

Oracle Analytics



Modern Data Visualization with Oracle Analytics

Section 6

Assignment Document



Machine Learning with Oracle
Analytics

Project Overview: Bike Rental Prediction



Section 9: Machine Learning with Oracle Analytics

Learning Topics in Section 9

Project Overview: Predicting Bike Rentals

Understand Machine Learning Process in Oracle Analytics

Build Machine Learning Model for Bike Prediction

Understand Model Properties and Inspect Model Accuracy

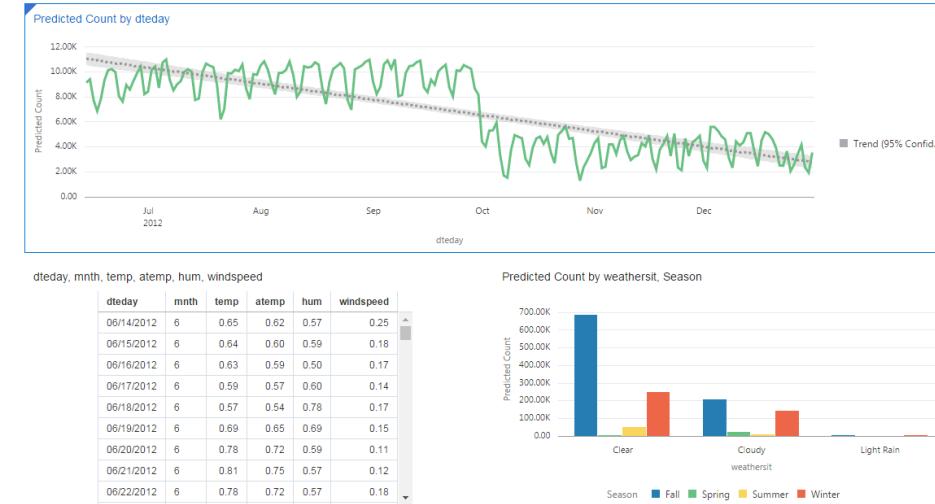


Build Correlations on Bike Prediction data set

Use Machine Learning Model to Make Prediction for Bike Rental

Bonus: Demo Prediction for Chronic Kidney Disease

Quiz: Machine Learning Based Visualization with Oracle Analytics



Understand Machine Learning with Oracle Analytics

Machine Learning in Oracle Analytics



Section 9: Machine Learning with Oracle Analytics

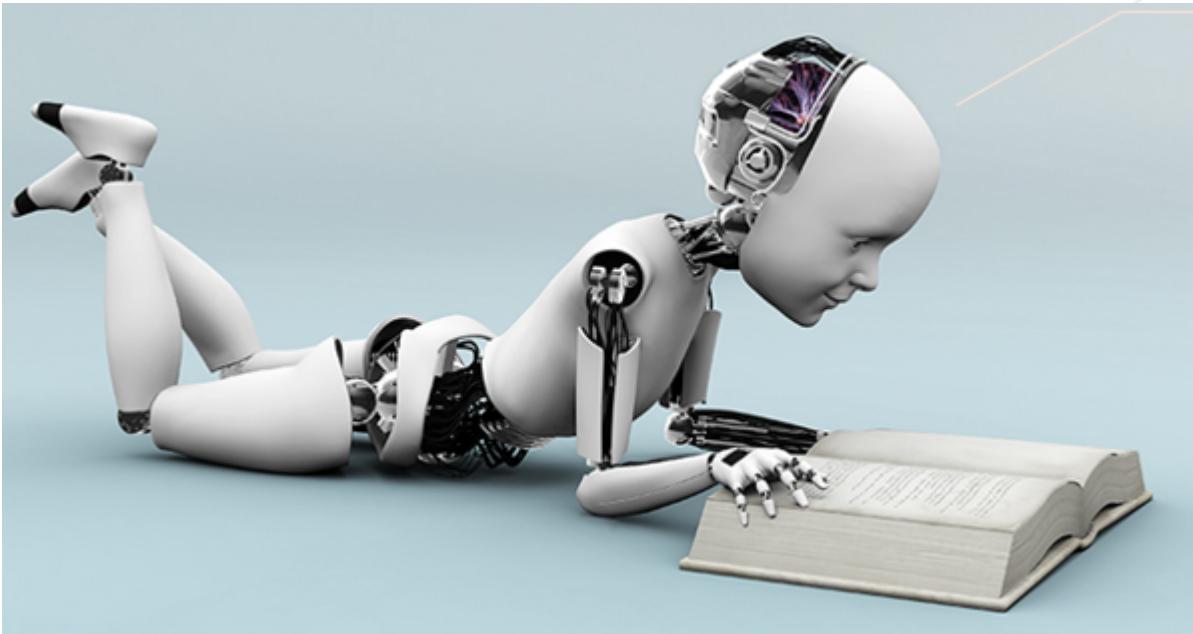
Project Overview: Bike Rental Prediction

Beyond Past – Foresee the Future with ML Capabilities of Oracle Analytics

- A Bike Rental Company wants to predict and forecast their sales.
- They want to use their historic data to predict their sales.
- Oracle Analytics Machine Learning capabilities will help them to predict sales

Understand Machine Learning Process in Oracle Analytics

What is Machine Learning ?



Machine Learning is the subfield of computer science that gives computers the ability to learn without being explicitly programmed

Arthur Samuel, 1959

Understand Machine Learning Process in Oracle Analytics

Difference between Traditional Programming and Machine Learning

Traditional Programming



Machine Learning



The Program in this case is called a Model.

Understand Machine Learning Process in Oracle Analytics

Machine Learning Algorithms

- Supervised
 - Learning systems that can provide prediction and analysis of data based on a specific problem domain.
 - Prediction based on a specific goal, as an example probability of an outcome (e.g. win/loss).
 - The simplest example of such model is a Decision Tree.
- Unsupervised
 - Learning systems that can find hidden insights and behavioral patterns in data sets without focusing on predetermined attributes. These systems are called unsupervised since they do not aim at a specific goal but exploratory in nature and finds hidden insights within the data.
- Reinforcement
 - A similar class to Supervised Machine Learning, however instead of providing only an initial set of data for learning and validation in order to create a model - the learning is **continuous** and the model can change based on on-going changes in data.

Understand Machine Learning Process in Oracle Analytics

What do we have in Oracle Analytics?

- Right Click Advanced Analytics / Machine Learning
 - Forecast
 - Trend line
 - Clusters
 - Outliers
 - Explain
 - Scenario (using models trained in Data Flows)
- Train and apply models in Data Flows

Understand Machine Learning Process in Oracle Analytics

Machine Learning in Data Flows

- Using Python 3.5
- Primary libraries for Machine Learning
 - scikit-learn version 0.18
 - statsmodels version 0.8.0
- Some data preparations is done before training and applying models
- Sentiment Analysis is using a “Sentiment Dictionary” where each word has a predefined sentiment score, only English words
 - “abuse” -> -3
 - “awesome” -> 4
 - “cute” -> 2

Understand Machine Learning Process in Oracle Analytics

In this section, we will discuss the Machine Learning Process in Oracle Analytics. We follow a two step process in Oracle Analytics.

Train the Model

Apply the Model

Train the Model:

In this step, we first divide the data set into 70:30 or 80:20. 70 or 80% of data set, which uses the result column as part of the data set to train the model.

Once the model is trained, we evaluate the model accuracy and train it with additional data set if required to enhance the model accuracy.

Apply the Model:

Once the Model Accuracy is verified, we will apply the model generated using Train the model step and evaluate the results. The resultant data set can then be used to build visualizations for correlations, predictive analytics

Understand Machine Learning Process in Oracle Analytics

The screenshot shows the Oracle Data Visualization for Desktop interface. On the left, a sidebar lists various data flow steps: Data Flow Steps, Select Columns, Rename Columns, Merge Columns, Bin, Group, Branch, Cumulative Value, Time Series Forecast, Analyze Sentiment, Apply Custom Script, Train Numeric Prediction, Train Multi-Classifier, Train Clustering, Train Binary Classifier, Train Custom Model, and Apply Model. The main area displays a data flow diagram titled 'Untitled - Data Flow'. The flow starts with a 'Bike Rent...' step, followed by a 'Train Num... Prediction' step, and ends with a 'Save Model' step. Below this, there is a section titled 'Train Numeric Prediction' with configuration options for 'Model Training Script' (set to 'CART for Numeric Prediction training'), 'Target' (set to 'Select a column'), 'Minimum Node Size' (set to 50), 'Maximum Depth' (set to 5), 'Maximum Confidence' (set to 80), and 'Train Partition Percent' (set to 80). A data preview table shows four rows of data with columns: Instant, Season, year, dteday, mnth, hum, and several numerical values. A 'Select Train Numeric Prediction Model Script' dialog box is overlaid on the interface, listing four options: 'CART for Numeric Prediction training', 'Elastic Net Linear Regression for model training', 'Linear Regression for model training', and 'Random Forest for Numeric model training'. Each option has a small icon representing a hexagon with green dots.

There are few built in Machine Learning Algorithms in Oracle Analytics.

- Train Numeric Prediction
 - Train Multi Classifier
 - Train Clustering
 - Train Binary Classifier
- are the classifications available.
- There are a set of algorithms available under each classification.
- CART for Numeric Prediction training
 - Elastic Net Linear Regression for Model Training
 - Linear Regression for Model Training
 - Random Forest for Numeric Model Training
- Train Custom Model – You can upload any custom scripts (Python) to the system and train/apply them just like any OOB Models

Build Machine Learning Model for Bike Prediction



Train the Model

Section 9: Build Machine Learning with Oracle Analytics

Assignment Screens: Build Machine Learning Model for Bike Prediction

The screenshot shows the Oracle Data Visualization for Desktop application window. The title bar reads "Oracle Data Visualization for Desktop" and "ORACLE Data Visualization for Desktop". The main header says "Home" and "Get Started with Oracle Data Visualization for Desktop". Below the header are three sections: "Visualize Data", "Prepare Data", and "Learn More". A search bar at the bottom left contains the placeholder "What are you interested in?". On the right side, a "Create" dialog box is open, listing options: Project, Data Set, Data Flow, Sequence, Connection, and Script. The "Data Set" option is highlighted.

What are you interested in?

Get Started with Oracle Data Visualization for Desktop

Watch Overview

Visualize Data

Explore your data and uncover important insights using interactive and intuitive visualizations

Prepare Data

Get your data ready for analysis using visual data flows that transform, enrich and blend different sources

Learn More

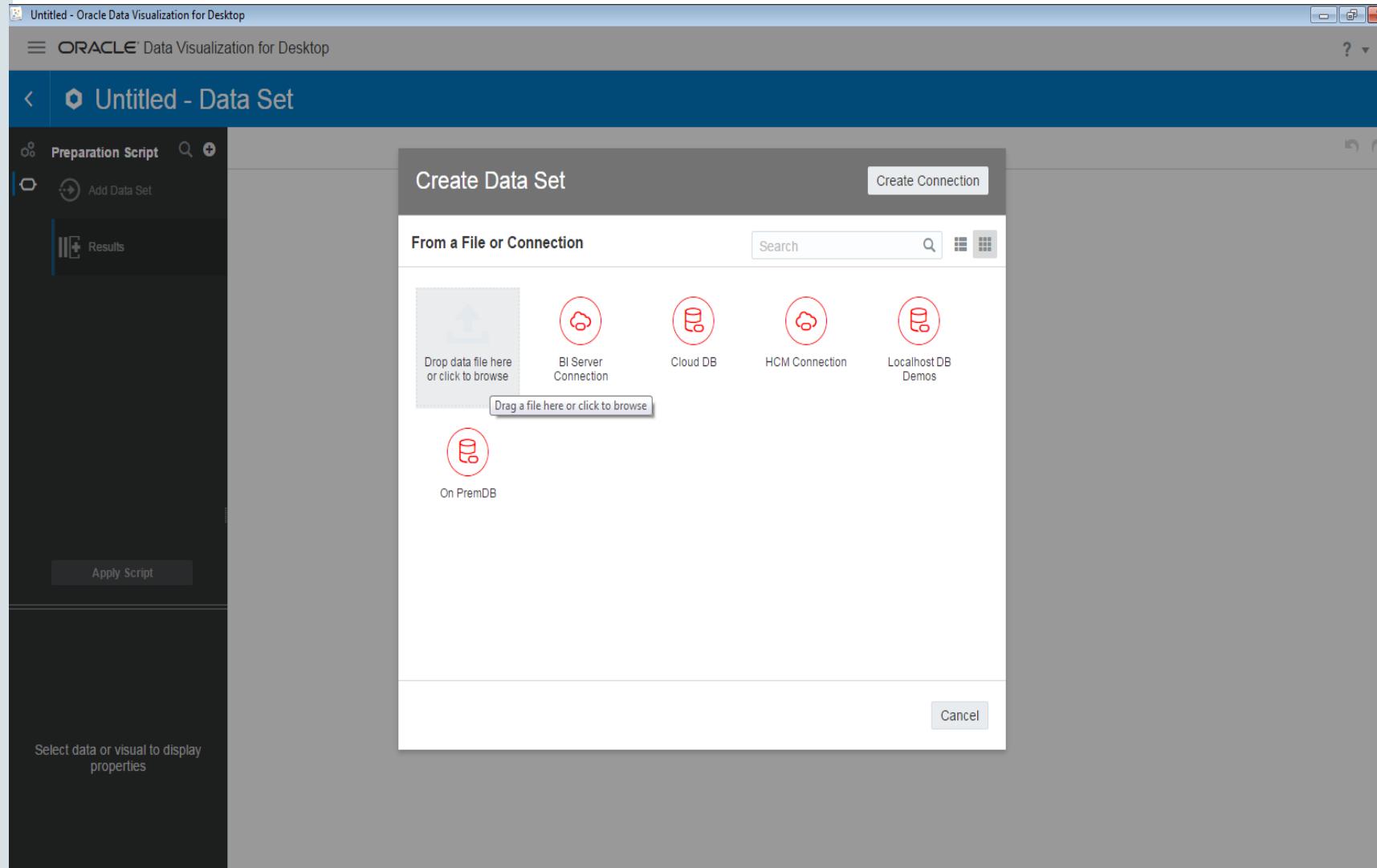
Visit our Academy and video library to learn how you can do more with Oracle Analytics Cloud

What's New

Updated 3 days ago FARS Accidents_data File	Updated 4 days ago Vision - Cloud Sales Data File	Updated 4 days ago Soccer_europe File
Updated Feb 26, 2019 CKD_Model_Output File	Updated Feb 26, 2019 CKD_Precition_with_SVM File	CKD_SVM.Drivers File
Linear Regression Train - Bike Rental Prediction Project		

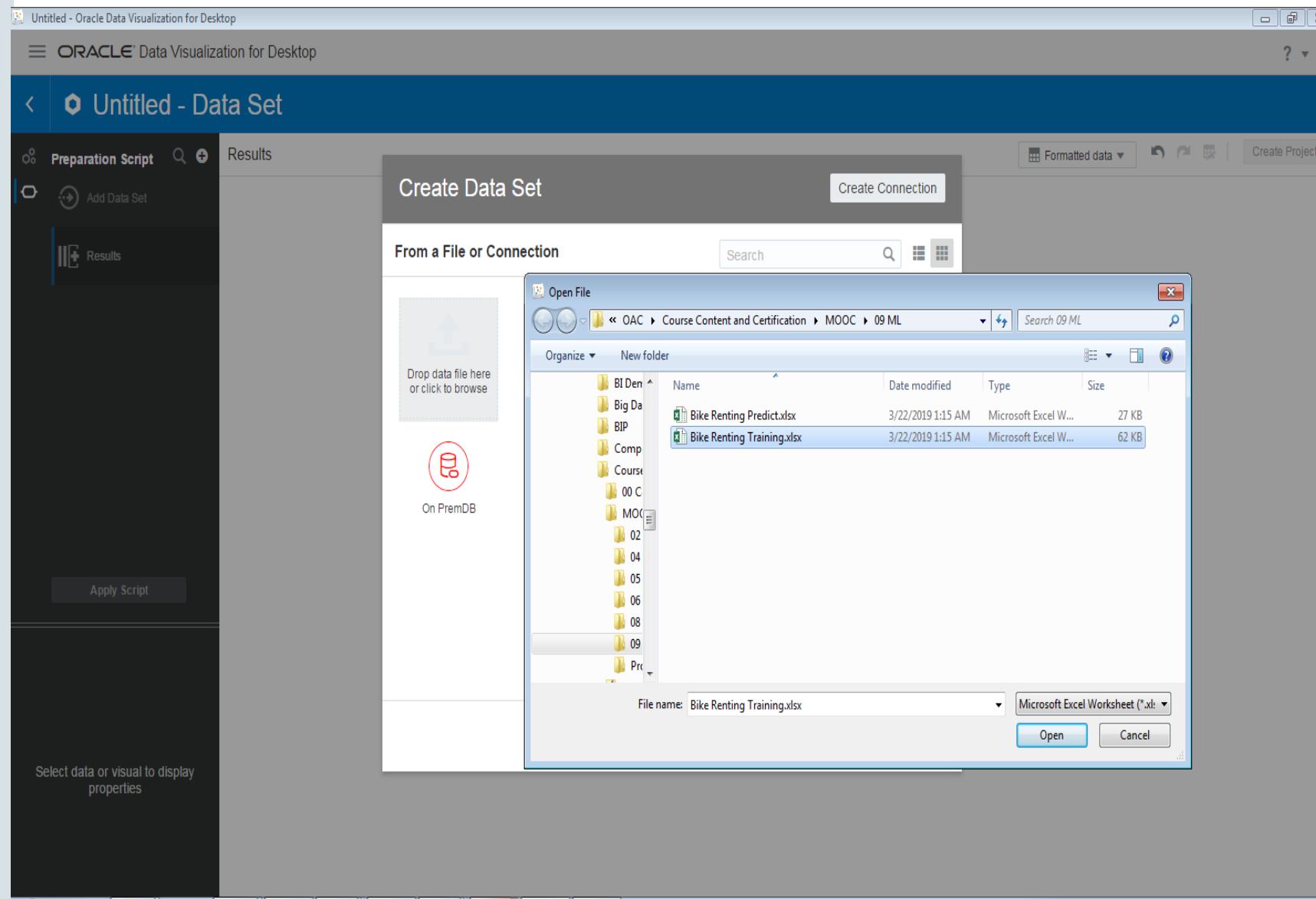
You can create Connections to the data sources using Create Button on the top right. Click Create and Select Data Set as you would import an Excel file.

Assignment Screens: Build Machine Learning Model for Bike Prediction



Click to Browse

Assignment Screens: Build Machine Learning Model for Bike Prediction



Navigate to Bike Renting Training File and Click Open

Assignment Screens: Build Machine Learning Model for Bike Prediction

Untitled - Oracle Data Visualization for Desktop

ORACLE Data Visualization for Desktop

Untitled - Data Set

Preparation Script Add Data Set Results

Name: Bike Renting Training Created: In Progress

Description: Uploaded from Bike Renting Training.xlsx. Modified: In Progress

Uploaded File: Bike Renting Training.xlsx Select... Refreshed: Never

Sheet: Sheet1

A Instant	A Season	A year	Q dteday	# mnth	A holiday	# weekday	A WorkingDay	A weathersit	# temp	# atemp
ID-1	Spring	2011	01/01/2011	1	No	6	No	Cloudy	0.344167	0.3636
ID-2	Spring	2011	01/02/2011	1	No	0	No	Cloudy	0.363478	0.3537
ID-3	Spring	2011	01/03/2011	1	No	1	Yes	Clear	0.196364	0.1894
ID-4	Spring	2011	01/04/2011	1	No	2	Yes	Clear	0.200000	0.2121
ID-5	Spring	2011	01/05/2011	1	No	3	Yes	Clear	0.226957	0.2292
ID-6	Spring	2011	01/06/2011	1	No	4	Yes	Clear	0.204348	0.2332
ID-7	Spring	2011	01/07/2011	1	No	5	Yes	Cloudy	0.196522	0.2085
ID-8	Spring	2011	01/08/2011	1	No	6	No	Cloudy	0.165000	0.1622
ID-9	Spring	2011	01/09/2011	1	No	0	No	Clear	0.138333	0.1161
ID-10	Spring	2011	01/10/2011	1	No	1	Yes	Clear	0.150833	0.1508
ID-11	Spring	2011	01/11/2011	1	No	2	Yes	Cloudy	0.169091	0.1914
ID-12	Spring	2011	01/12/2011	1	No	3	Yes	Clear	0.172727	0.1604

Apply Script

Select data or visual to display properties

Click Add to add the data set.

Assignment Screens: Build Machine Learning Model for Bike Prediction

The screenshot shows the Oracle Data Visualization for Desktop interface. The title bar reads "Bike Renting Training - Oracle Data Visualization for Desktop". The main area is titled "Bike Renting Training - Data Set". On the left, there's a sidebar with "Preparation Script" and "Results" sections. The "Results" section displays a table with 19 rows and 10 columns. The columns are: Instant, Season, year, dteday, mnth, holiday, weekday, WorkingDay, weathersit, and temp. The "weathersit" column contains values like "Cloudy", "Clear", and "Rain". The "temp" column contains numerical values such as 0.3441670, 0.3634780, and 0.1963640. To the right of the table is a "Recommendations (17)" panel with various data extraction and transformation options.

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp
ID-1	Spring	2011	01/01/2011		1	No		Cloudy	0.3441670
ID-2	Spring	2011	01/02/2011		1	No		Cloudy	0.3634780
ID-3	Spring	2011	01/03/2011		1	No		Clear	0.1963640
ID-4	Spring	2011	01/04/2011		1	No		Clear	0.2000000
ID-5	Spring	2011	01/05/2011		1	No		Clear	0.2269570
ID-6	Spring	2011	01/06/2011		1	No		Clear	0.2043480
ID-7	Spring	2011	01/07/2011		1	No		Cloudy	0.1965220
ID-8	Spring	2011	01/08/2011		1	No		Cloudy	0.1650000
ID-9	Spring	2011	01/09/2011		1	No		Clear	0.1383330
ID-10	Spring	2011	01/10/2011		1	No		Clear	0.1508330
ID-11	Spring	2011	01/11/2011		1	No		Cloudy	0.1690910
ID-12	Spring	2011	01/12/2011		1	No		Clear	0.1727270
ID-13	Spring	2011	01/13/2011		1	No		Clear	0.1650000
ID-14	Spring	2011	01/14/2011		1	No		Clear	0.1608700
ID-15	Spring	2011	01/15/2011		1	No		Cloudy	0.2333330
ID-16	Spring	2011	01/16/2011		1	No		Clear	0.2316670
ID-17	Spring	2011	01/17/2011		1	Yes		Cloudy	0.1758330
ID-18	Spring	2011	01/18/2011		1	No		Cloudy	0.2166670
ID-19	Spring	2011	01/19/2011		1	No		Cloudy	0.2921740

Data profiling is the process of examining the **data** available from an existing information source (e.g. a database or a file) and collecting statistics or informative summaries about that **data**.

You can examine and prepare the data with the recommendations provided by Oracle Analytics.

Click < to go to Navigator Home Page.

Repeat the above steps to import Bike Renting Predict File.

Assignment Screens: Build Machine Learning Model for Bike Prediction

The screenshot shows the Oracle Data Visualization for Desktop application. The left sidebar has a dark theme with icons for Home, Projects, Data (selected), Machine Learning, Console, and Academy. The main window title is "ORACLE Data Visualization for Desktop" and the tab is "Data". The interface includes a "Create" button and a search bar. Below is a table of datasets:

Type	Name	Modified	Refreshed
Table	Bike Renting Training	Just now	Just now
Table	Web - Sales Data	5 days ago	Mar 15, 2019
Table	Web - Customers	5 days ago	5 days ago
Table	FARS Accidents_data	Mar 8, 2019	Mar 8, 2019
Table	Vision - Cloud Sales Data	Mar 7, 2019	Mar 7, 2019
Table	Soccer_europe	Mar 7, 2019	Mar 6, 2019
Table	CKD_Model_Output	Feb 26, 2019	Feb 26, 2019
Table	CKD_Precition_with_SVM	Feb 26, 2019	Feb 26, 2019
Table	CKD_SVM.Drivers	Feb 26, 2019	Feb 26, 2019
Table	CKD_Sample_Data	Feb 26, 2019	Feb 26, 2019
Table	CKD_Regression.Drivers	Feb 26, 2019	Feb 26, 2019
Table	Bike Renting Predict	Feb 26, 2019	Feb 26, 2019
Table	Bike Renting Predicted	Feb 26, 2019	Feb 26, 2019
Table	Demo_Loyalty	Feb 26, 2019	Feb 26, 2019
Table	Workforce Performance Details	Feb 25, 2019	Feb 25, 2019

Navigate to Navigator > Data and Select Bike Renting Training Data File.

Assignment Screens: Build Machine Learning Model for Bike Prediction

The screenshot shows the Oracle Data Visualization for Desktop interface. The title bar reads "Untitled - Oracle Data Visualization for Desktop". The main menu bar includes "Prepare", "Visualize" (which is underlined), "Narrate", and "Save". The left sidebar is titled "Data Elements" and lists various attributes: Instant, Season, year, atemp, mnth, holiday, weekday, WorkingDay, weathersit, temp, atemp, hum, windspeed, count, and {Row Count}. Under "Instant", there are sections for "General", "Name" (Instant), "TreatAs" (Attribute), and "Data Type" (Text). A right-click context menu is open over the "Season" attribute, with options: "Create Best Visualization", "Pick Visualization...", "Create Filter", and "Explain Season". The central workspace has a message "Click here or drag data to add a filter" and a placeholder "Drop Visualizations or Data Here". Below the workspace is a footer with "Canvas 1" and a plus sign icon.

Data Exploration

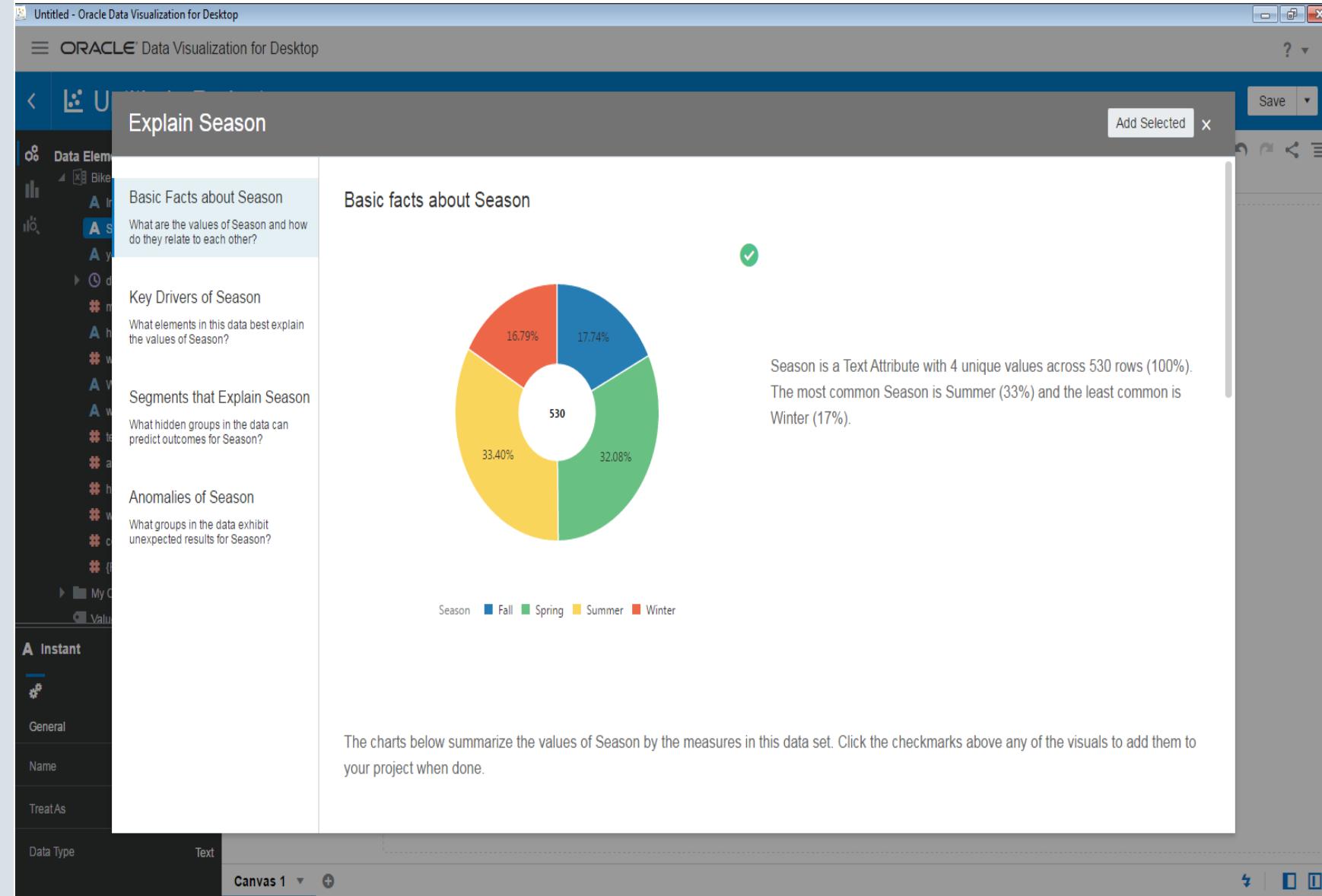
Explain Feature enables attribute-focused visual summary of the data, summarizing value distributions, data quality gaps and relationships. Explain presents visualizations that give you the most insight into the data set

Visualizations are automatically composed, to save your time and effort at this early stage in the process.

When you have a better understanding of the data set, you can compose your own visualizations on data that you have identified as worthy of further analysis.

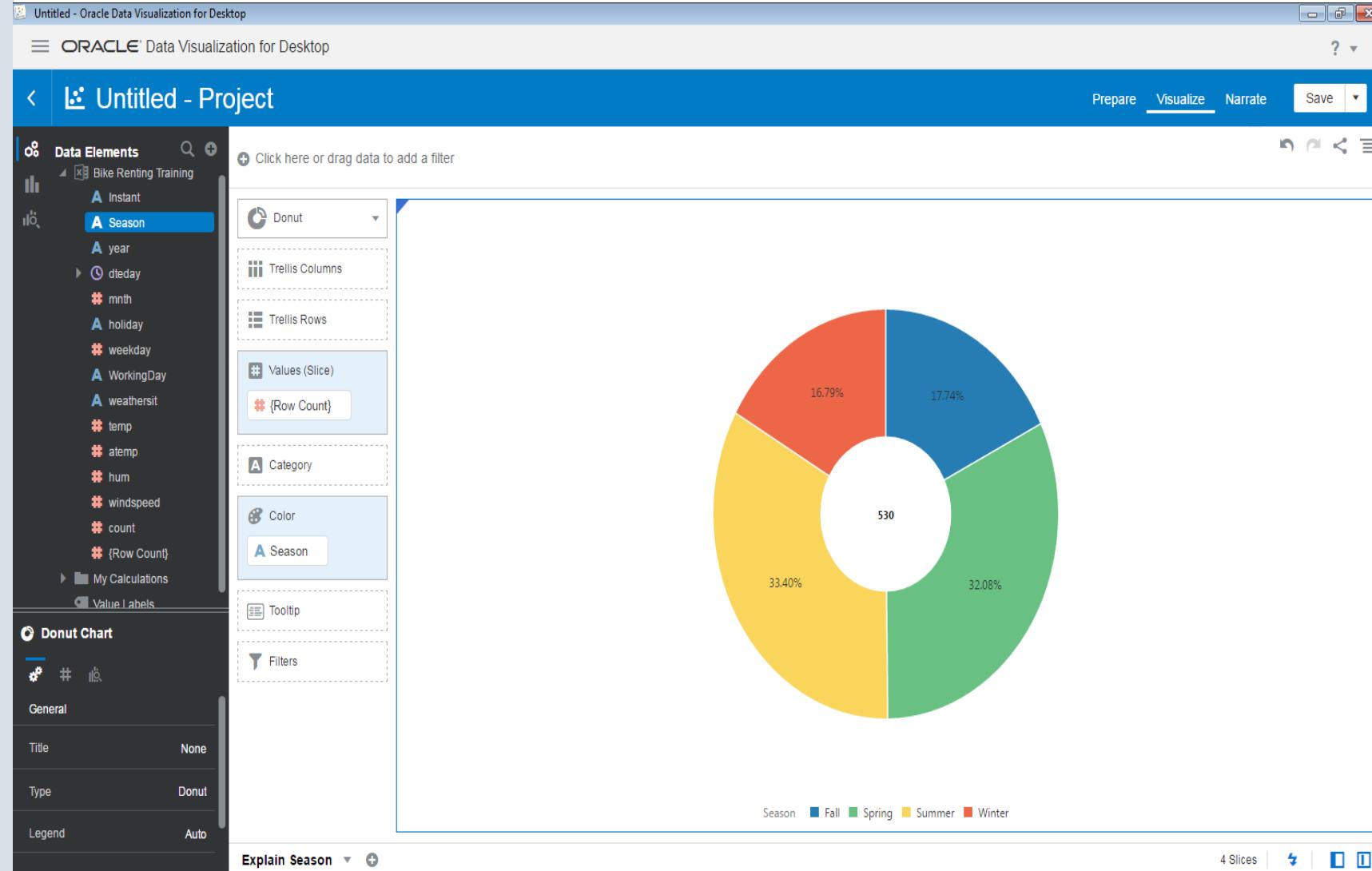
Select Season and Right Click and Select Explain Season

Assignment Screens: Build Machine Learning Model for Bike Prediction



Select the automated visualizations suggested by Oracle Analytics.
In this case, Select the visualization suggested under Basic Facts about Season and Click Add Selected.

Assignment Screens: Build Machine Learning Model for Bike Prediction



The visualization is added to the Canvas. Click Save to save the project.

Click < to go back to Navigator
Data > Data Sets

Assignment Screens: Build Machine Learning Model for Bike Prediction

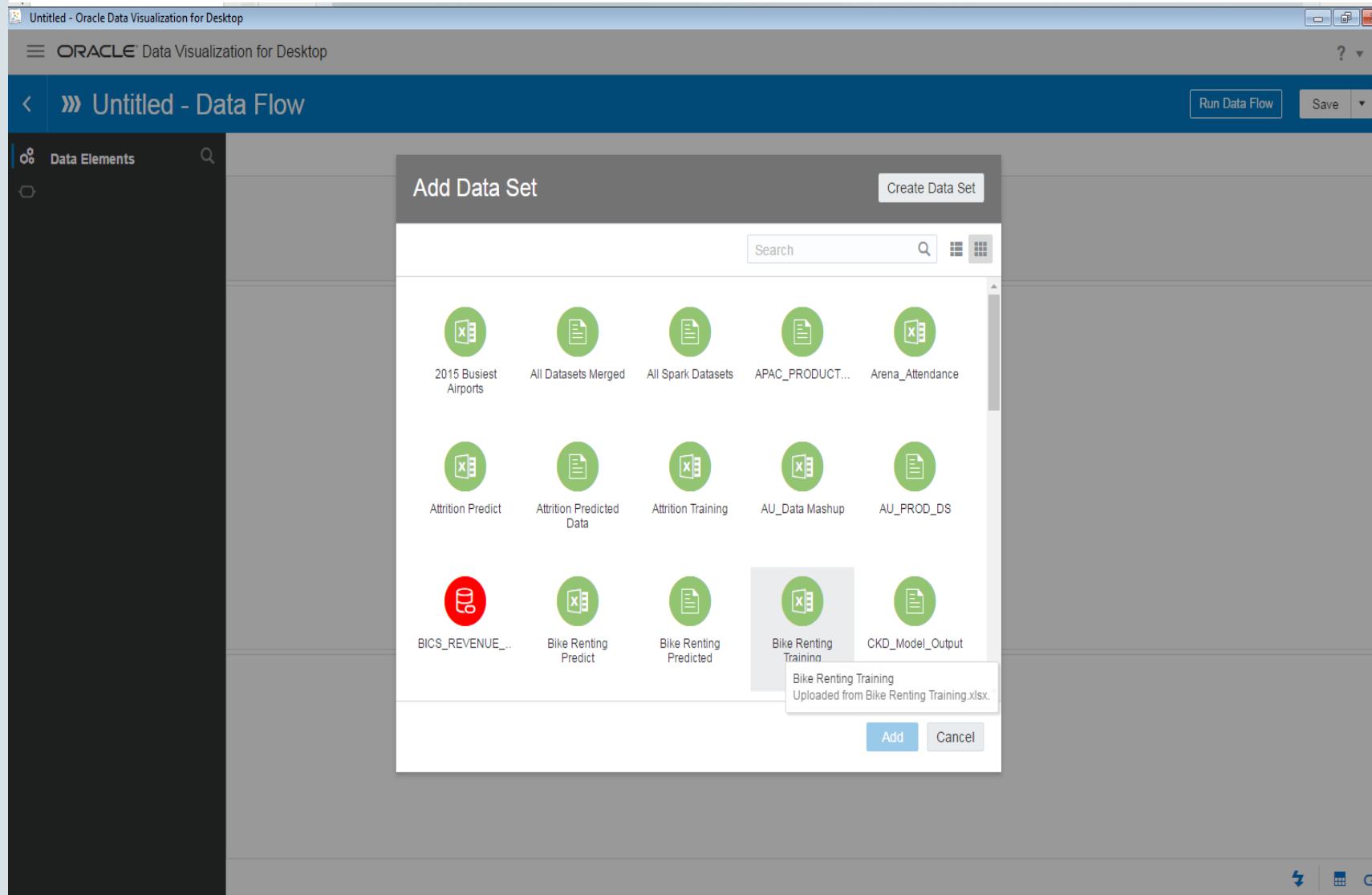
The screenshot shows the Oracle Data Visualization for Desktop application window. The title bar says "Oracle Data Visualization for Desktop" and "ORACLE Data Visualization for Desktop". The main menu bar has "File", "Edit", "View", "Insert", "Tools", "Help", and "Data". The "Data" tab is selected, showing a list of data sets. The list includes:

Type	Name	Modified
Table	Bike Renting Training	4 minutes ago
Table	Web - Sales Data	5 days ago
Table	Web - Customers	5 days ago
Table	FARS Accidents_data	Mar 8, 2019
Table	Vision - Cloud Sales Data	Mar 7, 2019
Table	Soccer_europe	Mar 7, 2019
Table	CKD_Model_Output	Feb 26, 2019
Table	CKD_Precition_with_SVM	Feb 26, 2019
Table	CKD_SVM.Drivers	Feb 26, 2019
Table	CKD_Sample_Data	Feb 26, 2019
Table	CKD_Regession.Drivers	Feb 26, 2019
Table	Bike Renting Predict	Feb 26, 2019
Table	Bike Renting Predicted	Feb 26, 2019
Table	Demo_Loyalty	Feb 26, 2019
Table	Workforce Performance Details	Feb 25, 2019

A context menu is open over the "Data Flow" item in the list, showing options: Project, Data Set, Data Flow, Sequence, Connection, and Script. The "Create" button is also visible in the top right corner of the main interface.

Click Create > Data Flow to create a Data Flow

Assignment Screens: Build Machine Learning Model for Bike Prediction



Select Bike Renting Training Data Set.
Click Add

Assignment Screens: Build Machine Learning Model for Bike Prediction

The screenshot shows the Oracle Data Visualization for Desktop application window titled "Untitled - Data Flow". The interface includes a toolbar with "Run Data Flow" and "Save" buttons, a sidebar labeled "Data Elements" listing various columns like Instant, Season, year, dteday, mnth, holiday, weekday, WorkingDay, weathersit, temp, atemp, hum, windspeed, count, and {Row Count}, and a main workspace with a data grid and a central toolbar.

In the central workspace, there is a "Bike Rent..." node and a "Add Data - Bike" panel. The "Add Data - Bike" panel contains several buttons:

- Top row: Add Data, Join, Merge Rows, Filter, Aggregate, Save Data, Create Essbase Cube.
- Second row: Data Set, Description, Upload, Add Columns, Select Columns, Rename Columns, Merge Columns, Bin, Group, Branch.
- Third row: When Run, Cumulative Value, Time Series Forecast, Analyze Sentiment, Apply Custo..., Script.
- Bottom row: Train Numeric Prediction, Train Multi-Classifier, Train Binary Classifier, Train Clustering, Train Custo..., Model, Apply Model.

The data grid below shows the following data:

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp	hum		
ID-1	Spring	2011	01/01/2011		1	No		6	No	Cloudy	0.3441670	0.3636250	0.80583300000
ID-2	Spring	2011	01/02/2011		1	No		0	No	Cloudy	0.3634780	0.3537390	0.69608700000
ID-3	Spring	2011	01/03/2011		1	No		1	Yes	Clear	0.1963640	0.1894050	0.43727300000
ID-4	Spring	2011	01/04/2011		1	No		2	Yes	Clear	0.2000000	0.2121220	0.59043500000

Click + beside the Bike Renting Training Data Set and Click Select Columns

Assignment Screens: Build Machine Learning Model for Bike Prediction

The screenshot shows the Oracle Data Visualization for Desktop interface. The title bar reads "Untitled - Oracle Data Visualization for Desktop" and the main window title is "» Untitled - Data Flow". The left sidebar is titled "Data Elements" and lists various columns: Instant, Season, year, dteday, mnth, holiday, weekday, WorkingDay, weathersit, temp, atemp, hum, windspeed, count, and {Row Count}. A tooltip "Bike Renting" is visible near the top center. The main workspace contains a "Bike Renting" data set and a toolbar with various data manipulation icons. Below the toolbar is a table with the following data:

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp	hum
ID-1	Spring	2011	01/01/2011		1	No		6	No	Cloudy	0.3441670
ID-2	Spring	2011	01/02/2011		1	No		0	No	Cloudy	0.3634780
ID-3	Spring	2011	01/03/2011		1	No		1	Yes	Clear	0.1963640
ID-4	Spring	2011	01/04/2011		1	No		2	Yes	Clear	0.2000000

Click + beside the Bike Renting Training Data Set and Click Select Columns

Assignment Screens: Build Machine Learning Model for Bike Prediction

Untitled - Oracle Data Visualization for Desktop

ORACLE Data Visualization for Desktop

» Untitled - Data Flow

Run Data Flow Save

Data Elements

Available Data

- Instant
- Season
- year
- dteday
- mnth
- holiday
- weekday
- WorkingDay
- weathersit
- temp
- atemp
- hum
- windspeed
- count
- {Row Count}

Bike Rent... Select Columns +

weekday

WorkingDay

weathersit

temp

atemp

hum

windspeed

count

{Row Count}

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp	hum
ID-1	Spring	2011	01/01/2011	1	No	6	No	Cloudy	0.3441670	0.3636250	0.80583300000
ID-2	Spring	2011	01/02/2011	1	No	0	No	Cloudy	0.3634780	0.3537390	0.69608700000
ID-3	Spring	2011	01/03/2011	1	No	1	Yes	Clear	0.1963640	0.1894050	0.43727300000
ID-4	Spring	2011	01/04/2011	1	No	2	Yes	Clear	0.2000000	0.2121220	0.59043500000

Select Row Count

Assignment Screens: Build Machine Learning Model for Bike Prediction

Untitled - Oracle Data Visualization for Desktop

☰ ORACLE® Data Visualization for Desktop

« » Untitled - Data Flow

Run Data Flow Save ?

Data Elements Q

Available Data

- Instant
- Season
- year
- dteday
- mnth
- holiday
- weekday
- WorkingDay
- weathersit
- temp
- atemp
- hum
- windspeed
- count
- {Row Count}

Bike Rent... Select Columns +

Select Columns

Search Q Add all Add selected Selected (15/15) Remove all Remove selected

No items to display.

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp	hum
ID-1	Spring	2011	01/01/2011	1	No	6	No	Cloudy	0.3441670	0.3636250	0.80583300000
ID-2	Spring	2011	01/02/2011	1	No	0	No	Cloudy	0.3634780	0.3537390	0.69608700000
ID-3	Spring	2011	01/03/2011	1	No	1	Yes	Clear	0.1963640	0.1894050	0.43727300000
ID-4	Spring	2011	01/04/2011	1	No	2	Yes	Clear	0.2000000	0.2121220	0.59043500000

?

The screenshot shows the Oracle Data Visualization for Desktop interface. At the top, there's a toolbar with 'Run Data Flow' and 'Save' buttons. On the left, a sidebar titled 'Data Elements' lists various columns from a dataset, such as Instant, Season, year, dteday, mnth, holiday, weekday, WorkingDay, weathersit, temp, atemp, hum, windspeed, count, and {Row Count}. A 'Select Columns' button is highlighted in blue. Below this is a 'Select Columns' dialog box with a search bar, 'Add all' and 'Add selected' buttons, and 'Selected (15/15)' and 'Remove all'/'Remove selected' buttons. It displays a list of columns: Instant, Season, year, dteday, mnth, holiday, weekday, WorkingDay, weathersit, temp, atemp, hum. At the bottom, there's a large table with four rows of data, each containing values for these columns. The table has a header row with column names like Instant, Season, year, etc.

Click Remove Selected

Assignment Screens: Build Machine Learning Model for Bike Prediction

Untitled - Oracle Data Visualization for Desktop

ORACLE® Data Visualization for Desktop

» Untitled - Data Flow

Run Data Flow Save ?

Data Elements

Available Data

- Instant
- Season
- year
- dteday
- mnth
- holiday
- weekday
- WorkingDay
- weathersit
- temp
- atemp
- hum
- windspeed
- count
- {Row Count}

Bike Renti... Select Columns

Select Columns

Add Data Join Merge Rows Filter Aggregate Save Data Create Essbase Cube

Add Columns Select Columns Rename Columns Merge Columns Bin Group Branch

Cumulative Value Time Series Forecast Analyze Sentiment Apply Custo... Script

Train Numeric Prediction Train Multi-Classifier Train Binary Classifier Train Clustering Train Cust... Model Apply Model

Remove all Remove selected

holiday

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp	hum		
ID-1	Spring	2011	01/01/2011		1	No		6	No	Cloudy	0.3441670	0.3636250	0.80583300000
ID-2	Spring	2011	01/02/2011		1	No		0	No	Cloudy	0.3634780	0.3537390	0.69608700000
ID-3	Spring	2011	01/03/2011		1	No		1	Yes	Clear	0.1963640	0.1894050	0.43727300000
ID-4	Spring	2011	01/04/2011		1	No		2	Yes	Clear	0.2000000	0.2121220	0.59043500000

Click + and Select Train Numeric Prediction Classification

Assignment Screens: Build Machine Learning Model for Bike Prediction

Untitled - Oracle Data Visualization for Desktop

ORACLE Data Visualization for Desktop

Untitled - Data Flow

Data Elements

Available Data

- Instant
- Season
- year
- dteday
- mnth
- holiday
- weekday
- WorkingDay
- weathersit
- temp
- atemp
- hum
- windspeed
- count
- {Row Count}

Bike Renti... Select Columns +

Select Columns

Search {Row Count}

Select Train Numeric Prediction Model Script

Search

CART for Numeric Prediction training

Elastic Net Linear Regression for model training

Linear Regression for model training

Random Forest for Numeric model training

Remove all Remove selected

OK Cancel

Instant	Season	year	atemp	hum	temp	atemp	hum			
ID-1	Spring	2011	01/03/2011	1	No	1	Yes	0.3441670	0.3636250	0.80583300000
ID-2	Spring	2011	01/04/2011	1	No	2	Yes	0.3634780	0.3537390	0.69608700000
ID-3	Spring	2011	01/03/2011	1	No	1	Yes	0.1963640	0.1894050	0.43727300000
ID-4	Spring	2011	01/04/2011	1	No	2	Yes	0.2000000	0.2121220	0.59043500000

Select Linear Regression for model training

Assignment Screens: Build Machine Learning Model for Bike Prediction

Untitled - Oracle Data Visualization for Desktop

☰ ORACLE® Data Visualization for Desktop

« » Untitled - Data Flow

Run Data Flow Save

Data Elements

Available Data

- Instant
- Season
- year
- dteday
- mnth
- holiday
- weekday
- WorkingDay
- weathersit
- temp
- atemp
- hum
- windspeed
- count

Bike Rent... Select Columns Train Num... Prediction

Train Numeric Prediction

Model Training Script: Linear Regression for model training

* Target: Select a column target, the target(label) to learn/predict

Regression Method: Lasso

Regularization Weight: 1

Categorical Column Imputation: Most Frequent

Instant	Season	year	dteday	weekday	WorkingDay	weathersit	temp	atemp	hum
ID-1	Spring	2011	01/01/2011	1	No	Cloudy	0.3441670	0.3636250	0.80583300000
ID-2	Spring	2011	01/02/2011	1	No	Cloudy	0.3634780	0.3537390	0.69608700000
ID-3	Spring	2011	01/03/2011	1	Yes	Clear	0.1963640	0.1894050	0.43727300000
ID-4	Spring	2011	01/04/2011	1	No	Clear	0.2000000	0.2121220	0.59043500000

Search Q

- dteday
- mnth
- holiday
- weekday
- WorkingDay
- weathersit
- temp
- atemp
- hum
- windspeed
- count

Click Target and Select Count as the Target Column which will be used to train the model.

Assignment Screens: Build Machine Learning Model for Bike Prediction

Untitled - Oracle Data Visualization for Desktop

☰ ORACLE® Data Visualization for Desktop

« » Untitled - Data Flow

Run Data Flow Save

Data Elements

Available Data

- Instant
- Season
- year
- dteday
- mnth
- holiday
- weekday
- WorkingDay
- weathersit
- temp
- atemp
- hum
- windspeed
- count

Bike Renti... Select Columns Train Num... Prediction

Train Numeric Prediction

Model Training Script Linear Regression for model training

* Target count target, the target(label) to learn/predict

Regression Method Lasso

- Ordinary Least Squares
- Lasso
- Ridge

Regularization Weight

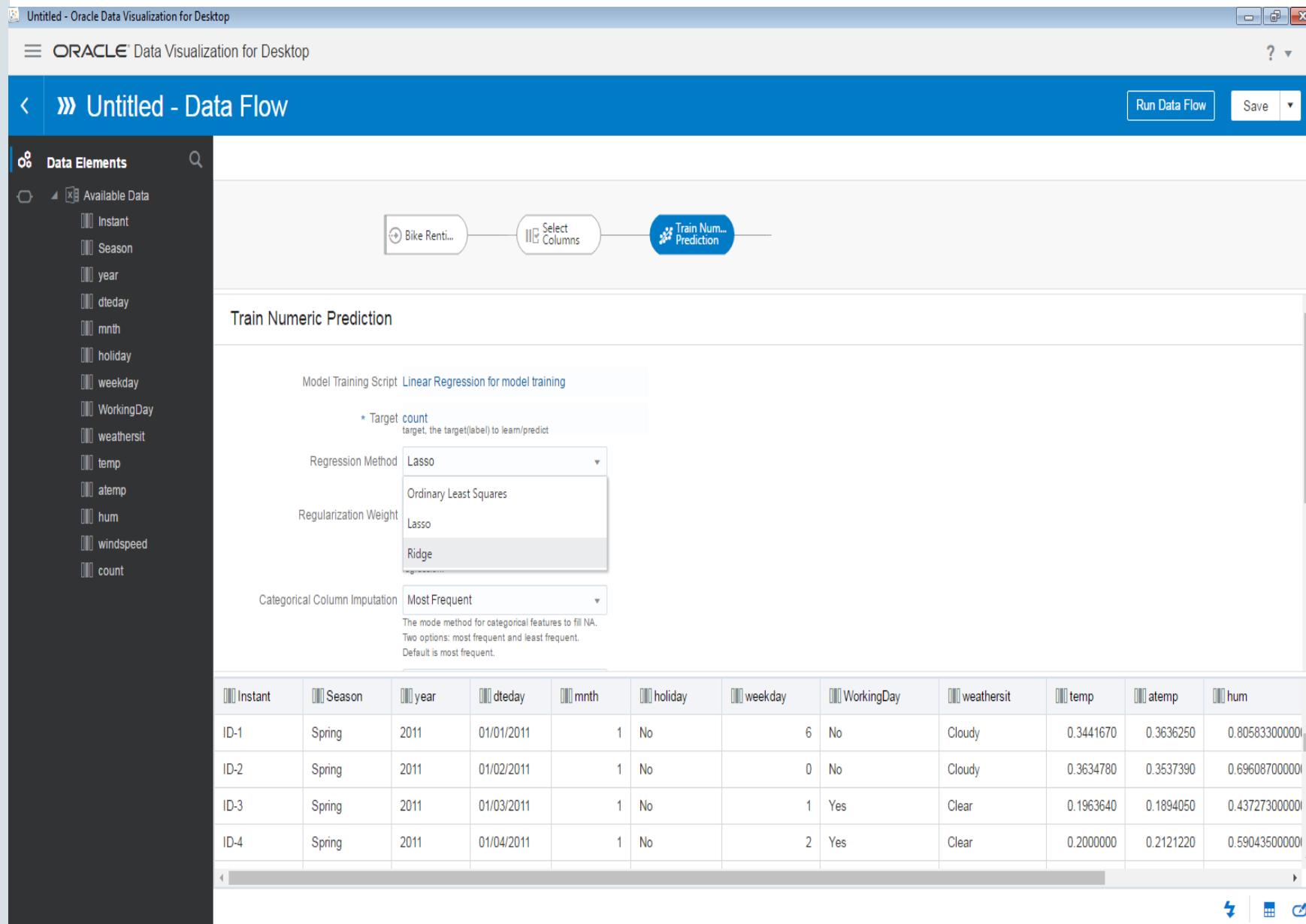
Categorical Column Imputation Most Frequent

The mode method for categorical features to fill NA.
Two options: most frequent and least frequent.
Default is most frequent.

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp	hum
ID-1	Spring	2011	01/01/2011		1 No	6	No	Cloudy	0.3441670	0.3636250	0.8058300000
ID-2	Spring	2011	01/02/2011		1 No	0	No	Cloudy	0.3634780	0.3537390	0.6960870000
ID-3	Spring	2011	01/03/2011		1 No	1	Yes	Clear	0.1963640	0.1894050	0.4372730000
ID-4	Spring	2011	01/04/2011		1 No	2	Yes	Clear	0.2000000	0.2121220	0.5904350000

?

Run Data Flow Save



Select the Regression Method to Ridge.

Assignment Screens: Build Machine Learning Model for Bike Prediction

Untitled - Oracle Data Visualization for Desktop

ORACLE Data Visualization for Desktop

» Untitled - Data Flow

Run Data Flow Save

Data Elements

Available Data

- Instant
- Season
- year
- dteday
- mnth
- holiday
- weekday
- WorkingDay
- weathersit
- temp
- atemp
- hum
- windspeed
- count

Bike Rent... Select Columns Train Num... Prediction

Categorical Column Imputation: Most Frequent
The mode method for categorical features to fill NA. Two options: most frequent and least frequent. Default is most frequent.

Numerical Column Imputation: Mean
The mode method for numeric features to fill NA. Four options: mean, max, min, median. Default is mean.

Categorical Encoding Method: Indexer
Encoding method.

Maximum Null Value Percent: 80

Train Partition Percent: 80
The percentage of original data used for training. default is 80%.

Standardization: False
Standardize data before training.

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp	hum
ID-1	Spring	2011	01/01/2011	1	No	6	No	Cloudy	0.3441670	0.3636250	0.80583300000
ID-2	Spring	2011	01/02/2011	1	No	0	No	Cloudy	0.3634780	0.3537390	0.69608700000
ID-3	Spring	2011	01/03/2011	1	No	1	Yes	Clear	0.1963640	0.1894050	0.43727300000
ID-4	Spring	2011	01/04/2011	1	No	2	Yes	Clear	0.2000000	0.2121220	0.59043500000

You can scroll down to explore the remaining properties of Linear Regression Model.

Train Partition Percent is a Property which tells you the amount of data used to Train the model.

Assignment Screens: Build Machine Learning Model for Bike Prediction

Linear Regression - Bike Renting Training - Oracle Data Visualization for Desktop

☰ ORACLE Data Visualization for Desktop

» Linear Regression - Bike Renting Training - Data Flow

Run Data Flow Save

Data Flow Steps Select Columns Rename Columns Merge Columns Bin Group Branch Cumulative Value Time Series Forecast Analyze Sentiment Apply Custom Script Train Numeric Prediction... Train Multi-Classifier Train Clustering Train Binary Classifier Train Custom Model Apply Model

Bike Renti... Select Columns Train Num... Prediction Save Model

Save Model

Model name: Linear Regression - Bike Renting Train Model

Model description:

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp	hum
ID-1	Spring	2011	2011-01-01	1	No	6	No	Cloudy	0.3441670	0.3636250	0.805833000
ID-2											

Once the Train Model is selected, Click on Save Model and specify a Logical Name for the Model. The output of Train Model Data Flow is a Model.

Assignment Screens: Build Machine Learning Model for Bike Prediction

Linear Regression - Bike Renting Training - Oracle Data Visualization for Desktop

☰ ORACLE® Data Visualization for Desktop

« » Linear Regression - Bike Renting Training - Data Flow

Run Data Flow Save

Data Flow Steps

- Select Columns
- Rename Columns
- Merge Columns
- Bin
- Group
- Branch
- Cumulative Value
- Time Series Forecast
- Analyze Sentiment
- Apply Custom Script
- Train Numeric Prediction...
- Train Multi-Classifier
- Train Clustering
- Train Binary Classifier
- Train Custom Model
- Apply Model

Bike Rent... Select Columns Train Num... Prediction Save Model

Train Numeric Prediction

Model Training Script: Linear Regression for model training

* Target count: target, the target(label) to learn/predict

Regression Method: Ridge

Regularization Weight: 1

Categorical Column Imputation: Most Frequent

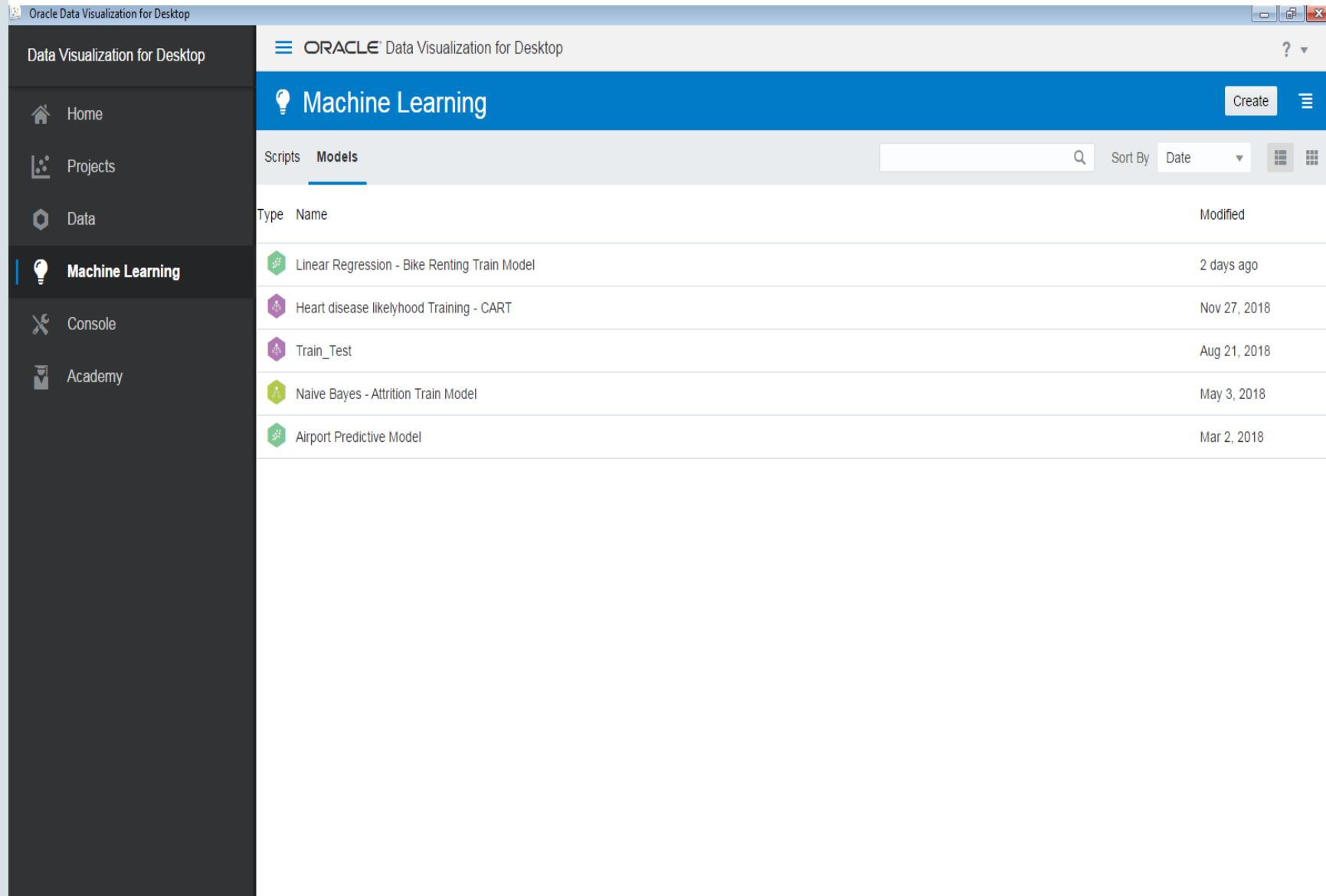
Numerical Column Imputation: Mean

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp	hum
ID-1	Spring	2011	2011-01-01	1	No	6	No	Cloudy	0.3441670	0.3636250	0.805830000
ID-2	Spring	2011	2011-01-02	1	No	0	No	Cloudy	0.3634780	0.3537390	0.696087000
ID-3	Spring	2011	2011-01-03	1	No	1	Yes	Clear	0.1963640	0.1894050	0.437273000

Click Save to Save the Data Flow. You can Save the Data Flow as Linear Regression – Bike Renting Training Data Flow

Click Run Data Flow to execute the Data Flow. Once the Data Flow is successfully executed, the output model can be seen in Machine Learning Tab

Assignment Screens: Build Machine Learning Model for Bike Prediction



The screenshot shows the Oracle Data Visualization for Desktop application window. The title bar reads "ORACLE Data Visualization for Desktop". The left sidebar has a dark theme with icons for Home, Projects, Data, Machine Learning (which is selected and highlighted in blue), Console, and Academy. The main area is titled "Machine Learning" and contains two tabs: "Scripts" and "Models". The "Models" tab is selected, showing a list of five machine learning models with their names, types, and last modified dates:

Type	Name	Modified
Linear Regression	Bike Renting Train Model	2 days ago
CART	Heart disease likelihood Training - CART	Nov 27, 2018
Naive Bayes	Train_Test	Aug 21, 2018
Naive Bayes	Naive Bayes - Attrition Train Model	May 3, 2018
Decision Tree	Airport Predictive Model	Mar 2, 2018

Once the Data Flow is successfully executed, the output model can be seen in Machine Learning Tab

Understand Model Properties and

Inspect Model Accuracy

Inspect Model Accuracy



Section 9: Build Machine Learning with Oracle Analytics

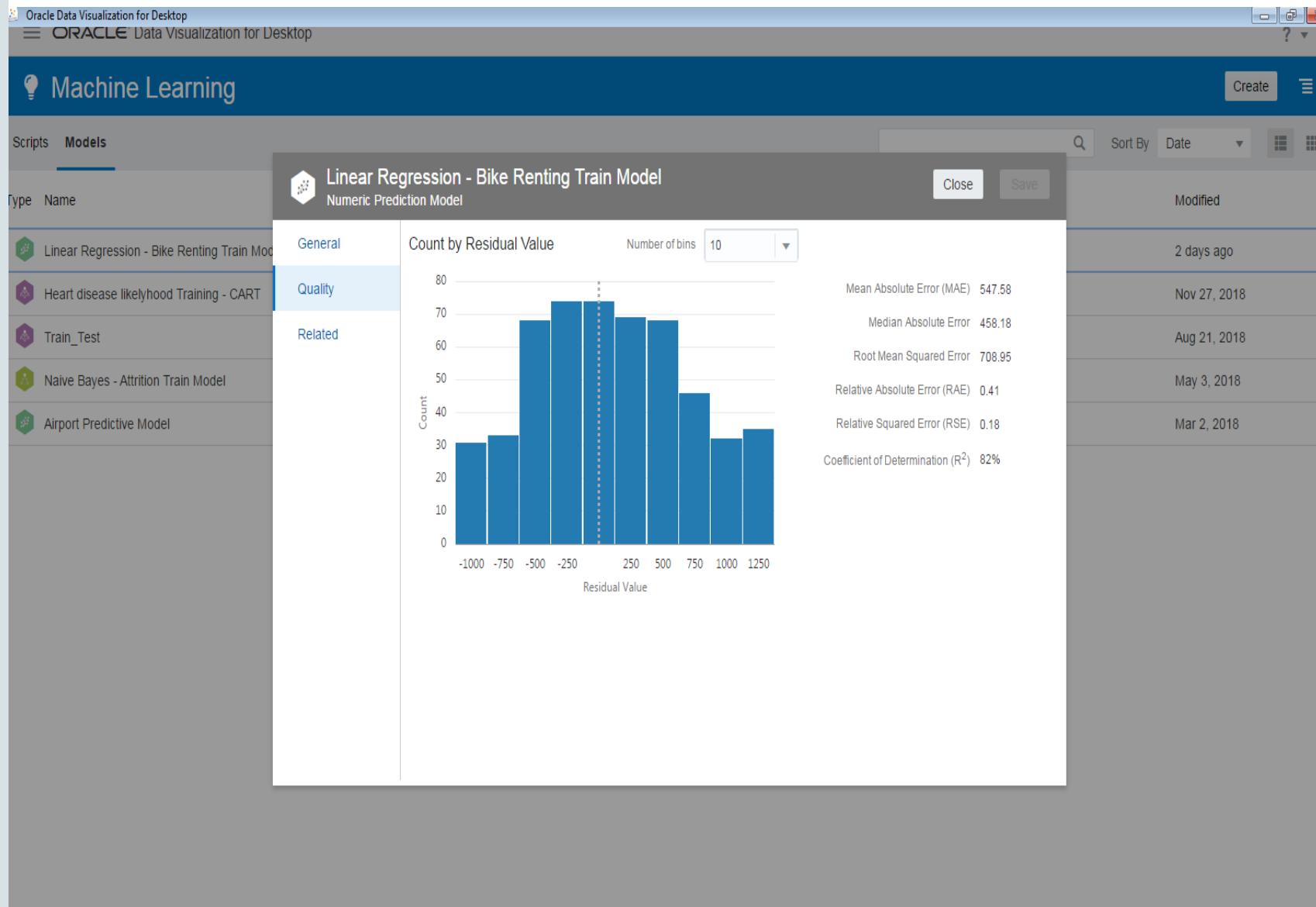
Assignment Screens: Understand Model Properties and Inspect Model Accuracy

The screenshot shows the Oracle Data Visualization for Desktop application window titled "Machine Learning". The "Models" tab is selected in the navigation bar. The main area displays a list of five machine learning models, each with a small icon, name, creation date, and modification date. The "Linear Regression - Bike Renting Train Model" is highlighted. A context menu is open over this model, showing options "Inspect" and "Delete".

Type	Name	Modified
	Linear Regression - Bike Renting Train Model	2 days ago Nov 27, 2018
	Heart disease likelihood Training - CART	Aug 21, 2018
	Train_Test	May 3, 2018
	Naive Bayes - Attrition Train Model	Mar 2, 2018
	Airport Predictive Model	

You can understand the model properties by clicking on Inspect option on the right corner of the model.

Assignment Screens: Understand Model Properties and Inspect Model Accuracy



Click Quality to understand the evaluation of the model built.

The errors it exhibits on the training data—the differences between predicted and observed values—are called *residuals*. You can train additional data sets to reduce the residuals. You can determine the correctness/effectiveness based on Coefficient of Determination

Assignment Screens: Understand Model Properties and Inspect Model Accuracy

The screenshot shows the Oracle Data Visualization for Desktop application window. The title bar says "Oracle Data Visualization for Desktop" and "ORACLE Data Visualization for Desktop". The main menu bar has "File", "Edit", "View", "Insert", "Tools", "Help", and "Machine Learning". The left sidebar is titled "Machine Learning" and has tabs for "Scripts" and "Models". Under "Models", there are several entries: "Linear Regression - Bike Renting Train Model" (selected), "Heart disease likelihood Training - CART", "Train_Test", "Naive Bayes - Attrition Train Model", and "Airport Predictive Model". The central area displays a modal dialog for the selected "Linear Regression - Bike Renting Train Model". The dialog title is "Linear Regression - Bike Renting Train Model" and subtitle "Numeric Prediction Model". It has tabs for "General", "Quality", and "Related", with "Related" currently selected. The "Related" tab lists "Generated Data" items: "Linear Regression - Bike Renting Train Model.Drivers", "Linear Regression - Bike Renting Train Model.Statistics", and "Linear Regression - Bike Renting Train Model.Residuals". It also lists "Training Data" items: "Bike Renting Training" (uploaded from Bike Renting Training.xlsx) and "Training Script" items: "Linear Regression for model scoring". A table on the right shows "Modified" dates for various files: "2 days ago", "Nov 27, 2018", "Aug 21, 2018", "May 3, 2018", and "Mar 2, 2018".

Click Related to find the Generated Data, Trained Data and Model generated.

Files available under Generated Data Section can be used in Data Visualization.

Click Linear Regression – Bike Renting Train Model Drivers to build a visualization

Build Correlations on Bike Prediction data set

Build Correlations



Section 9: Build Machine Learning with Oracle Analytics

Assignment Screens: Build Correlations on Bike Prediction data set

The screenshot shows the Oracle Data Visualization for Desktop interface. The title bar reads "Linear Regression Train - Bike Rental Prediction - Oracle Data Visualization for Desktop" and "ORACLE Data Visualization for Desktop". The main area is titled "Linear Regression Train - Bike Rental Prediction - Project". The left sidebar has a "Data Elements" section with "Linear Regression - Bike R..." expanded, showing "Driver Name", "Coefficient", "Correlation", "Target", "Model Name", "My Calculations", and "Value Labels". Below it is a "Correlation, Target, Driver..." section with "General", "Title" (Auto), "Type" (Table), and "Legend" (Auto). The main workspace contains a visualization titled "Correlation, Target, Driver Name". It includes a "Table" view with columns "Target", "Driver Name", and "Correlation". The data is as follows:

Target	Driver Name	Correlation
count	Season	Positive
	WorkingDay	Positive
	holiday	Negative
	hum	Negative
	mnth	Positive
	temp	Positive
	weathersit	Negative
	weekday	Positive
	windspeed	Negative
	year	Positive

Below the table is a legend: "Correlation" with "Positive" (blue square) and "Negative" (green square). The bottom of the workspace says "Canvas 1".

Create a Visualization based on the data set used for inspecting the model in the earlier step.

Select Target, Driver Name, Correlation and Pick Table view Visualization. Drag Correlation again to the Color section.

Reorder the columns to Target, Driver Name and Correlation in the visualization pane.

You can find correlations in the visualization created.

Click Save and Save the Project as Linear Regression Train Bike Rental Prediction

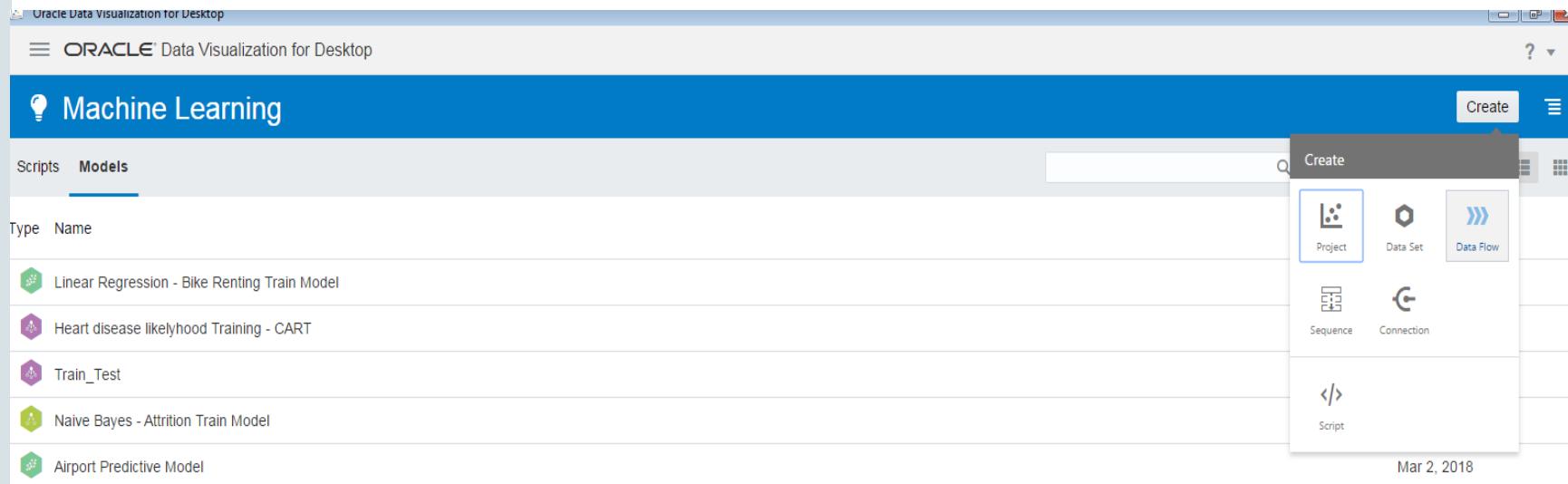


Use Machine Learning Model to Make Prediction for Bike Rental

Apply/Score a Model

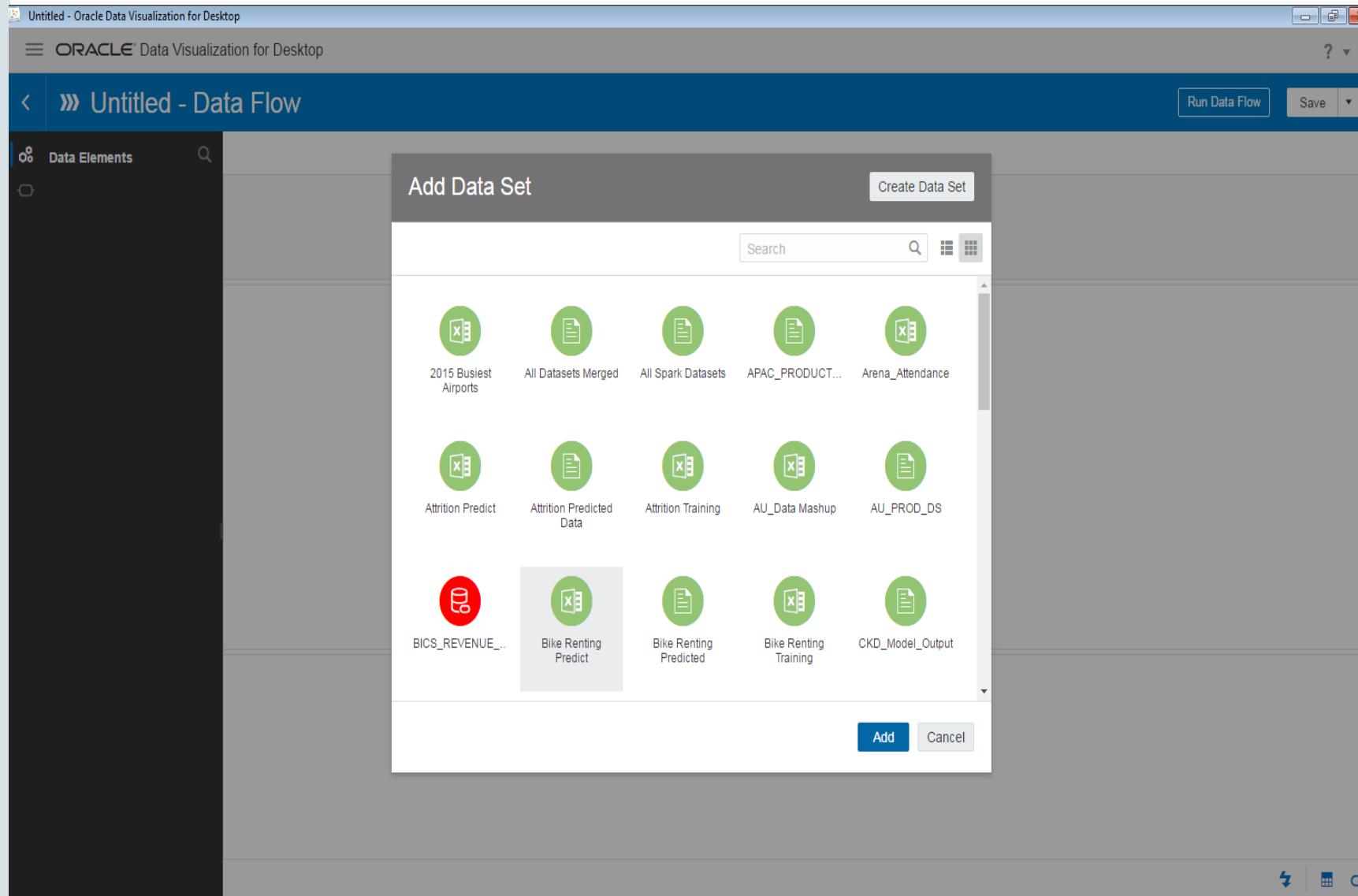
Section 9: Build Machine Learning with Oracle Analytics

Assignment Screens: Use Machine Learning Model to Make Prediction for Bike Rental



Click Create > Data Flow.

Assignment Screens: Use Machine Learning Model to Make Prediction for Bike Rental



Select Bike Renting Predict Data Set and Click Add.

Assignment Screens: Use Machine Learning Model to Make Prediction for Bike Rental

The screenshot shows the Oracle Data Visualization for Desktop interface. The title bar reads "Untitled - Oracle Data Visualization for Desktop" and "ORACLE Data Visualization for Desktop". The main area is titled "» Untitled - Data Flow". On the left, there's a sidebar titled "Data Elements" with a search icon. Below it is a list of available data elements: Instant, Season, year, dteday, mnth, holiday, weekday, WorkingDay, weathersit, temp, atemp, hum, windspeed. A tooltip "Bike Rent..." is visible near the top center. A modal window titled "Add Data - Bike" is open, showing various data manipulation tools: Add Data, Join, Merge Rows, Filter, Aggregate, Save Data, Create Essbase Cube; and Data Set, Description, When Run, Cumulative Value, Time Series Forecast, Analyze Sentiment, Apply Custom Script; and Train Numeric Prediction, Train Multi-Classifier, Train Binary Classifier, Train Clustering, Train Custom Model, and Apply Model. The "Apply Model" button is highlighted with a blue border. At the bottom of the screen, there's a table with columns: Instant, Season, year, dteday, mnth, holiday, weekday, WorkingDay, weathersit, temp, atemp. The table contains four rows of data.

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp
ID-531	Summer	2012	2012-06-14	6	No	4	Yes	Clear	0.6483300000000000	0.6243830000000000
ID-532	Summer	2012	2012-06-15	6	No	5	Yes	Clear	0.6391670000000000	0.5997540000000000
ID-533	Summer	2012	2012-06-16	6	No	6	No	Clear	0.6316670000000000	0.5947080000000000
ID-534	Summer	2012	2012-06-17	6	No	0	No	Clear	0.5925000000000000	0.5719750000000000

Click Add Step and Select Apply Model

Assignment Screens: Use Machine Learning Model to Make Prediction for Bike Rental

The screenshot shows the Oracle Data Visualization for Desktop interface. The main window title is "Untitled - Oracle Data Visualization for Desktop" and the sub-title is "» Untitled - Data Flow". On the left, there's a sidebar titled "Data Elements" with a search icon and a list of available data elements: Instant, Season, year, dteday, mnth, holiday, weekday, WorkingDay, weathersit, temp, atemp, hum, windspeed. In the center, there's a "Select Model" dialog box. The dialog has a "Search" field and a grid of models. The first model in the grid is highlighted: "Linear Regression - Bike Renting Train ... count" (Type: Linear Regression, Name: Bike Renting Train ..., Outputs: count, Modified: Feb 26, 2019). Below the grid are "OK" and "Cancel" buttons. The background of the main window shows a "Add Data - Bike Rental" step with a table of data rows and columns for Instant, Season, ID, Year, Month, Day, Temp, atemp, Humidity, and windspeed.

Select Linear Regression – Bike Renting Training Model which was created during Train Model Step and Select OK

Assignment Screens: Use Machine Learning Model to Make Prediction for Bike Rental

The screenshot shows the Oracle Data Visualization for Desktop application window titled "Untitled - Data Flow". The interface includes a toolbar with "Run Data Flow" and "Save" buttons, a left sidebar for "Data Elements" listing various columns like Instant, Season, year, dteday, mnth, holiday, weekday, WorkingDay, weathersit, temp, atemp, hum, and windspeed, and a main workspace for building a data flow.

In the workspace, there is a "Bike Renti..." source node connected to an "Apply Model" step. The "Apply Model" step is configured for a "Linear Regression - Bike Renting Train Model". Under the "Outputs" section, "PredictedValue" is selected as the output column. Under "Parameters", the "Maximum Null Value Percent" is set to 80. The "Inputs" section lists the following data:

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp
ID-531	Summer	2012	2012-06-14	6	No	4	Yes	Clear	0.6483300000000000	0.6243830000000000
ID-532	Summer	2012	2012-06-15	6	No	5	Yes	Clear	0.6391670000000000	0.5997540000000000
ID-533	Summer	2012	2012-06-16	6	No	6	No	Clear	0.6316670000000000	0.5947080000000000
ID-534	Summer	2012	2012-06-17	6	No	0	No	Clear	0.5925000000000000	0.5719750000000000

Output is the Output Column generated based on the model prediction.

Inputs are the list of Inputs used for Scoring the Model.

Click Add Step > Save Data

Assignment Screens: Use Machine Learning Model to Make Prediction for Bike Rental

Untitled - Oracle Data Visualization for Desktop

ORACLE Data Visualization for Desktop

» Untitled - Data Flow

Run Data Flow Save

Data Elements Available Data

- Instant
- Season
- year
- dteday
- mnth
- holiday
- weekday
- WorkingDay
- weathersit
- temp
- atemp
- hum
- windspeed
- PredictedValue

Bike Renti... Apply Model Save Data

Save Data Set

Name: Bike Renting Predicted

Description:

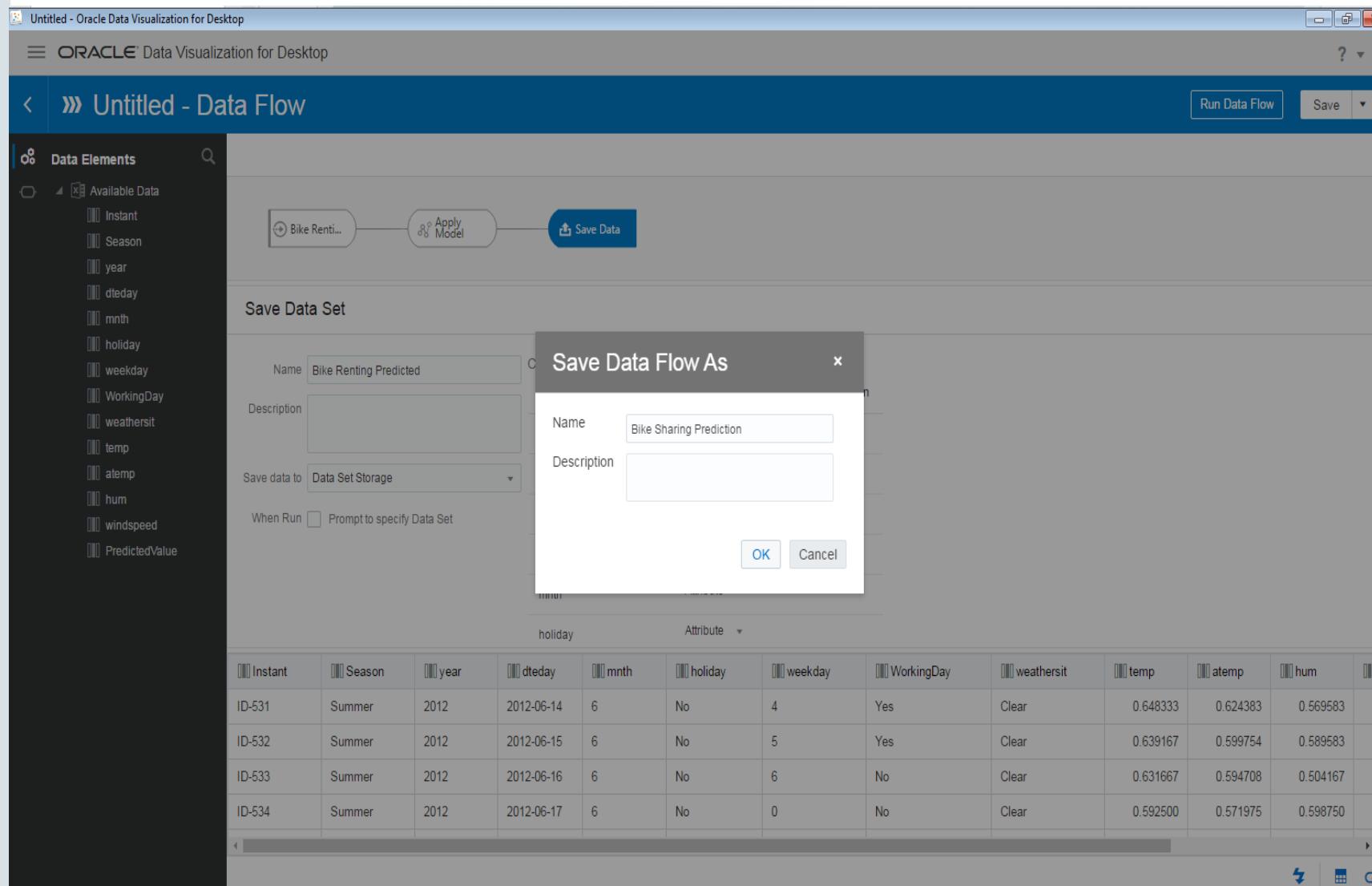
Save data to: Data Set Storage

When Run: Prompt to specify Data Set

Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp	hum	windspeed
ID-531	Summer	2012	2012-06-14	6	No	4	Yes	Clear	0.648333	0.624383	0.569583	
ID-532	Summer	2012	2012-06-15	6	No	5	Yes	Clear	0.639167	0.599754	0.589583	
ID-533	Summer	2012	2012-06-16	6	No	6	No	Clear	0.631667	0.594708	0.504167	
ID-534	Summer	2012	2012-06-17	6	No	0	No	Clear	0.592500	0.571975	0.598750	

Save the Output File as Bike Renting Predicted.

Assignment Screens: Use Machine Learning Model to Make Prediction for Bike Rental



Click Save to Save Data Flow as Bike Sharing Prediction.

Assignment Screens: Use Machine Learning Model to Make Prediction for Bike Rental

Bike Sharing Prediction - Oracle Data Visualization for Desktop

ORACLE Data Visualization for Desktop

» Bike Sharing Prediction - Data Flow

Run Data Flow Save

Data Elements

Available Data

- Instant
- Season
- year
- dteday
- mnth
- holiday
- weekday
- WorkingDay
- weathersit
- temp
- atemp
- hum
- windspeed

Bike Rent... Apply Model Save Data

Add Data - Bike Renting Predict

Data Set: Bike Renting Predict

Description: Uploaded from Bike Renting Predict.xlsx.

When Run: Prompt to select Data Set

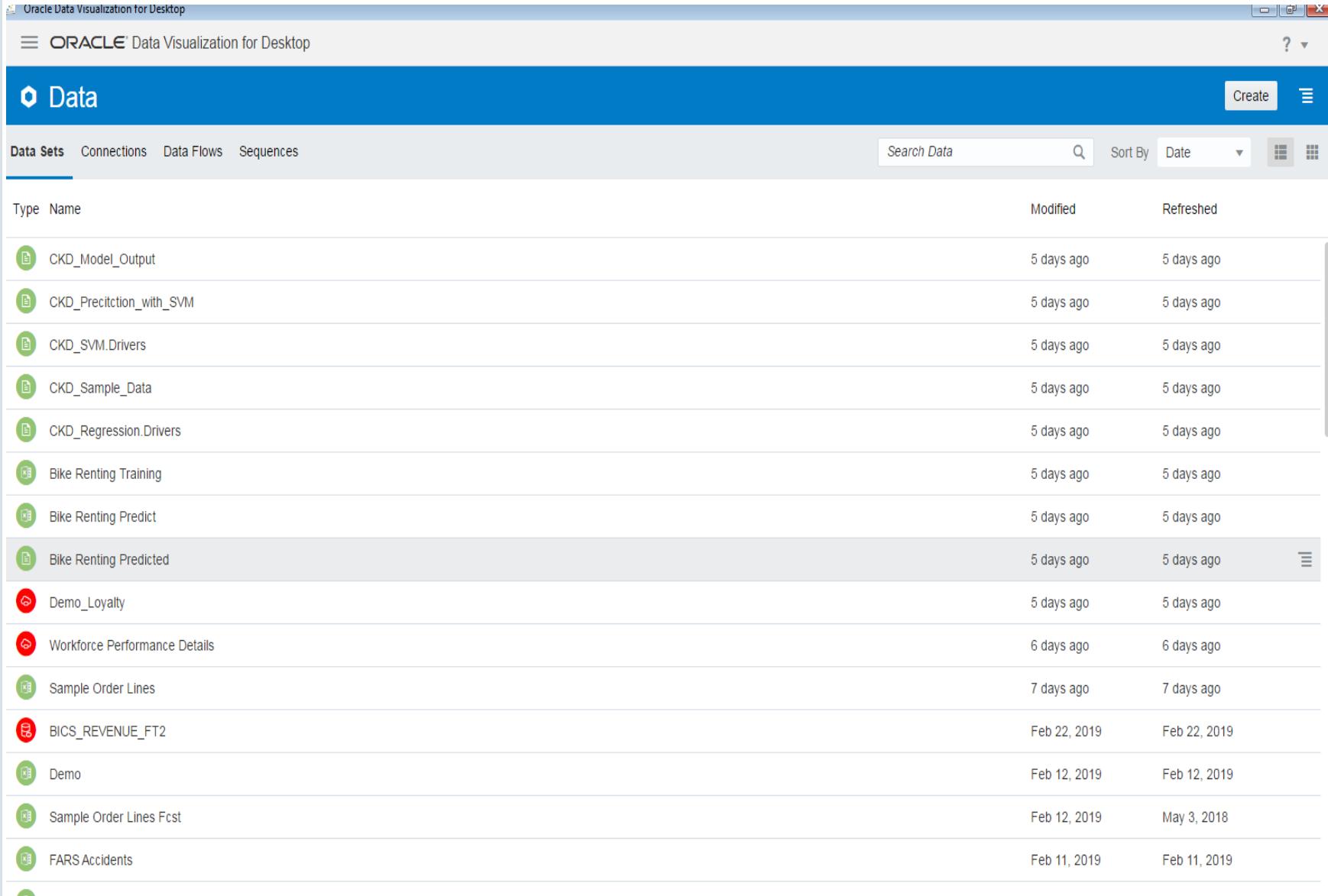
Instant	Season	year	dteday	mnth	holiday	weekday	WorkingDay	weathersit	temp	atemp
ID-531	Summer	2012	2012-06-14	6	No	4	Yes	Clear	0.648330000000000	0.624383000000000
ID-532	Summer	2012	2012-06-15	6	No	5	Yes	Clear	0.639167000000000	0.599754000000000
ID-533	Summer	2012	2012-06-16	6	No	6	No	Clear	0.631667000000000	0.594708000000000
ID-534	Summer	2012	2012-06-17	6	No	0	No	Clear	0.592500000000000	0.571975000000000

Once the Coefficient of Determination is validated, You can apply a model within a data flow to generate a data set.

Click Run Data Flow to execute the Data Flow.

You can then visualize on the resultant data set.

Assignment Screens: Use Machine Learning Model to Make Prediction for Bike Rental



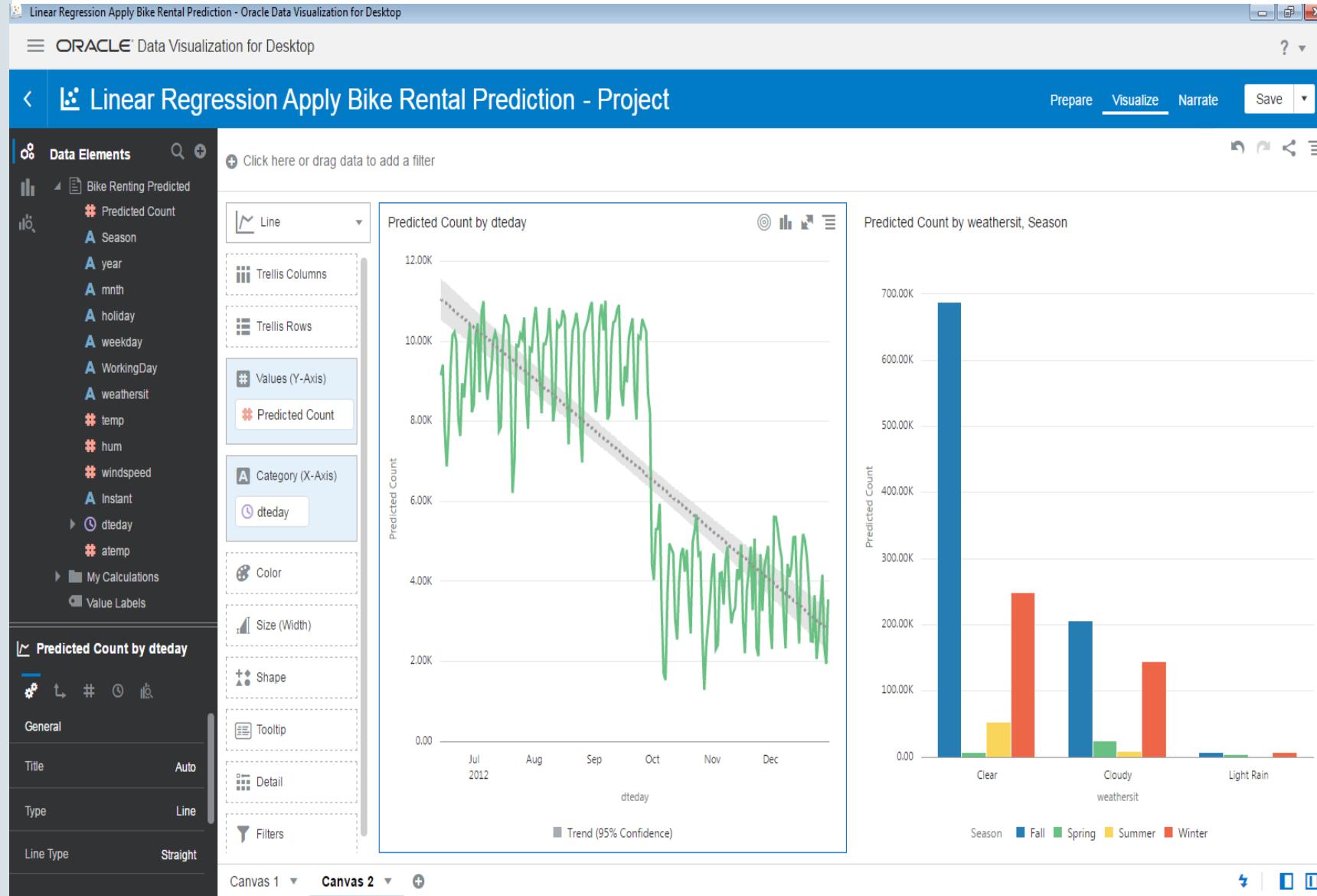
The screenshot shows the Oracle Data Visualization for Desktop interface. The title bar reads "Oracle Data Visualization for Desktop" and "ORACLE Data Visualization for Desktop". The main window has a blue header bar with the title "Data". Below it is a navigation bar with tabs: "Data Sets" (which is selected), "Connections", "Data Flows", and "Sequences". On the right side of the header are buttons for "Create", "?", and a grid icon. The main area is a table titled "Data Sets" with columns: "Type", "Name", "Modified", and "Refreshed". The table lists various data sets, many of which have icons indicating they are machine learning models or predictions. The "Bike Renting Predicted" entry is highlighted with a gray background.

Type	Name	Modified	Refreshed
	CKD_Model_Output	5 days ago	5 days ago
	CKD_Precition_with_SVM	5 days ago	5 days ago
	CKD_SVM.Drivers	5 days ago	5 days ago
	CKD_Sample_Data	5 days ago	5 days ago
	CKD_Regression.Drivers	5 days ago	5 days ago
	Bike Renting Training	5 days ago	5 days ago
	Bike Renting Predict	5 days ago	5 days ago
	Bike Renting Predicted	5 days ago	5 days ago
	Demo_Loyalty	5 days ago	5 days ago
	Workforce Performance Details	6 days ago	6 days ago
	Sample Order Lines	7 days ago	7 days ago
	BICS_REVENUE_FT2	Feb 22, 2019	Feb 22, 2019
	Demo	Feb 12, 2019	Feb 12, 2019
	Sample Order Lines Fcst	Feb 12, 2019	May 3, 2018
	FARS Accidents	Feb 11, 2019	Feb 11, 2019

You can find the data set under Navigator > Data > Data Sets section.

Click Bike Renting Predicted to build visualizations

Assignment Screens: Use Machine Learning Model to Make Prediction for Bike Rental



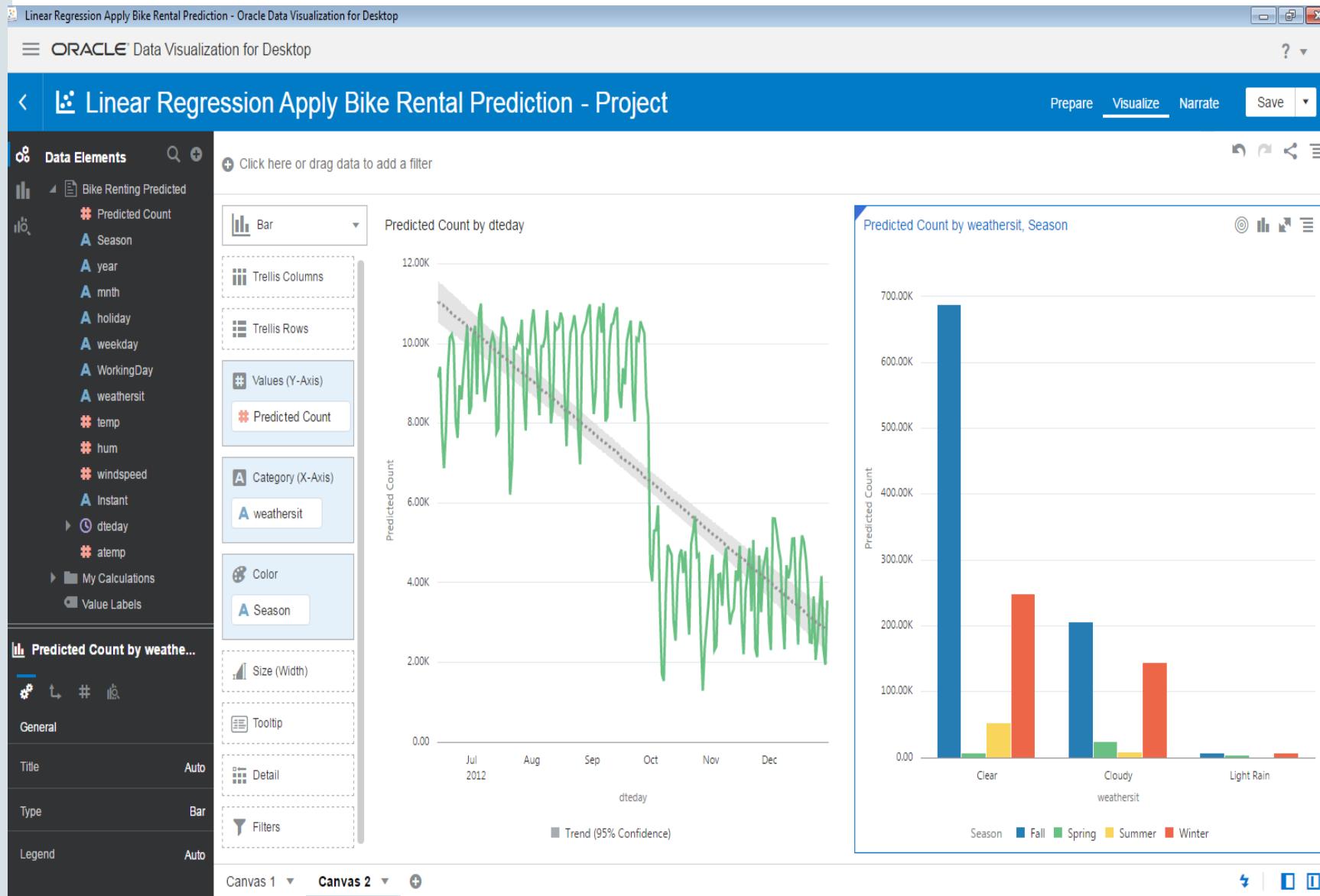
You can create visualizations on the newly created Data Set – Bike Renting Prediction.

Drag Predicted Count and dteday to the visualization pane.

Predicted Count by DateDay visualization predicts the count by Date. You clearly find the drop in counts from October to December.

You can Save the Project as Linear Regression Apply Bike Rental Prediction

Assignment Screens: Use Machine Learning Model to Make Prediction for Bike Rental



The Selected Visualization contains Predicted Count, Weathersit and Season.

It is clearly evident that, on a clear day the chances of Bike Rental is more than Cloudy or Rainy day.

Click Save.

This concludes the Lab Exercise on Machine Learning

Bonus: Demo Prediction for Chronic Kidney Disease



Section 9: Machine Learning with Oracle Analytics

Bonus: Demo Prediction for Chronic Kidney Disease



Machine Learning Approach to Chronic Kidney Analysis

Oracle

Sept 11, 2018

A Data Visualization project shows how Machine Learning and Data Science approach can be applied during self-service data exploration using Oracle DV. Examples shows use case to predict Chronic Kidney Disease

B

Read me

Download

You can also find additional demos in Oracle Analytics Library.

<https://www.oracle.com/solutions/business-analytics/data-visualization/examples.html>

Under Examples > You find the Project Machine Learning Approach to Chronic Kidney Analysis which can be downloaded and leveraged for recommendations of OAC