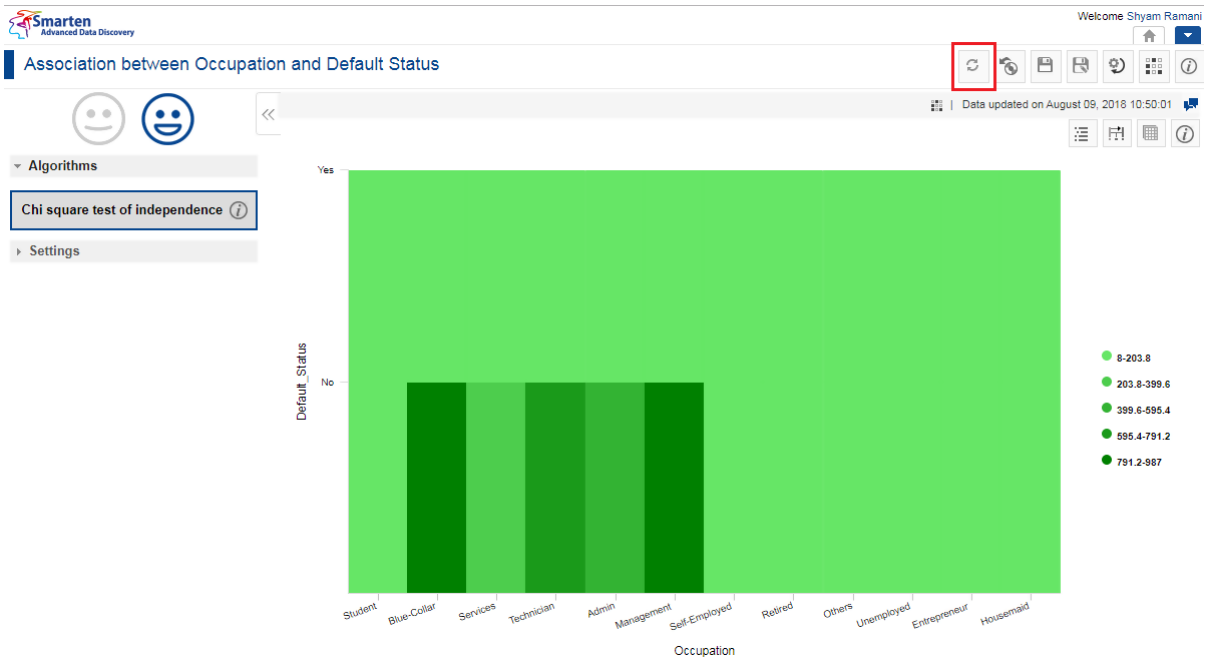
This option enables you to refresh the data and regenerate SmartenInsight based on the refreshed data.

About this task

Use this task to refresh the data used for generating SmartenInsight.

Procedure

1. Open the SmartenInsight for which you want to refresh data.
2. Click the Refresh icon.



OPERATIONS ON SMARTENINSIGHT—THE REFRESH ICON

The system refreshes the data and regenerates SmartenInsight.

4.12 Restore SmartenInsight

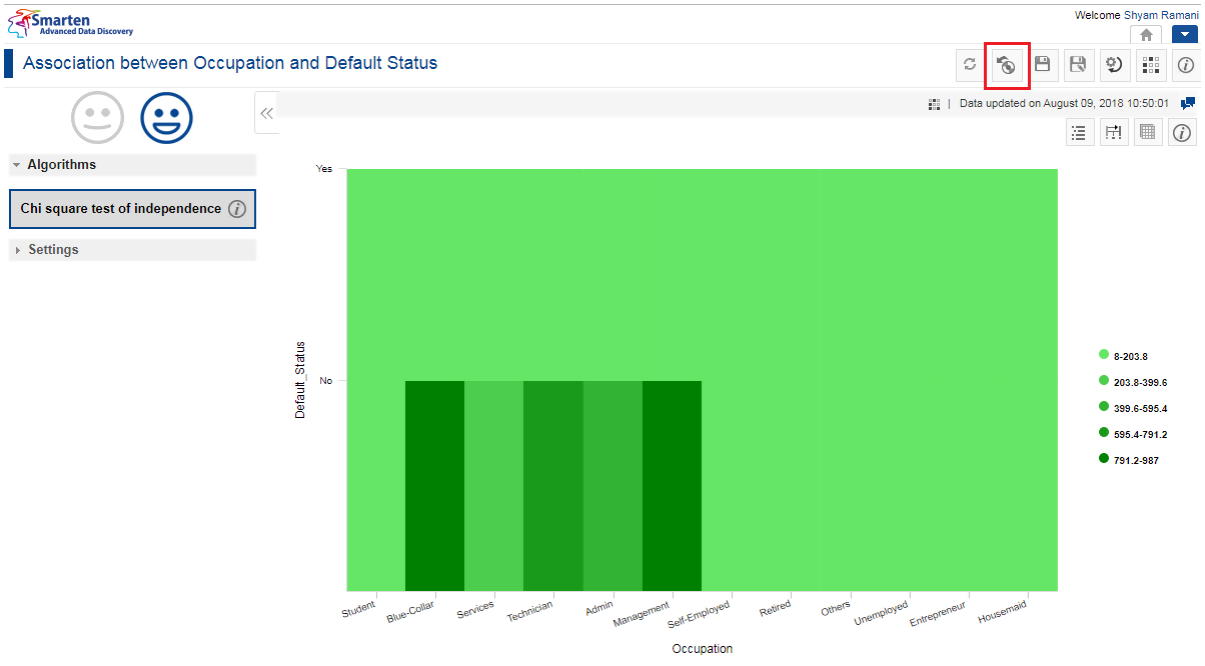
This option enables you to restore the last saved state of SmartenInsight.

About this task

Use this task to restore the default settings for SmartenInsight.

Procedure

1. Open the SmartenInsight for which you want to restore.
2. Click the Restore icon.



OPERATIONS ON SMARTENINSIGHT—THE RESTORE ICON

The system restores the last saved settings and regenerates the SmartenInsight.

4.13 Save SmartenInsight

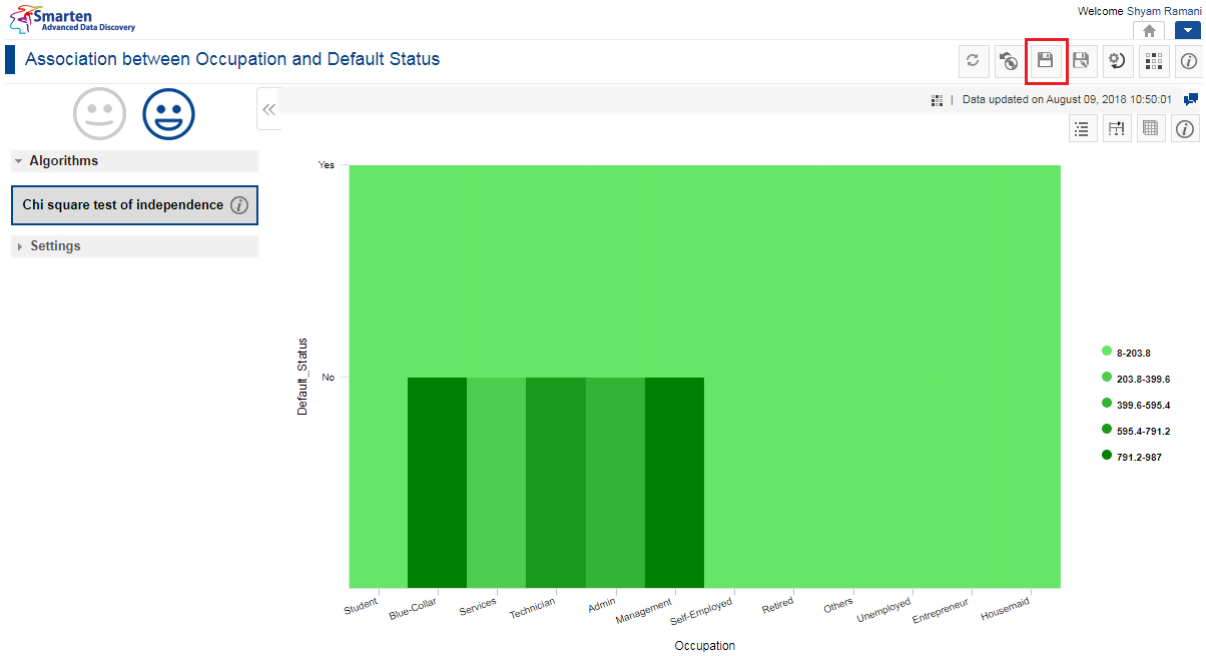
You can either create and save a new SmartenInsight or modify and save an existing SmartenInsight.

About this task

Use this task to save a SmartenInsight.

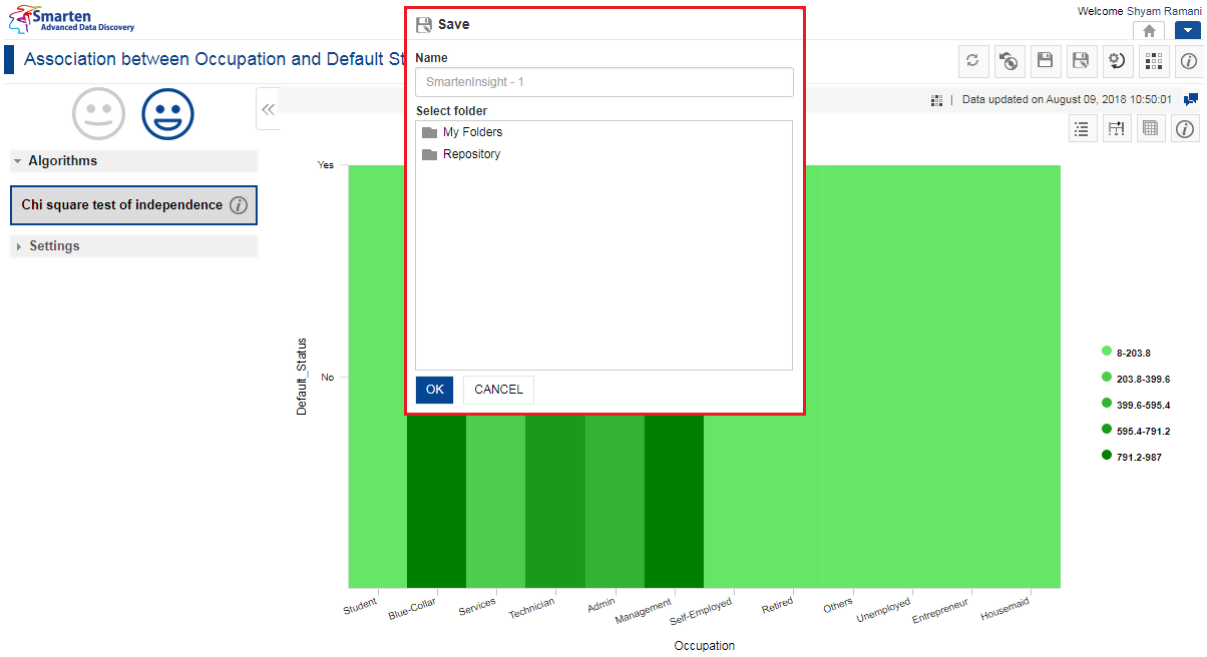
Procedure

1. Create a new SmartenInsight.
   or
   Open an existing SmartenInsight.
2. Make the required changes in SmartenInsight.
3. Click the Save icon.



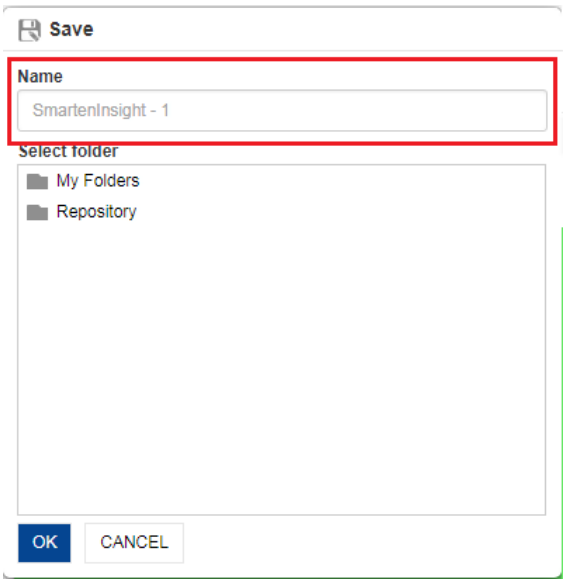
OPERATIONS ON SMARTENINSIGHT—THE SAVE ICON

The system displays the **Save** dialog box.



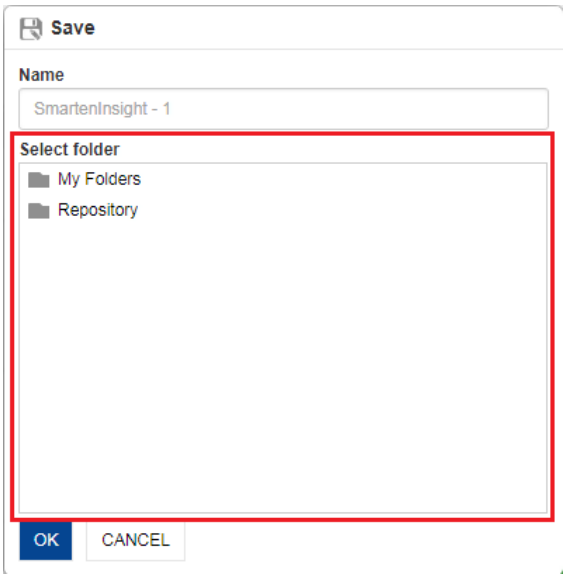
OPERATIONS ON SMARTENINSIGHT—THE SAVE DIALOG BOX

4. Specify a name for SmartenInsight in the **Name** field.



OPERATIONS ON SMARTENINSIGHT—SPECIFY A NAME FOR SMARTENINSIGHT

5. Select the folder from the **Select Folder** section in which you want to save SmartenInsight.



OPERATIONS ON CHARTS—SELECTING THE FOLDER

6. Click **OK**.

4.14 Save As SmartenInsight

You can use this option to save a copy of an existing SmartenInsight with a new name.

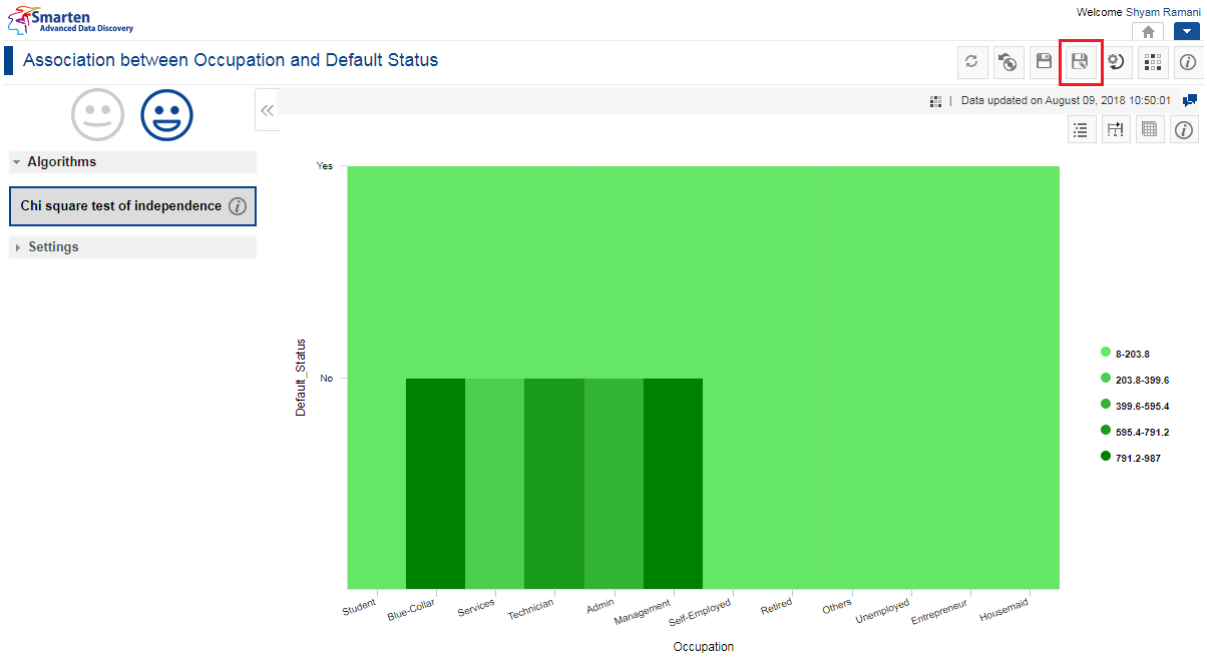
About this task

Use this task to save a copy of an existing SmartenInsight.

Procedure

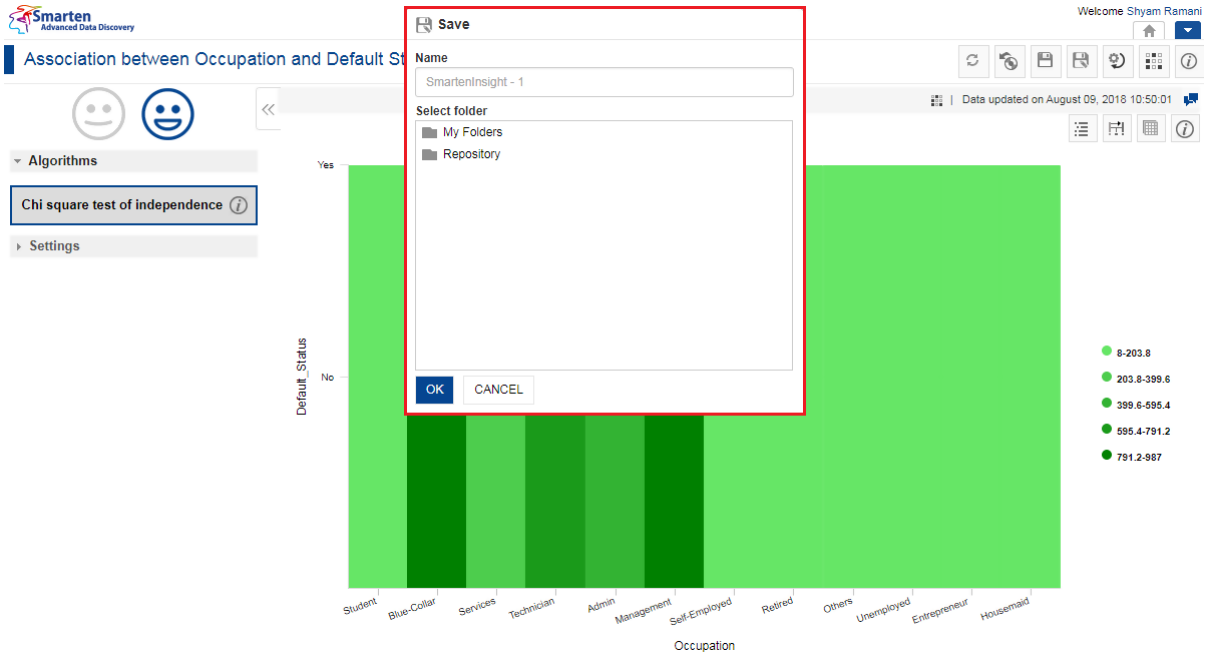
1. Open the existing SmartenInsight that you want to save.
2. Click the Save As icon.

> **Note:**
> The Save As icon is only available for existing SmartenInsight.



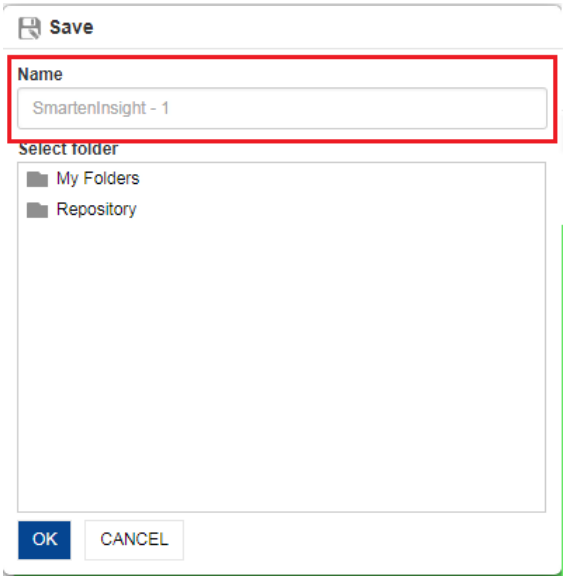
OPERATIONS ON CHART—THE SAVE AS ICON

The system displays the **Save As** dialog box.



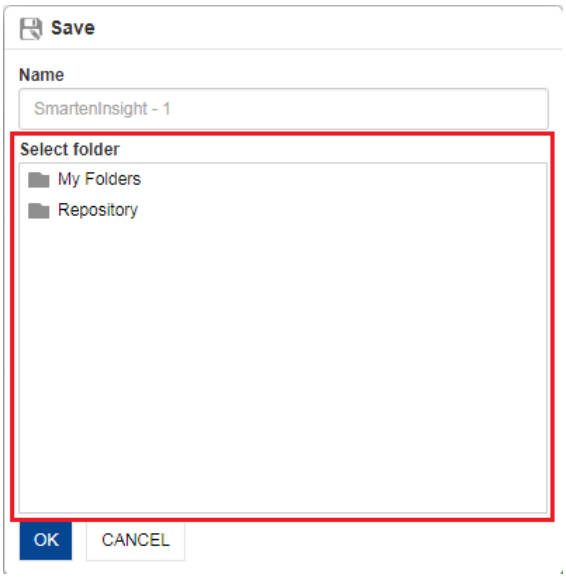
OPERATIONS ON SMARTENINSIGHT—THE SAVE AS DIALOG BOX

3. Specify a name for SmartenInsight in the **Name** field.



OPERATIONS ON SMARTENINSIGHT—SPECIFY SAVE AS NAME FOR SMARTENINSIGHT

4. Select the folder from the **Select Folder** section in which you want to save SmartenInsight.



OPERATIONS ON SMARTENINSIGHT—SELECTING THE FOLDER FOR SAVE AS

5. Click **OK**.

4.15 Change Model Parameters for SmartenInsight

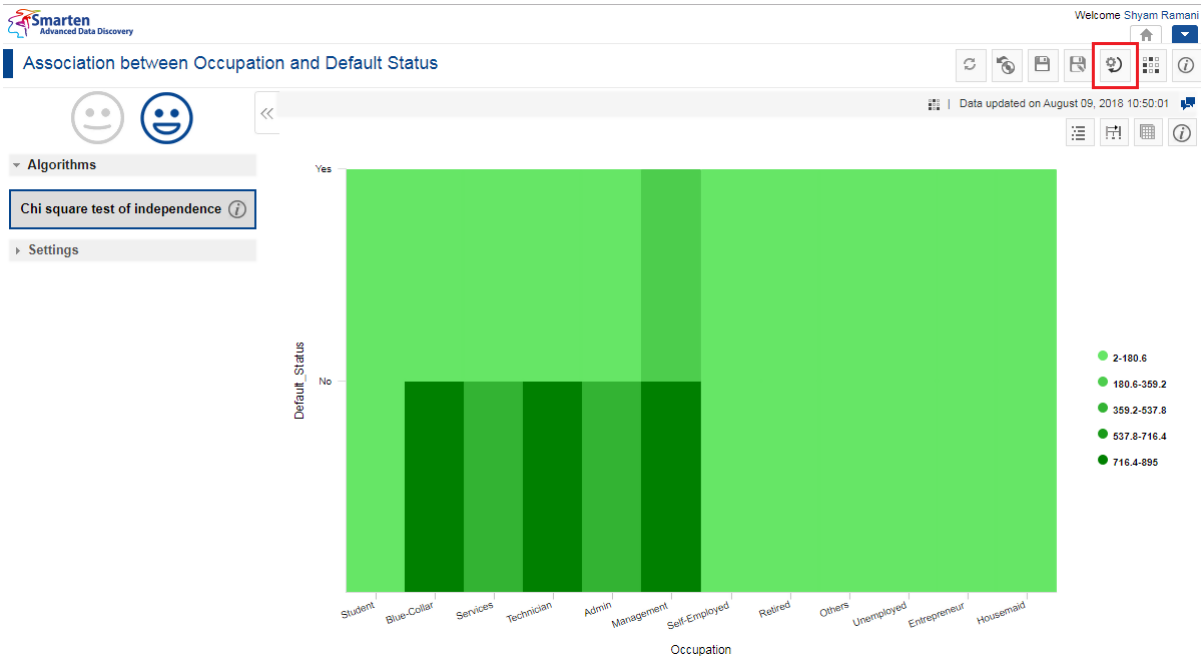
You can use this option to change the model parameters used to generate SmartenInsight.

About this task

Use this task to change the parameters used for generating SmartenInsight.

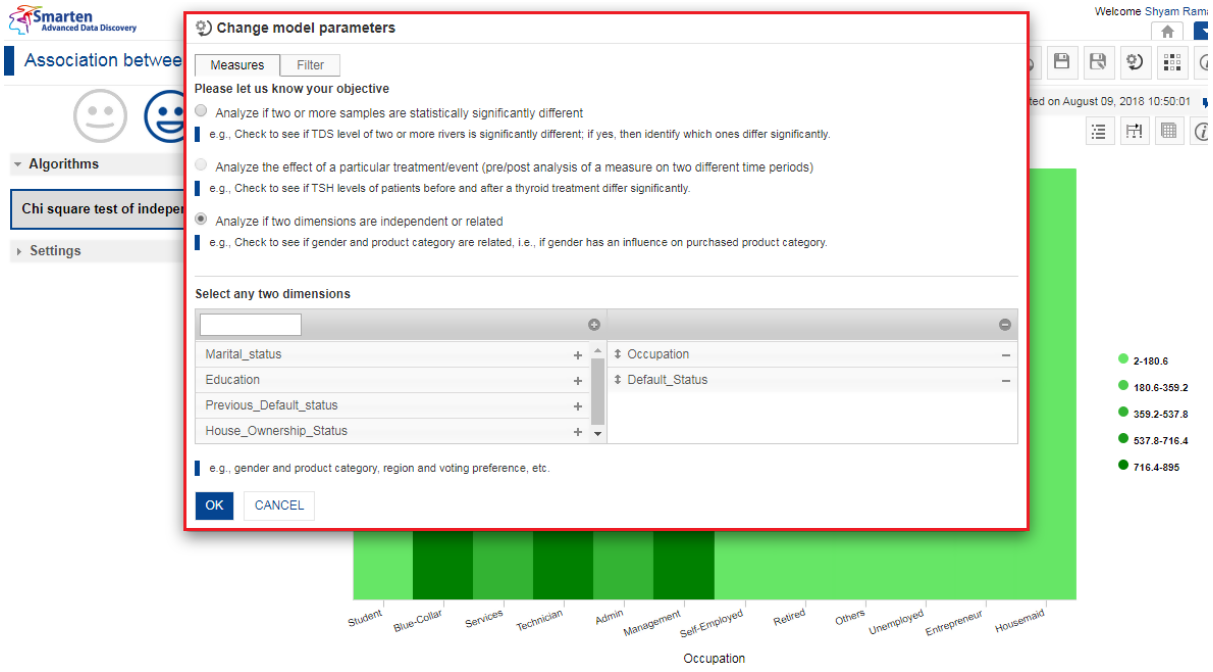
Procedure

1. Create a new SmartenInsight.
   or
   Open an existing SmartenInsight.
2. Click the Change model parameters icon.



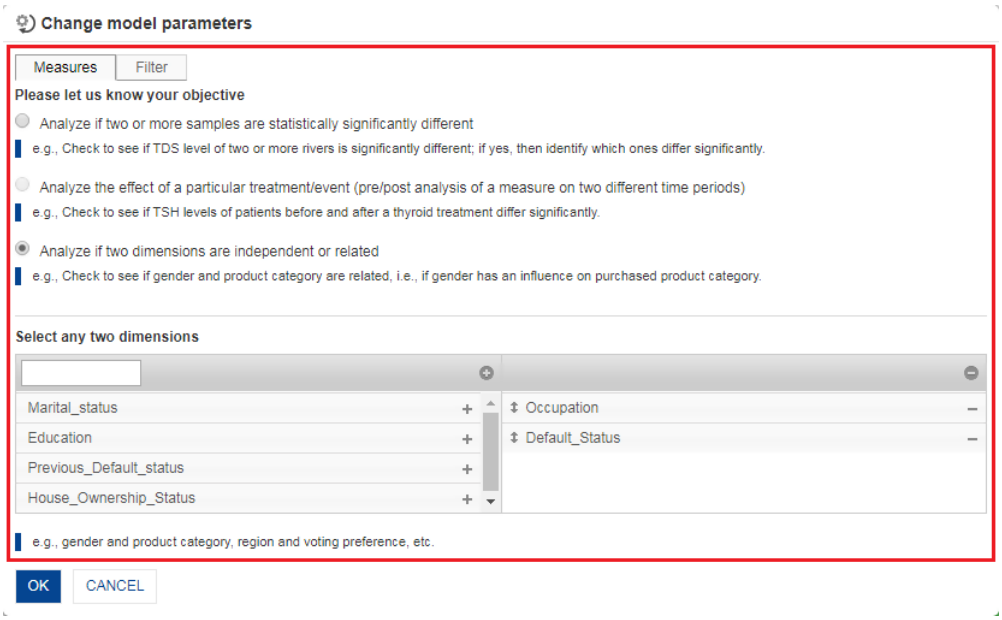
OPERATIONS ON SMARTENINSIGHT—THE CHANGE MODEL PARAMETERS ICON

3. The system displays the **Change model parameters** dialog box.



OPERATIONS ON SMARTENINSIGHT—THE CHANGE MODEL PARAMETERS DIALOG BOX

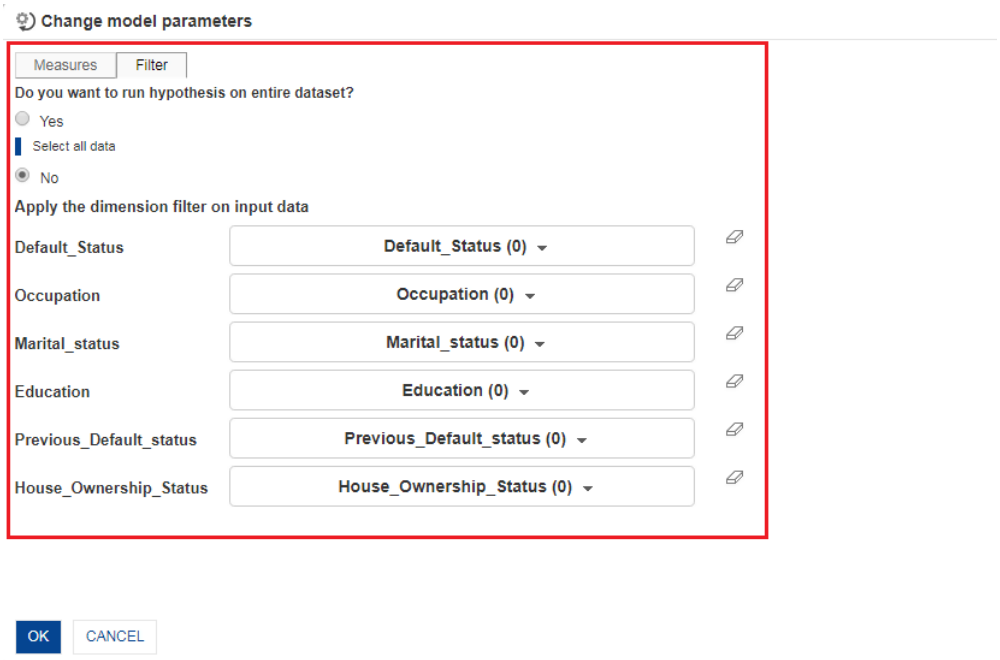
4. Make the required changes for the parameters.



OPERATIONS ON SMARTENINSIGHT—CHANGE MODEL PARAMETERS

> Note:
> The parameters available in the dialog box are based on the SmartenInsight algorithm type for which you are changing the parameters.

5. Click the **Filter** tab to make changes for filters applied on input data.



OPERATIONS ON SMARTENINSIGHT—THE FILTER TAB TO APPLY FILTER ON INPUT DATA

6. Click **OK**.

4.16 Sampling Data for SmartenInsight

You may not need to work with full data to create and analyze SmartenInsight. Sampling features allow you to select samples from the source data and apply to SmartenInsight.

4.16.1 Working with Auto Sampling Mode

The auto mode automatically applies sampling on the dataset that contains more than certain records and generates SmartenInsight with sample data instead of the whole data.

About this task

Use this task to perform auto sampling of data for SmartenInsight.

Procedure

1. Open a SmartenInsight object.
2. You can click the **Sampling** option on the toolbar to view information about the sampling method applied and the size of the sample. By default, the **Auto** option is selected, and if you want to change the sampling size, you must select the **Manual** option to change sampling parameters.

4.16.2 Working with Manual Sampling Mode

The manual mode of sampling allows you to change the limit of records that should be considered for generating SmartenInsight. You can also select the method of sampling using manual mode.

The following table provides information about the sampling method used for various SmartenInsight algorithms:

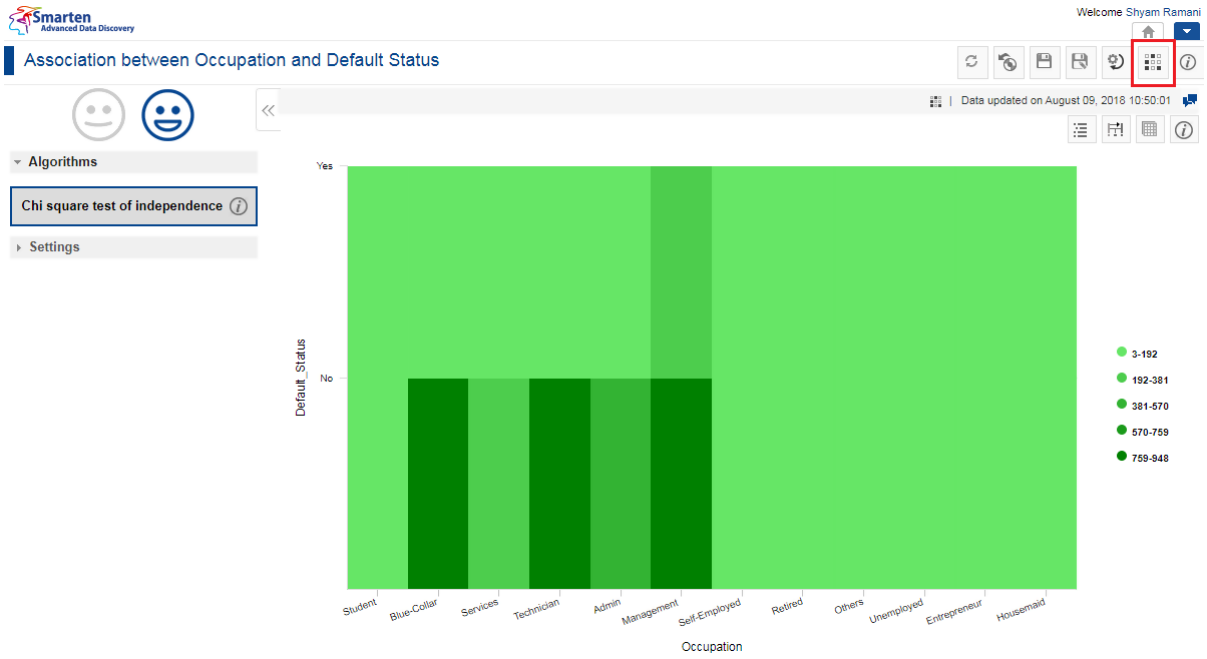
SmartenInsight	Sampling Method Used
Classification	Stratified sampling
Clustering	Simple random sampling
Correlation	Simple random sampling
Descriptive Statistics	NA
Forecasting	NA
Frequent Pattern Mining	Top/Bottom
Hypothesis Testing	Simple random sampling
Regression	Simple random sampling

About this task

Use this task to perform manual sampling of data for SmartenInsight.

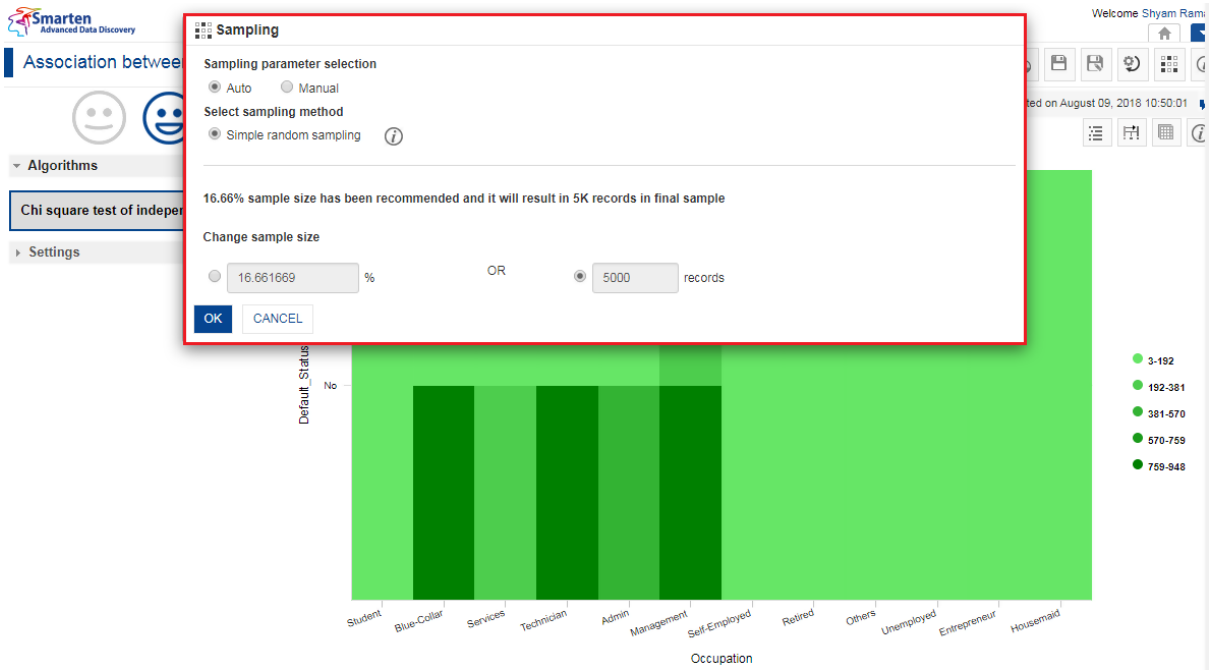
Procedure

1. Open the SmartenInsight object.
2. Click the Sampling icon.



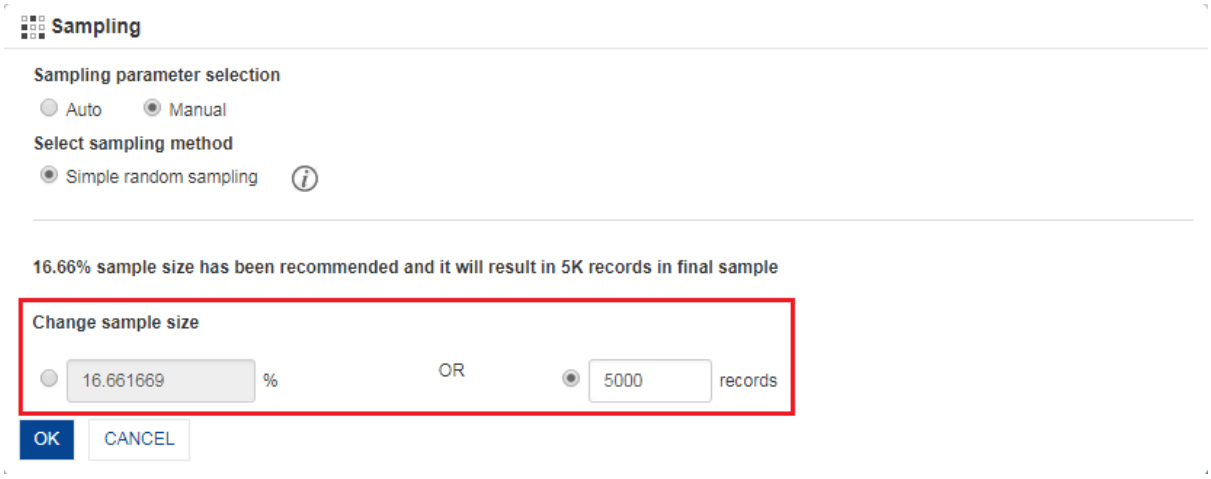
OPERATIONS ON SMARTENINSIGHT—THE SAMPLING ICON

The system displays the **Sampling** dialog box.



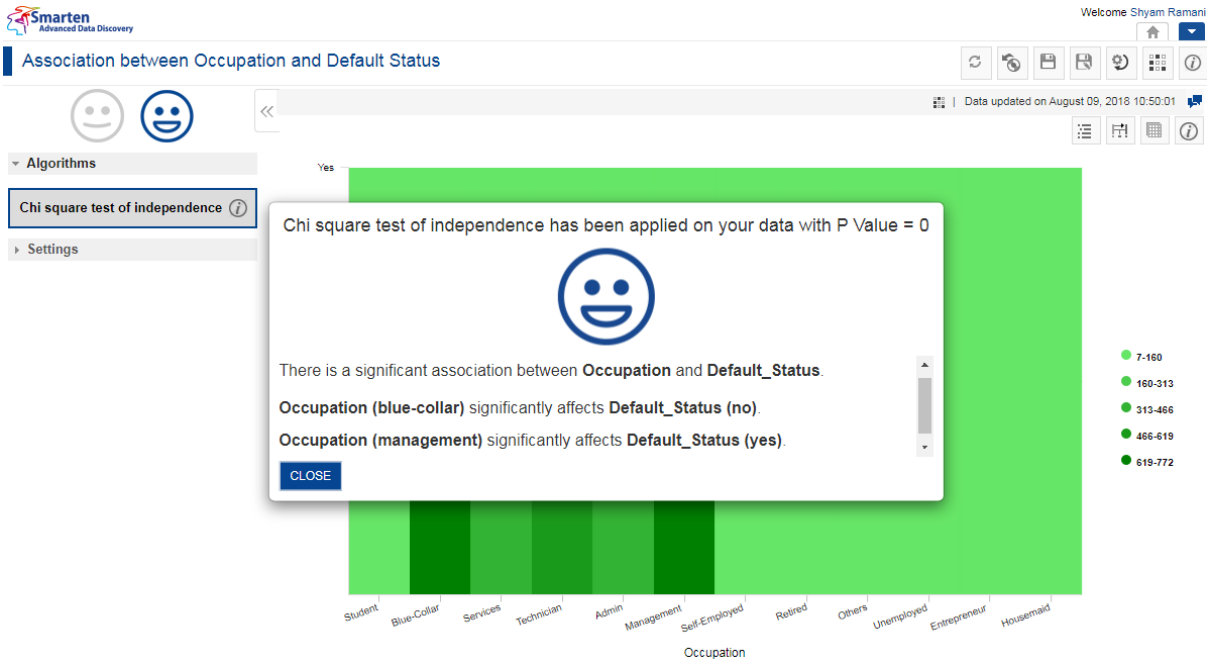
SAMPLING DATA—THE SAMPLING DIALOG BOX

3. Click **Manual**.
4. Select an option to specify the sample size in percentage or number of records.



SAMPLING DATA—SPECIFYING SAMPLING SIZE

5. Click **OK**.
6. The system regenerates SmartenInsight with the sample data.



SAMPLING DATA—REGENERATED SMARTENINSIGHT

7. Click **CLOSE**.

4.16.3 Viewing Information for SmartenInsight

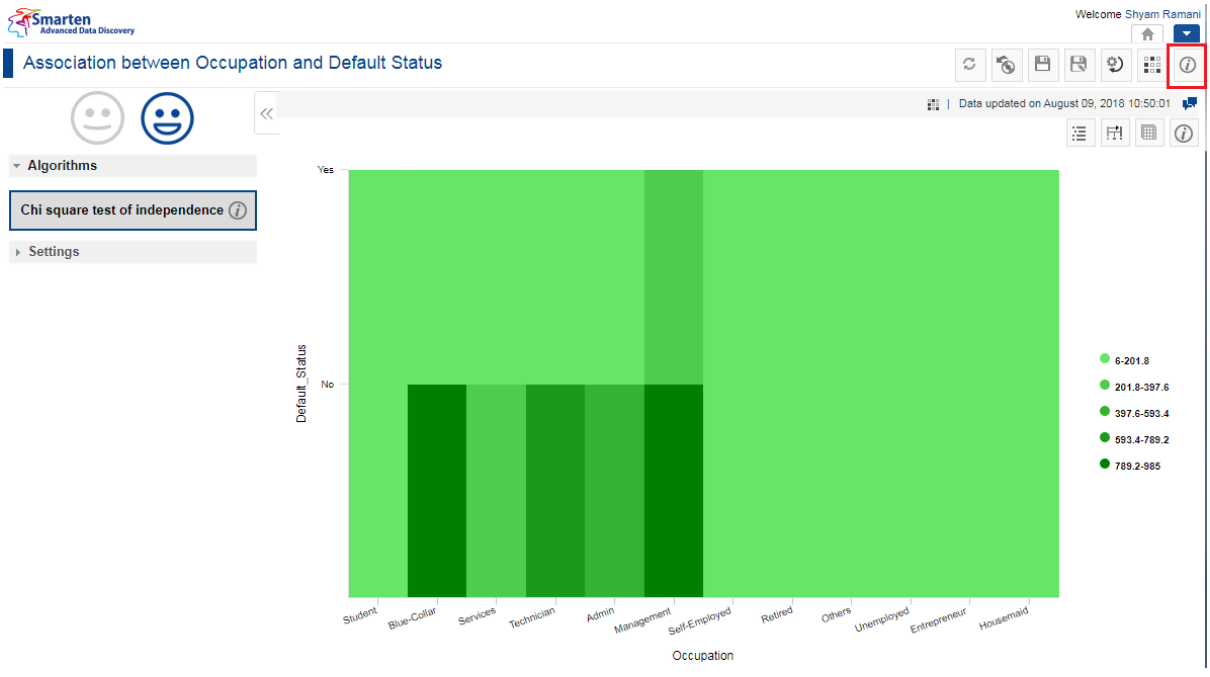
You can view information about SmartenInsight, such as a name of SmartenInsight, the title of SmartenInsight, name of the user who created it, name of the dataset or cube, and others.

About this task

Use this task to view information about SmartenInsight.

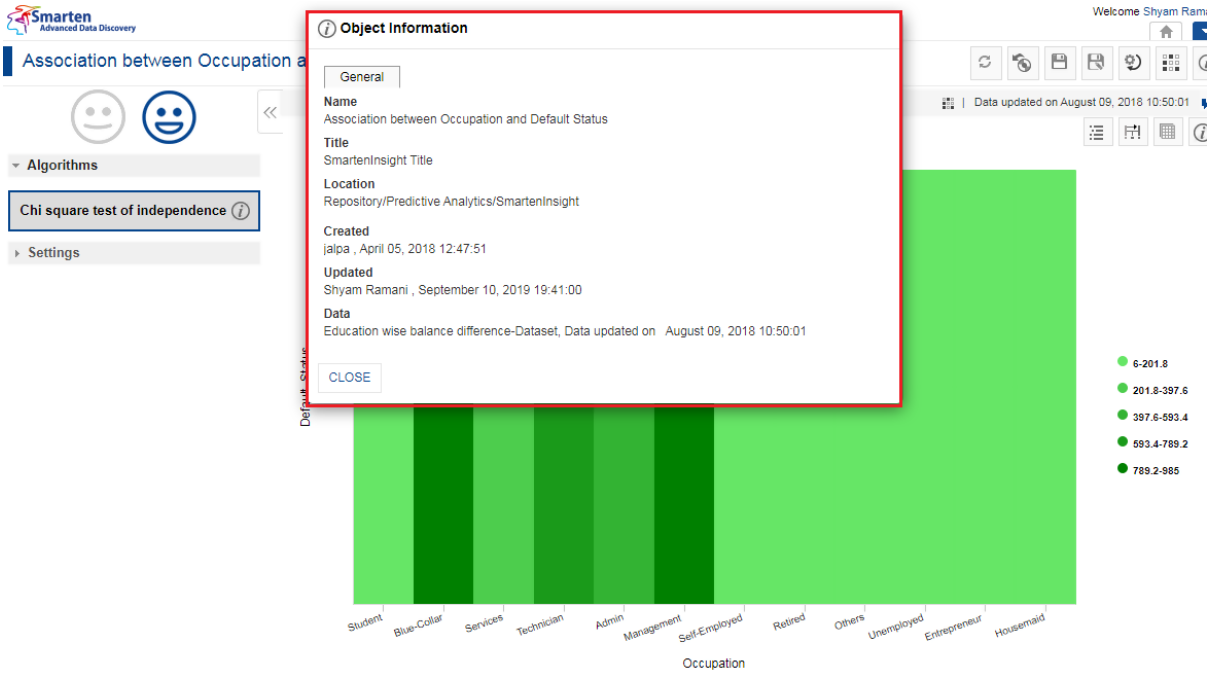
Procedure

1. Open the SmartenInsight for which you want to view object information.
2. Click the Object information option on the toolbar.



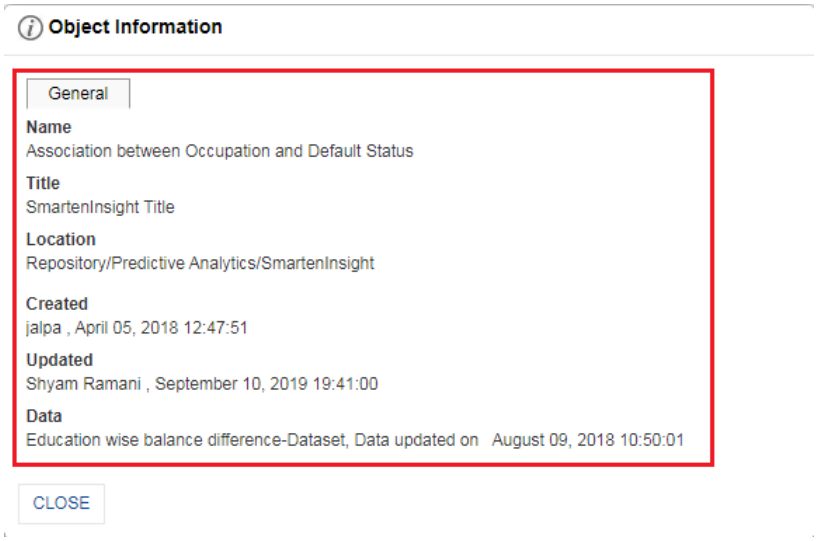
OBJECT INFORMATION—THE OBJECT INFORMATION OPTION

The system displays the **Object Information** dialog box.



OBJECT INFORMATION—THE OBJECT INFORMATION DIALOG BOX

3. The **General** tab displays the following information about SmartenInsight:
   - **Name**: Name of the SmartenInsight.
   - **Title**: Title of the SmartenInsight.
   - **Location**: The location in which the SmartenInsight is available.
   - **Created**: Name of the user who created the SmartenInsight.
   - **Updated**: Name of the user who last updated the SmartenInsight.
   - **Data**: Name of the dataset or cube and the time it was last updated.



OBJECT INFORMATION—THE GENERAL TAB

4. Click **CLOSE**.

4.17 Manage columns for output data

By default, SmartenInsight shows output data with selected target and predictor columns along with predicted values column. This feature enables you to select additional reference columns that are not selected as model input parameters.

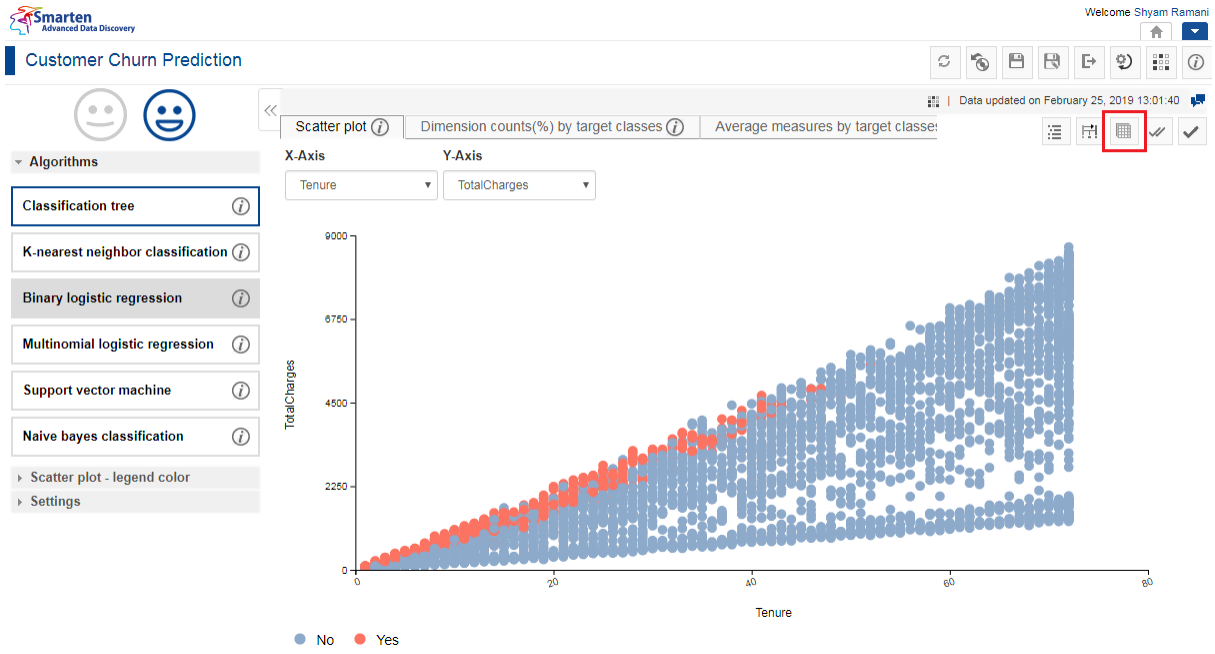
> Note:
> This feature is only available for Classification, Clustering, and Regression models.

About this task

Use this task to manage columns for output data.

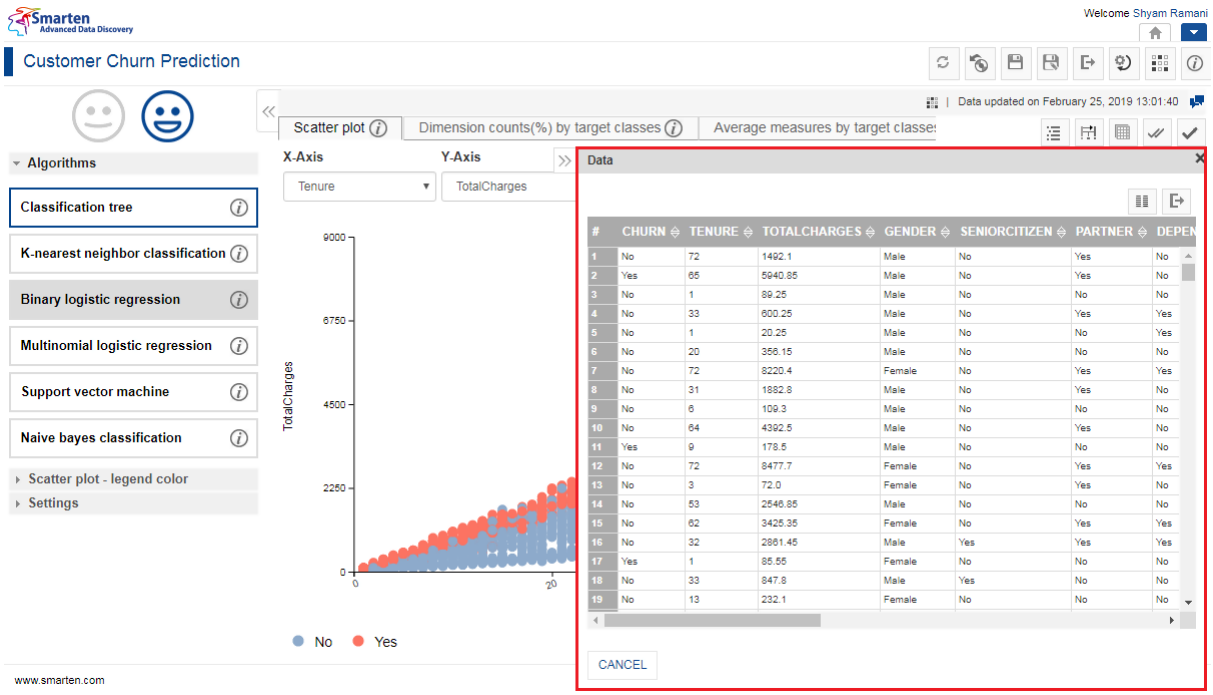
Procedure

1. Open the SmartenInsight that you want to use.
2. Click the Data icon.



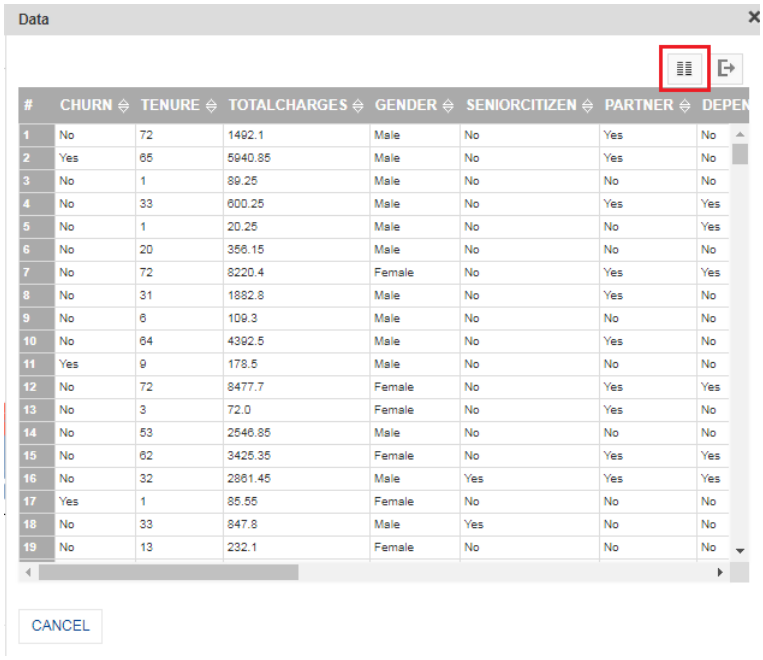
MANAGE COLUMNS—THE DATA ICON

The system displays the information in the **Data** dialog box.



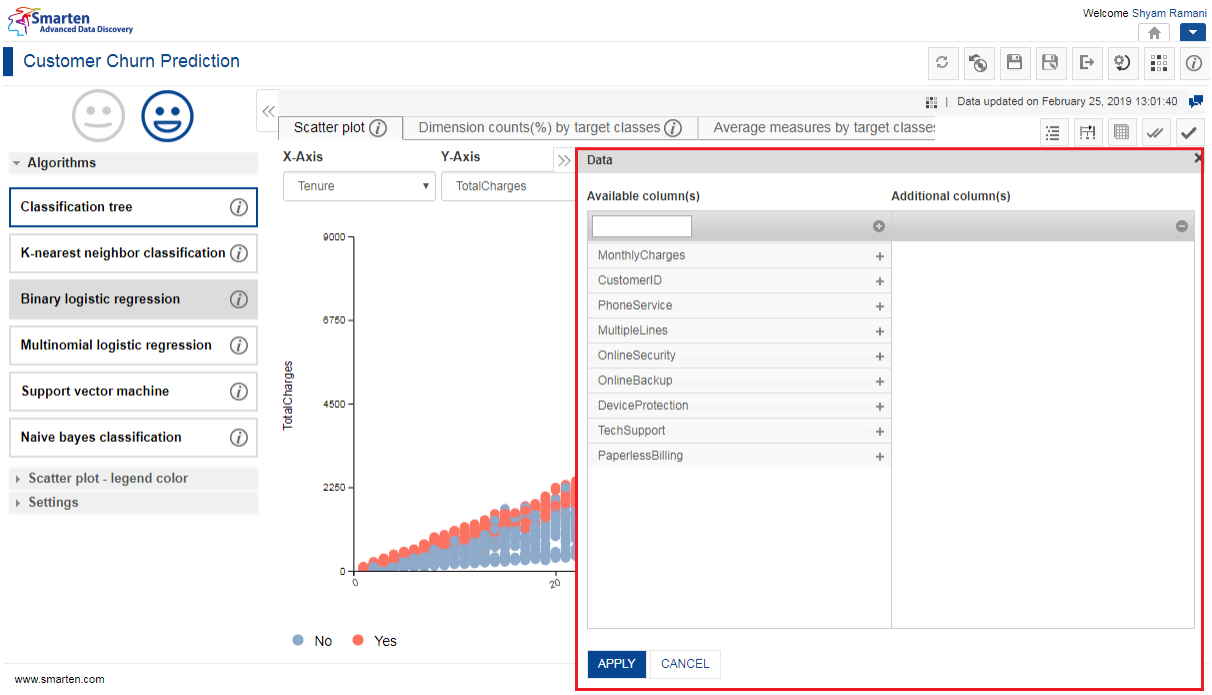
MANAGE COLUMNS—THE DATA DIALOG BOX

3. Click the Additional Columns icon.



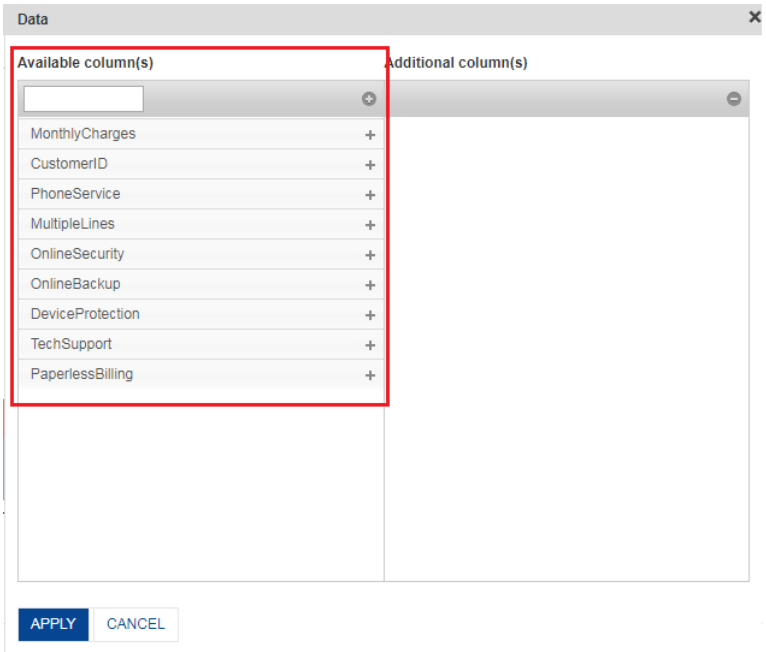
MANAGE COLUMNS—THE ADDITIONAL COLUMNS ICON

The system displays the **Data** dialog box.



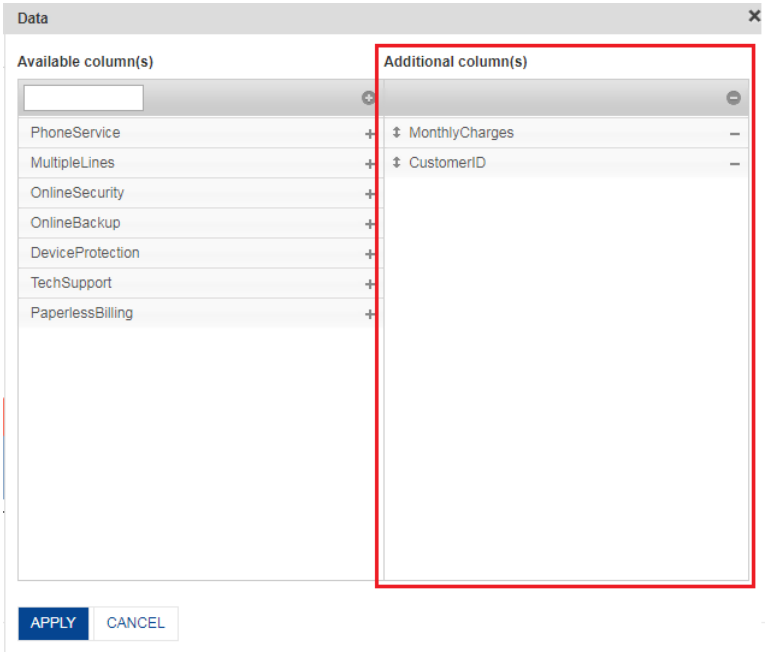
MANAGE COLUMNS—SELECT COLUMNS DIALOG BOX

4. Select the columns that you want to add to output data from the **Available column(s)** section.



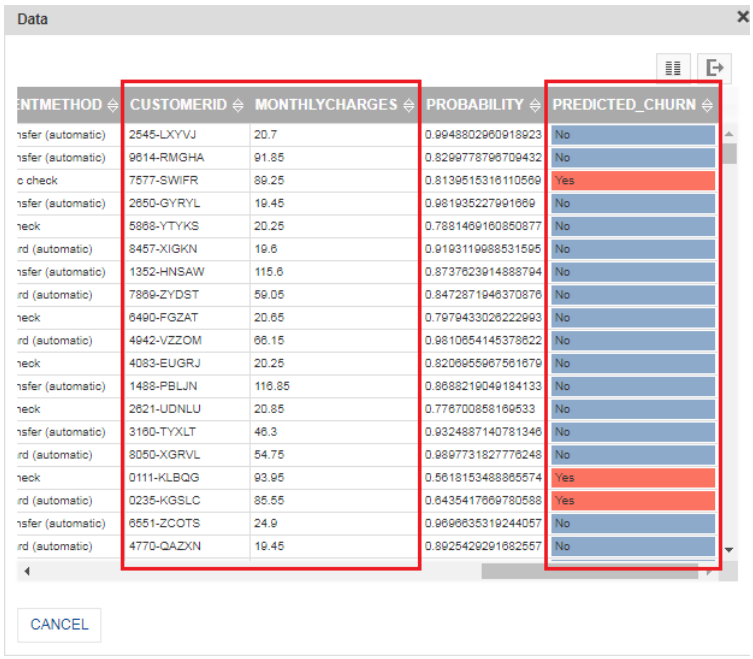
MANAGE COLUMNS—SELECTING COLUMNS

5. The selected columns appear in the **Additional column(s)** section.



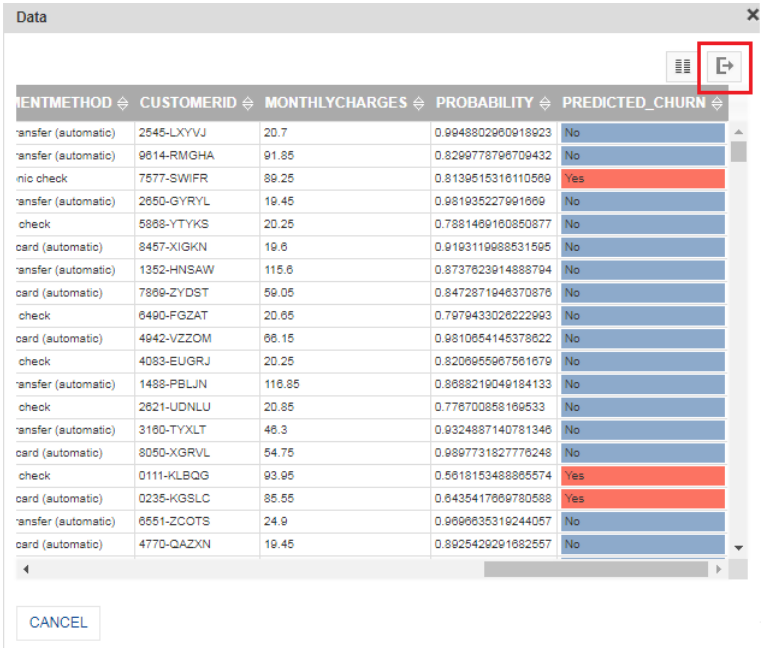
MANAGE COLUMNS—THE SELECTED ADDITIONAL COLUMNS

6. Click **APPLY**.
   The system generates output data, including the selected additional columns.



MANAGE COLUMNS—THE OUTPUT, INCLUDING THE ADDITIONAL COLUMNS

7. You can click the Export icon to export the data.



ENTMETHOD	CUSTOMERID	MONTHLYCHARGES	PROBABILITY	PREDICTED_CHURN
ansfer (automatic)	2545-LXYVJ	20.7	0.9948802960918923	No
ansfer (automatic)	9614-RMGHA	91.85	0.8299778796709432	No
nic check	7577-SWIFR	89.25	0.8139515316110569	Yes
ansfer (automatic)	2650-GYRYL	19.45	0.981935227991669	No
check	5868-YTYKS	20.25	0.7881469160850877	No
card (automatic)	8457-XIGKN	19.6	0.9193119988531595	No
ansfer (automatic)	1352-HNSAW	115.6	0.8737623914888794	No
card (automatic)	7869-ZYDST	59.05	0.8472871946370876	No
check	6490-FGZAT	20.65	0.7979433026222993	No
card (automatic)	4942-VZZOM	66.15	0.9810654145378622	No
check	4083-EUGRJ	20.25	0.8206955967561679	No
ansfer (automatic)	1488-PBLJN	116.85	0.8688219049184133	No
check	2621-UDNLU	20.85	0.776700858169533	No
ansfer (automatic)	3160-TYXLT	46.3	0.9324887140781346	No
card (automatic)	8050-XGRVL	54.75	0.9897731827776248	No
check	0111-KLBQG	93.95	0.5618153488865574	Yes
card (automatic)	0235-KGSLC	85.55	0.6435417669780588	Yes
ansfer (automatic)	6551-ZCOTS	24.9	0.9696635319244057	No
card (automatic)	4770-QAZXN	19.45	0.8925429291682557	No

MANAGE COLUMNS—THE EXPORT ICON

The system downloads the data in an Excel file.

4.18 Mass Apply—Predict values from the SmartenInsight model for multiple records

The **Mass Apply** enables you to predict values from the SmartenInsight model for the data available in a CSV file. You can map the columns available in the file with the columns used to generate SmartenInsight.

> Note:
> This feature is only available for Classification, Clustering, and Regression models.
> The file you use must contain the same number or more columns and data type. For example, if you have used five columns (two numeric, two string, and one date data type) to generate SmartenInsight, the file must contain five or more columns of the same data type.

About this task

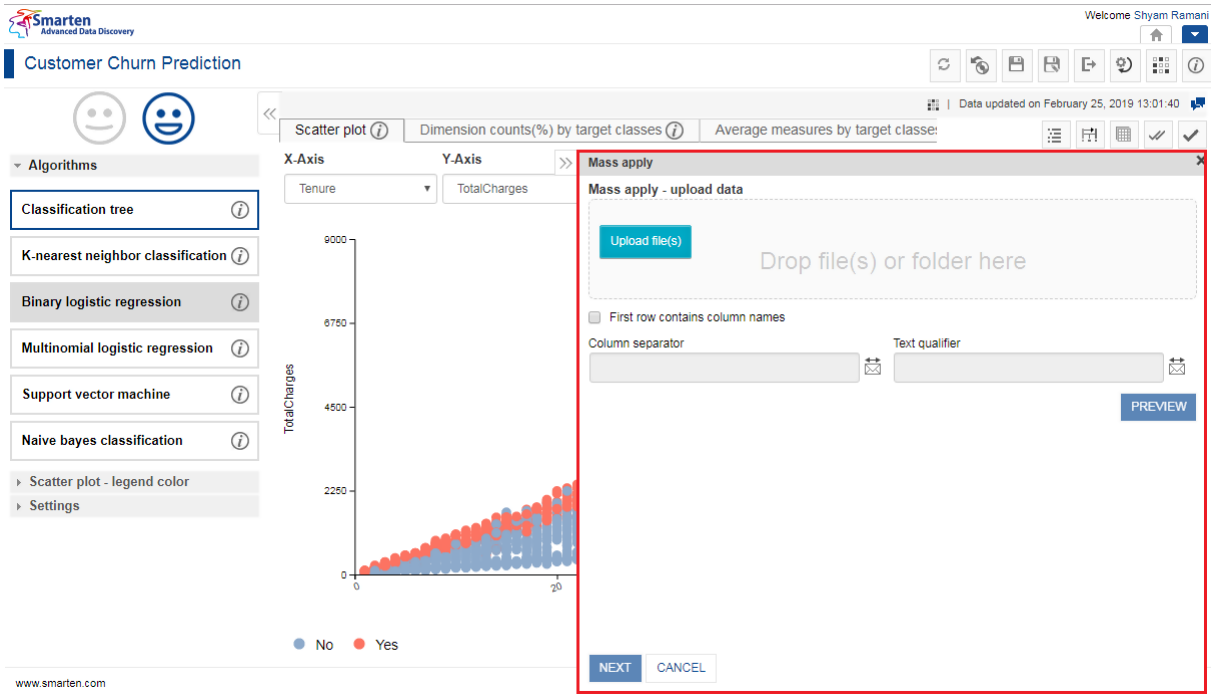
Use this task to predict values from a model for bulk data.

Procedure

1. Open the SmartenInsight for which you want to apply the model.
2. Click the **Mass apply** icon on the toolbar.

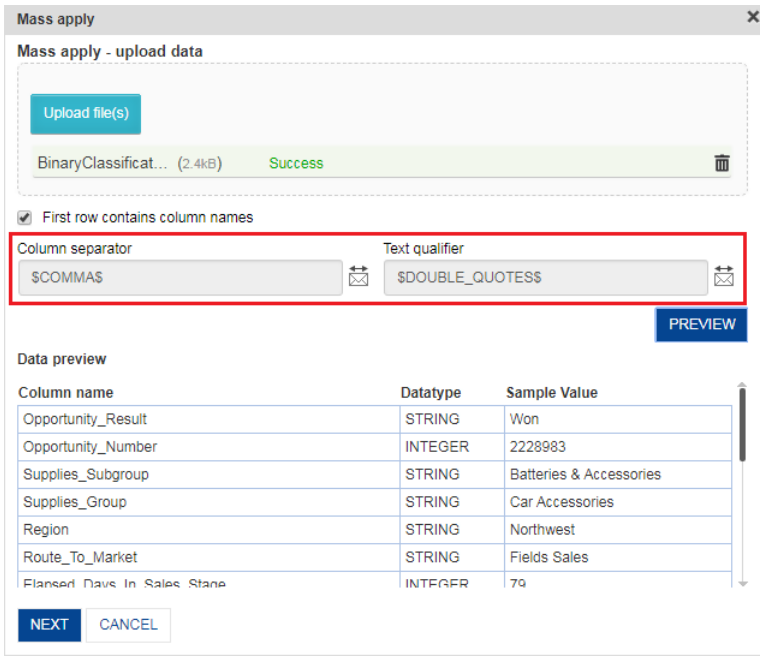
MASS APPLY—THE MASS APPLY OPTION

The system displays the **Mass apply** dialog box.



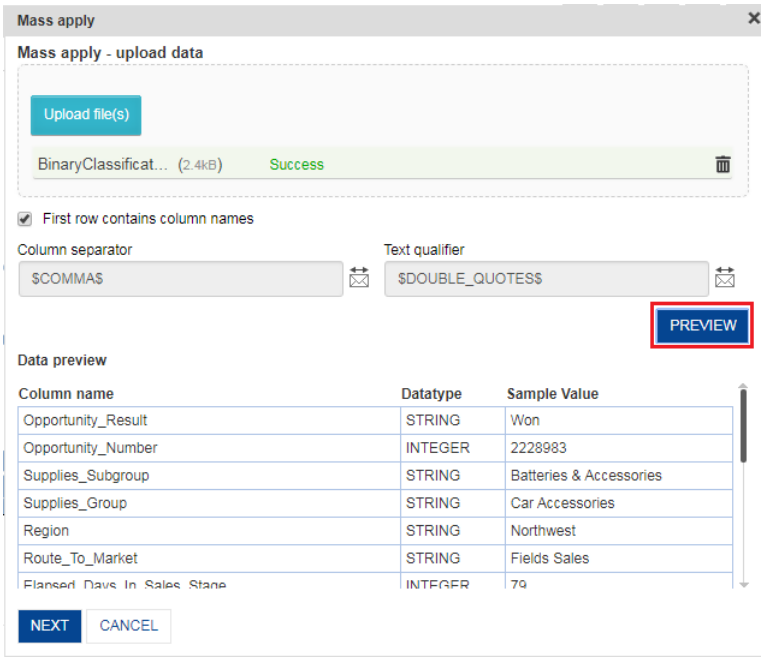
MASS APPLY—THE MASS APPLY DIALOG BOX

3. Click **Upload file** to upload the CSV file that you want to use.
   The system automatically identifies the column separator and text qualifiers used in the uploaded file.



MASS APPLY—SELECTING THE COLUMNS SEPARATOR AND TEXT QUALIFIER

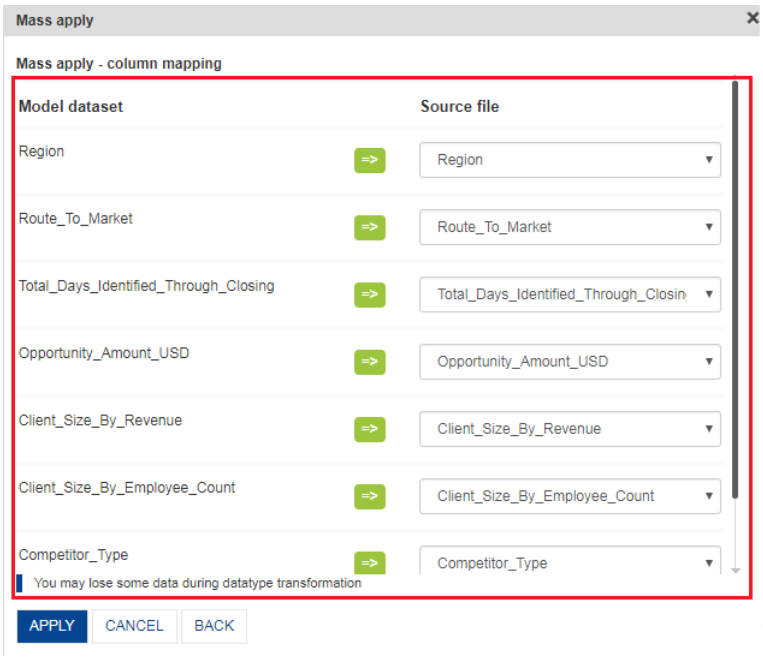
4. You can select an option to use a different column separator and text qualifier.
5. You can click **PREVIEW** to preview the data.



MASS APPLY—THE PREVIEW OPTION

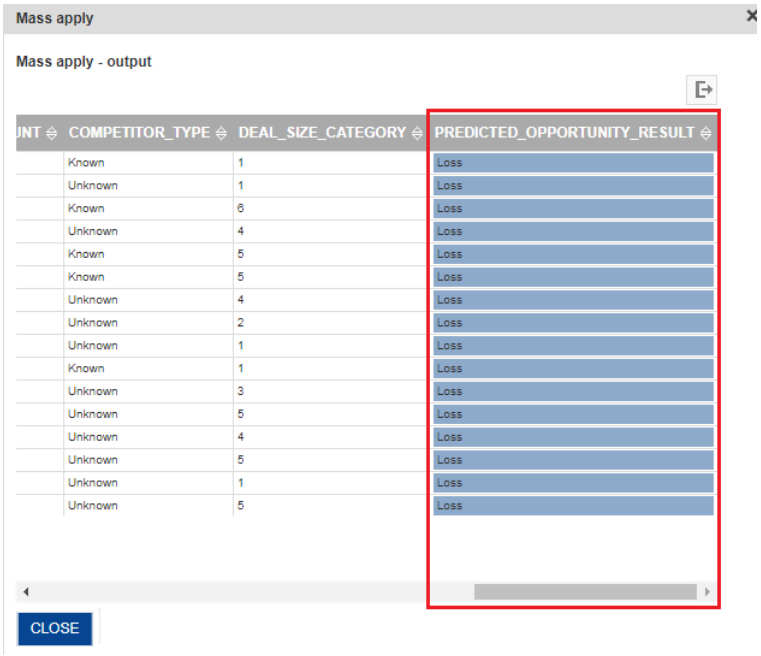
6. Click **NEXT**.
   The system displays the column mapping screen.
7. You can map the columns used to generate SmartenInsight with the columns available in the uploaded file. The system automatically maps the columns based on the column name and data type.

> Note:
> You must ensure that the columns you match are of the same data type.



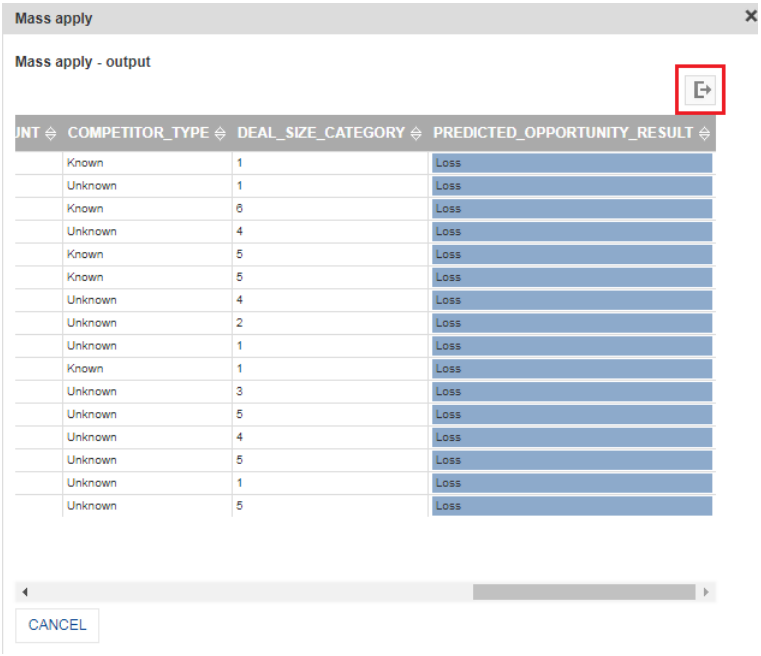
MASS APPLY—MAPPING THE COLUMNS

8. Click **APPLY**.
   The system applies the algorithm on the data available in the uploaded file and provides the insight.



MASS APPLY—THE OUTPUT AFTER APPLYING THE ALGORITHM

9. You can click the Export icon to export the data.



The system downloads the data in an Excel file.

10. Click **CLOSE**.

5 Product and Support Information

Find more information about Smarten and its features at www.smarten.com
Support: support@smarten.com
Sales: sales@smarten.com
Feedback & Suggestions: support@smarten.com
Support & Knowledgebase Portal: support.smarten.com