



OAC: ML & AI Features and Integration

Edelweiss Kammermann

THE GLOBAL REACH OF IT CONVERGENCE

20+
YEARS

600+
EMPLOYEES

11
OFFICES
GLOBALLY

1,100+
CUSTOMERS

FORTUNE 500
1/3 OF OUR CUSTOMERS

GLOBAL DELIVERY
70+ COUNTRIES



ONSHORE, NEARSHORE AND OFFSHORE PRESENCE

ONSHORE



Chicago, Dallas and Atlanta
Clients Sites

NEARSHORE



Buenos Aires, Argentina

OFFSHORE



Hyderabad, India

Edelweiss Kammermann, Director – AI & Machine Learning

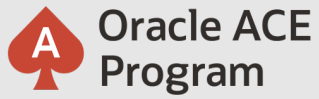


- Analytics, Data Integration & Machine Learning specialist with over 20 years of consulting and project management experience.
- Oracle ACE Director
- Speaker at international conferences: Oracle Open World, Oracle Code, Collaborate, OTN Tour LA, UKOUG Tech & Apps, Analytics and Data Summit, etc.
- Co-founder and VP of Uruguayan Oracle User Group (UYOUG), Director of Education (Latin America Oracle User Community) & Board Member of Analytics and Data Oracle User Community



Uruguay





500+ technical experts helping peers globally

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Analytics and Data
ORACLE USER COMMUNITY

Analytics and Data Summit 2023

March 14-16, 2023

Oracle Conference Center
Redwood Shores, California

Call for abstracts is open!

www.andouc.org



Augmented Analytics : What is it & Why it is important?



- Empower Business with AI and Data Driven Insights
 - Faster & more accurate insights
 - Brings value to the business
 - Reduce analysis time
 - Be ahead of the competition

OAC Solution for All Users



Consumer Users



Business Users – Author – no familiar with the data set



Super Users – Author with analytics experience



Data Scientist – BI Developer



Augmented Analytics in OAC



DATASET
RECOMMENDATIONS



ANALYTICS
FUNCTIONS



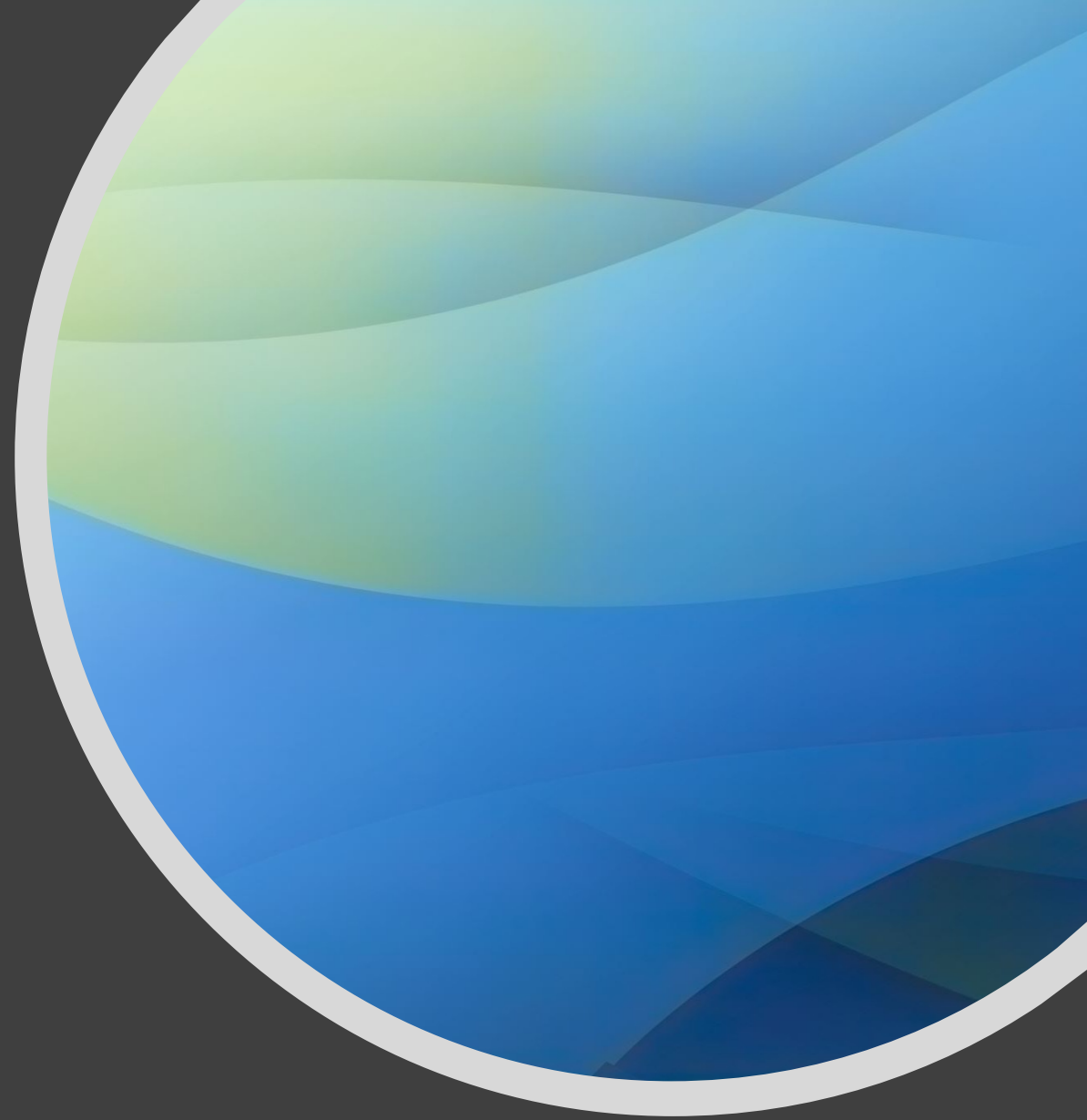
LANGUAGE
NARRATIVE



EXPLAIN FEATURE



AUTO INSIGHTS












A Order Line ID	# # of Order Li...	A Order ID	# # of Orders	A Order Priority	A Customer ID	# # of Custom
2995	2995	88102	88102	Low	1132	1132
243	243	87185	87185	High	92	92
2290	2290	89555	89555	Not Specified	885	885
723	723	35840	35840	High	272	272
5110	5110	86500	86500	Low	1906	1906
8685	8685	85855	85855	Low	3145	3145
8937	8937	87440	87440	High	3231	3231
6189	6189	91013	91013	Critical	2274	2274
5700	5700	87888	87888	Not Specified	2099	2099
5713	5713	87894	87894	Low	2101	2101
1252	1252	91067	91067	Low	486	486
4868	4868	85847	85847	Not Specified	1798	1798
6872	6872	87036	87036	Not Specified	2519	2519
6818	6818	33222	33222	Medium	2491	2491
2053	2053	88670	88670	Low	771	771
2195	2195	89365	89365	Critical	840	840
4222	4222	90281	90281	Not Specified	1588	1588
3301	3301	91555	91555	High	1247	1247
2165	2165	89266	89266	Not Specified	826	826

OAC Dataset Recommendations

Recommendations (22)

All Columns

Select a column to filter list

-  Extract **Part_1** from **Product Container**
-  Extract **Part_2** from **Product Container**
-  Extract **Part_1** from **Ship Mode**
-  Extract **Part_2** from **Ship Mode**
-  Extract **Day of Week** from **Ship Date**
-  Extract **Day of Month** from **Ship Date**
-  Extract **Day** from **Ship Date**
-  Extract **Day of Year** from **Ship Date**
-  Extract **Month of Year** from **Ship**

OAC Explain Feature

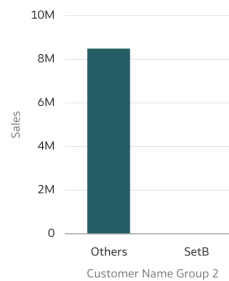
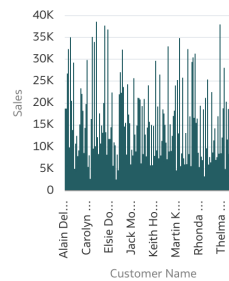
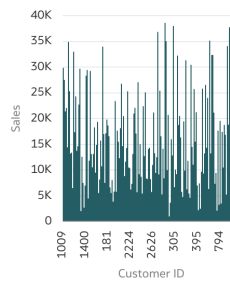
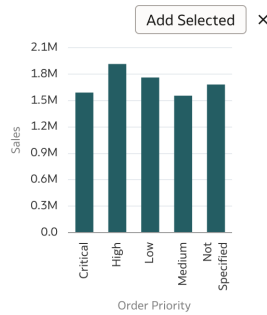
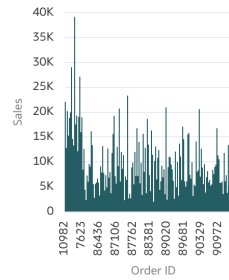
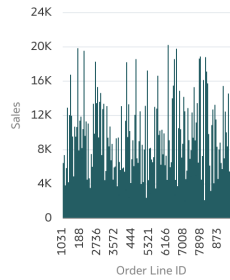
Explain Sales

Basic Facts about Sales

What are the values of Sales and how do they relate to each other?

Anomalies of Sales

What groups in the data exhibit unexpected results for Sales?



About Explain pages

- A Product Category
- A Product Sub Category
- A Grouped Sub Category
- A Product Container
- A Product Name
- # Profit
- # Quantity Ordered
- # Sales**
- # Discount
- # Gross Unit
- # Shipping C
- A Ship Mode
- ▶ Ship Date

- Create Best Visualization
- Pick Visualization...
- Create Filter
- Explain Sales**

ization to
View Details

OAC Auto Insights in Datasets

The dashboard displays several key components:

- Measures Overview:** A table summarizing dataset metrics.
- Month Seasonality:** A bar chart showing profit value by month.
- 80/20 for Sales:** A donut chart showing the distribution of sales.
- Clusters of City:** A scatter plot showing profit by city.
- Trending Dimension:** A line chart showing indexed growth over time.
- Growth Contribution Bridge:** A bridge chart showing the contribution of order priority to profit variation.

Measures Overview

Row Count	9,000
Sales Value	8,500,000.00
Profit Value	144.44
Sales by Record	944.44

80/20 for Sales

77.70%
14.62%
5.09%
1.92%
0.67%

Month Seasonality

Order Date Month of Year	Profit Value
January	~50
April	~100
July	~150
October	~400

80/20 for Sales

9M

Clusters of City

Profit

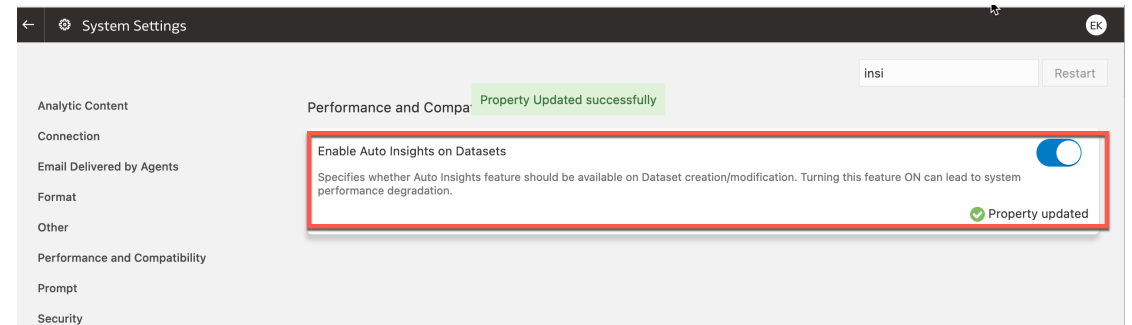
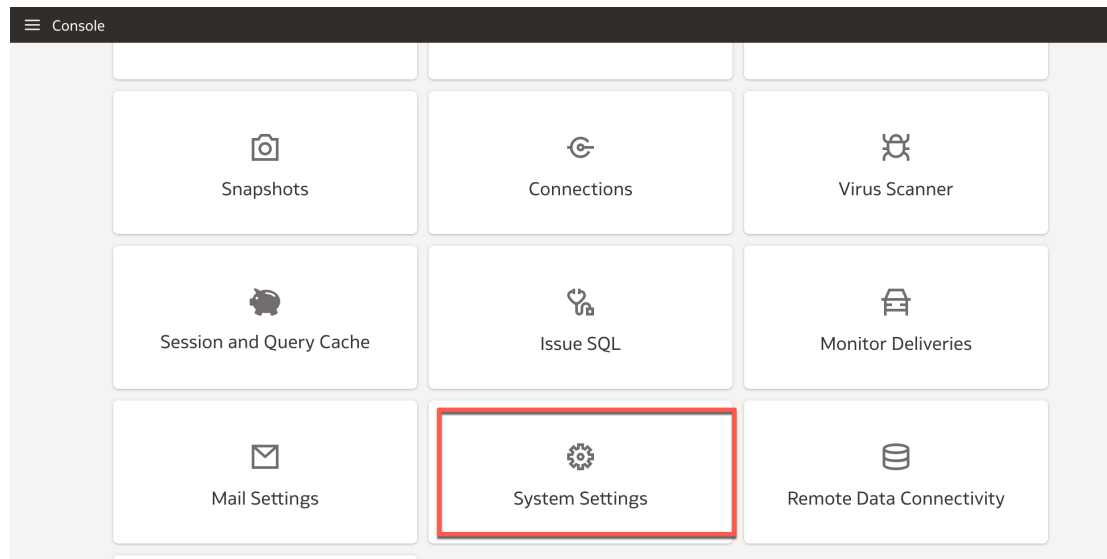
Trending Dimension

Index of Sales by Record 1.00
Year Forecast 2013

Indexed Growth : Profit

Growth Contribution Bridge

Enabling OAC Auto Insights

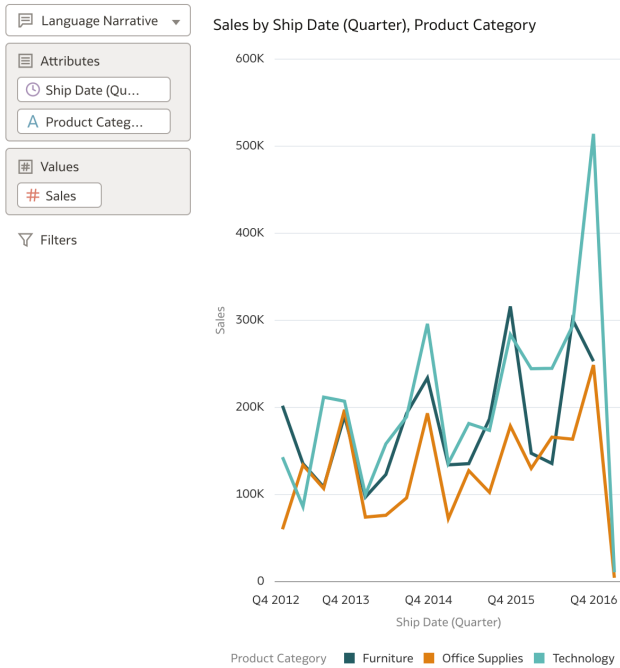


Enabling OAC Auto Insights On Existing Datasets

The screenshot displays the Oracle Analytics Cloud (OAC) interface. On the left, a line chart titled "Sales by Ship Date (Quarter), Product Category" is visible. The y-axis represents "Sales" ranging from 200K to 600K. The x-axis represents "Date (Quarter)". A red box highlights the "Auto Insights" icon in the top navigation bar. A modal window is open, displaying the message: "We found the following insights for this dataset". Below this message, a lightbulb icon is shown, and the text reads: "Auto Insights is currently disabled on this dataset. Turn it on in the dataset inspector." On the right, the "Sample Order Lines" dataset inspector is shown. The "General" tab is active, displaying various metadata fields. A red box highlights the "Enable Insights" checkbox, which is checked.

Field	Value
Name	Sample Order Lines
Description	Uploaded from Sample Order Lines.xlsx.
Created On	Today at 05:36 PM
Modified On	Today at 05:36 PM
Certified By	Certified by BENJAMIN.ARNULF@ORACLE.COM May 20, 2021
Owner	edelweisskf55@gmail.com
Type	File
File Name	Sample Order Lines
File Size	1.4MB
Object ID	'edel...' Copy
Enable Insights	<input checked="" type="checkbox"/>

OAC Language Narrative Data Visualization



Sales by Ship Date (Quarter), Product Category

The data shows Sales by Product Category across the Ship Date (Quarter) range of January 2013–January 2017.

Overall Trend
Over the current time period, Sales grew overall, from 404,970 to 15,189. An interesting fact is that:

- A distinct peak happened in October 2014, at 723,378.
- The maximum value in Sales was attained in October 2016, at 1,016,240.
- The minimum point in Sales was reached in January 2017, at 15,189.
- A significant period of decline happened between October 2016 and January 2017, dropping from 1,016,240 to 15,189.
- Sales increased noticeably between January and October 2016, rising from 521,999 to 1,016,240.
- The longest period of growth happened between the Ship Date (Quarters) of January and October 2016, rising from 521,999 to 1,016,240.
- A noteworthy trough took place in January 2014, at 270,893.

Among the contributors, two followed the same trend as the total of all Sales (increase), while one did not follow a discernible trend.

Breakdown per Product Category
Now that we have looked at the overall trend, let's look at each Product Category separately.
The Technology's Sales show one outlier (October 2016) when the numbers were significantly different than the general trend. Sales went up throughout the timespan.

Overall Trend
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- A noteworthy trough took place in January 2014, at 270,893.

Search

- Highlight
 - Clusters
 - Outliers
- Overlay & Projection
 - Reference Line
 - Trend Line
 - Forecast**

Click here or drag data to add a filter

Line

Trellis Columns

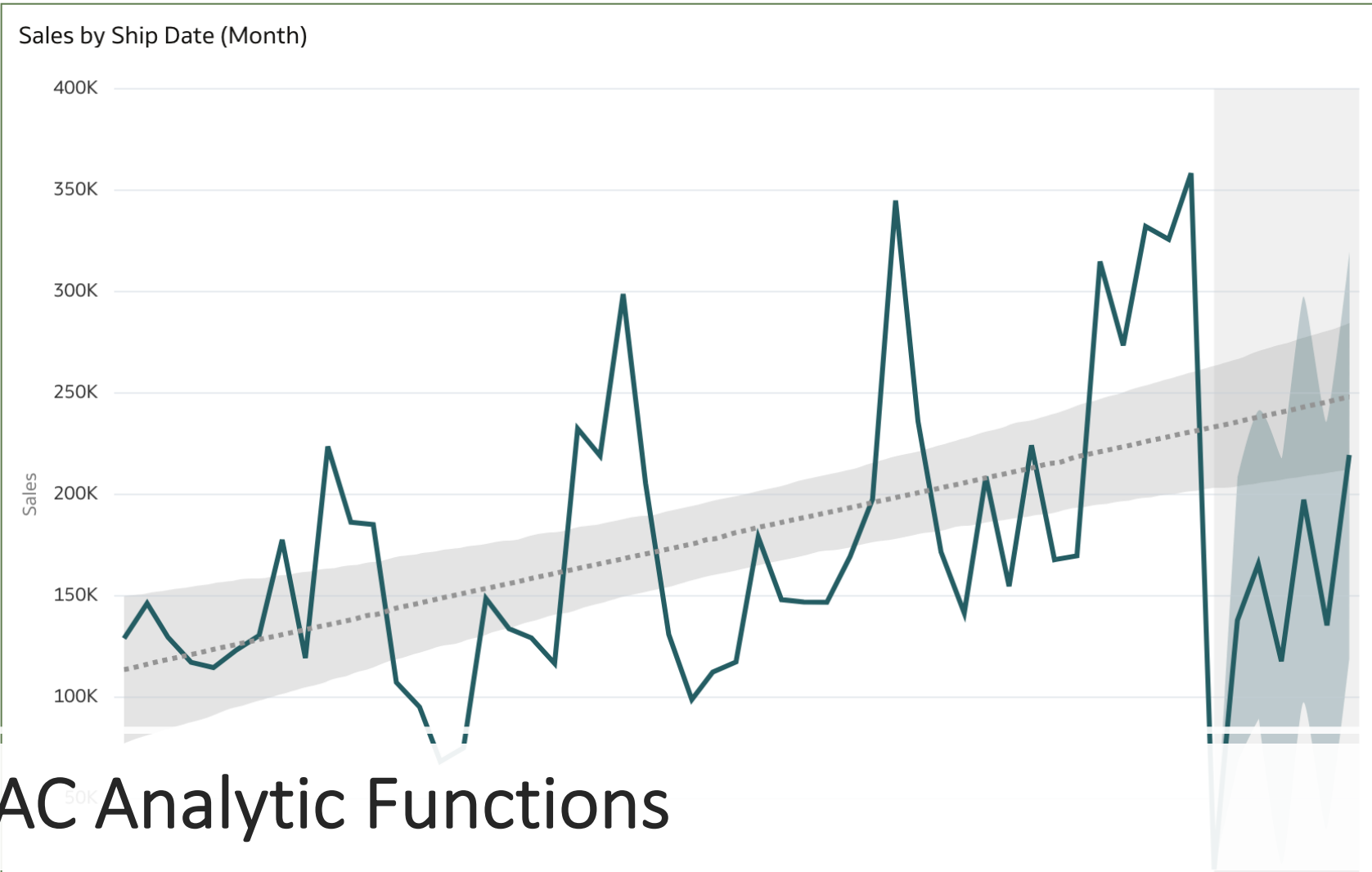
Trellis Rows

Values (Y-Axis)

Sales

Category (X-Axis)

Ship Date (Mo...



Sales by Ship Date (Mo...

Trend

Linear

OAC Analytic Functions

OAC Machine Learning & Advanced Analytics



OAC MACHINE
LEARNING

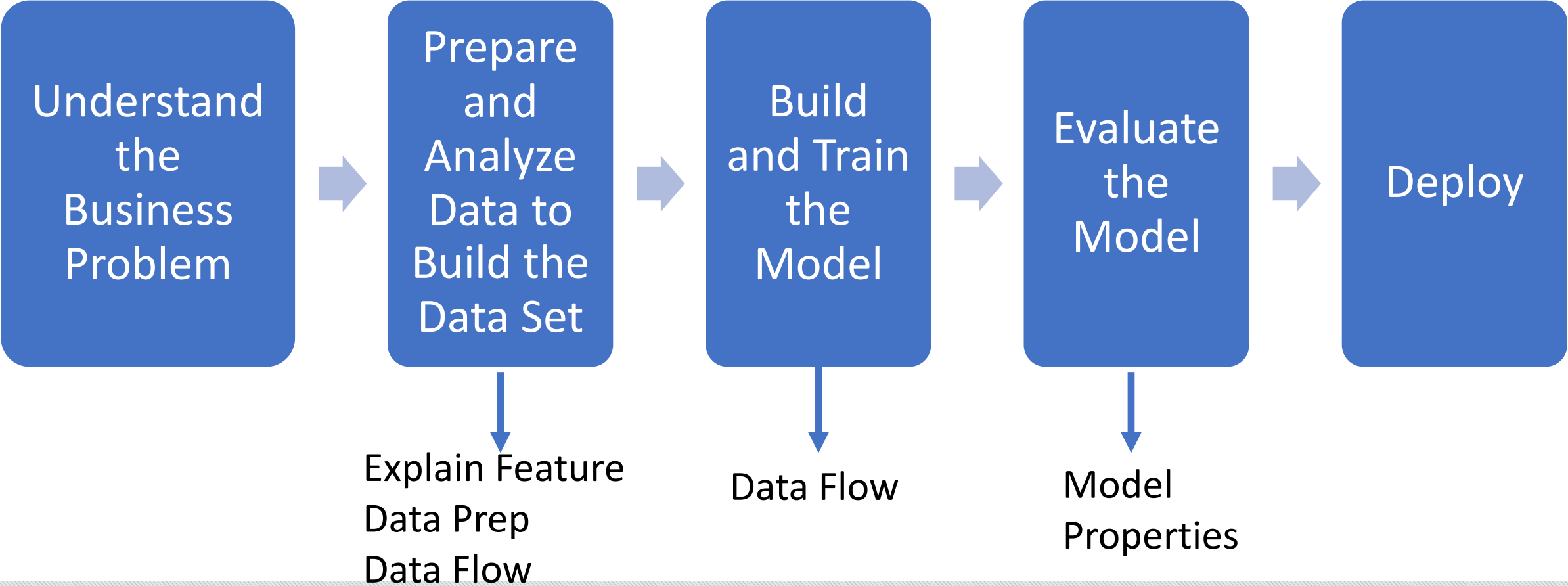


DATABASE
ANALYTICS



GRAPH
ANALYTICS

OAC Machine Learning Process



OAC Machine Learning Process

- **Supervised**

- Numeric Prediction: Rental Bike Sales Prediction
- Multi Classifier: Heart Disease prediction
- Binary Classification: Attrition Prediction



- **Unsupervised**

- Clustering: grouping customers by purchasing behavior.



- **Reinforcement**

The screenshot shows the Oracle Analytics Studio interface. At the top, there is a 'Select Columns' button. Below it, a grid of data flow steps is displayed. The 'Train Numeric Prediction' step is highlighted with a red box. Below the grid, a data table is visible with columns 'year', 'ab', and 'dte'.

year	ab	dte
11		2011-01-01
11		2011-01-02

The screenshot shows the Oracle Analytics Studio interface for a workflow titled 'Linear Regression - Bike Renting Training'. The workflow consists of several steps: 'Bike Renting...', 'Select Columns', 'Train Numeric Prediction', and 'Save Model'. The 'Train Numeric Prediction' step is expanded, showing a 'Model Training Script' for 'Linear Regression for model training'. The script includes a comment: '* Target count: target, the targetlabel to learn/predict'. Below the script, a table shows the data used for training.

ab Instant	ab Season	ab year	ab dteday	ab mnth	ab holiday	ab weekday
ID-1	Spring	2011	2011-01-01	1	No	6
ID-2	Spring	2011	2011-01-02	1	No	0

The screenshot shows the Oracle Analytics Studio interface with a search bar at the top. Below the search bar, a list of model training options is displayed. The 'Regression for model training' option is highlighted in blue.

Search

n Forest for Numeric model training

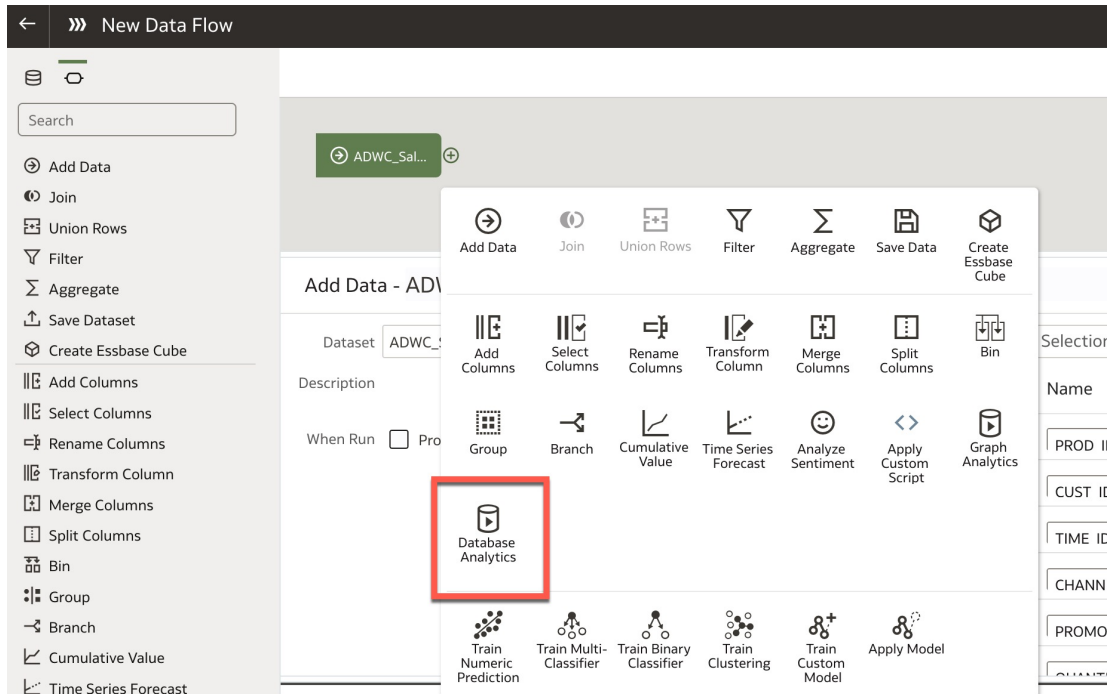
Regression for model training

or Numeric Prediction training

Net Linear Regression for model training

Cancel

OAC Machine Learning



Analytics Operation	Description
Dynamic Clustering	This script performs dynamic clusterin...
Dynamic Anomaly Detection	This script performs dynamic anomaly...
Text Tokenization	Create text tokens from an existing de...
Un-pivoting Data	The DB Unpivot clause allows to trans...
Time Series	Time Series is a data mining function t...
Frequent Itemsets	Generate frequent item sets using ass...
Sampling Data	The Oracle database ora_hash clause i...

OAC Database Analytics

Select Graph Analytics

Search

Graph Operation	Description
Sub Graph	Find all nodes within n hops of a given...
Shortest Path	Find the shortest path between two v...
Node Ranking	Measures the importance of the node...
Clustering	Finds connected components or clust...

Cancel OK

New Data Flow

Search

ADWC_Sal...

Add Data - ADWC_Sal...

Dataset: ADWC_Sal...

Description:

When Run: Pro...

Graph Analytics

Database Analytics

Train Numeric Prediction, Train Multi-Classifer, Train Binary Classifier, Train Clustering, Train Custom Model, Apply Model

Selections (100)

Name

PROD ID

CUST ID

TIME ID

CHANNEL ID

PROMO ID

...

OAC Graph Analytics

OAC Machine Learning and OCI AI Integration



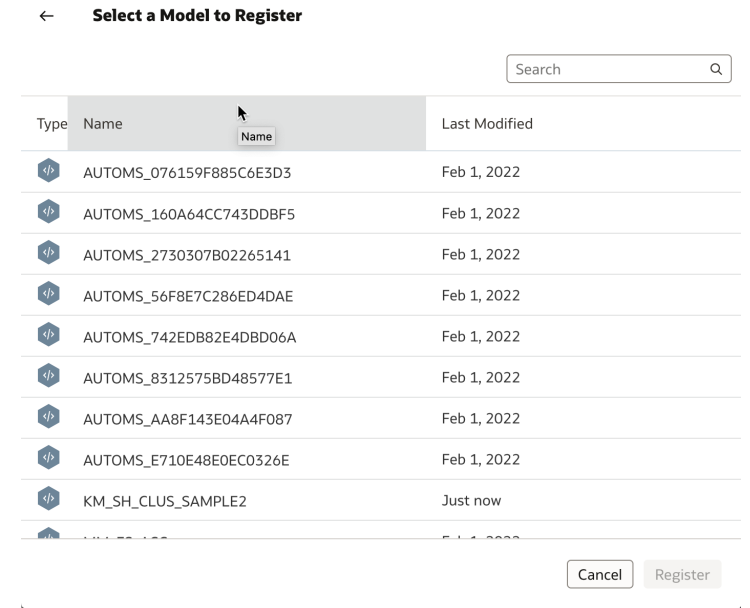
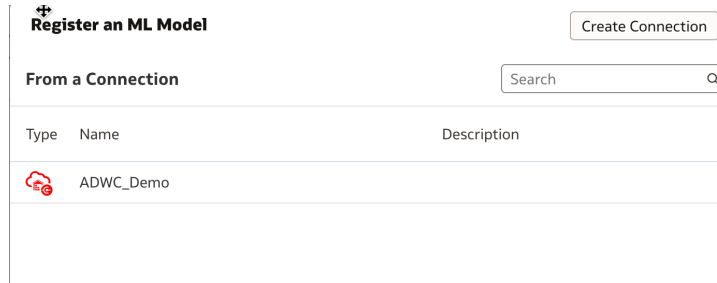
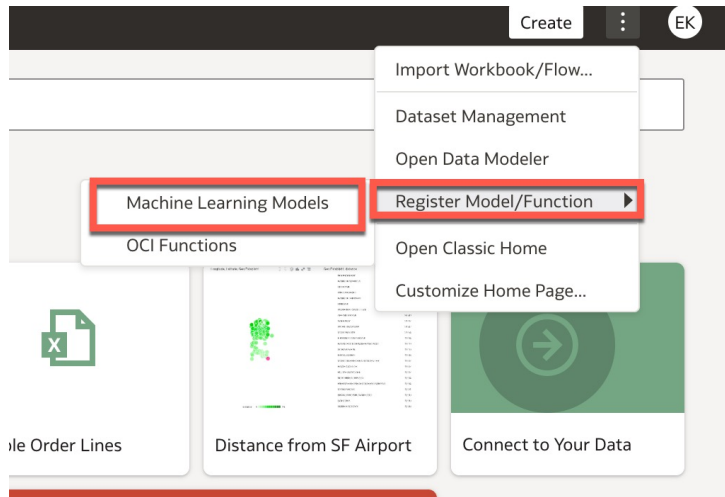
REGISTER ORACLE
DATABASE MACHINE
LEARNING MODEL



REGISTER OCI
FUNCTION

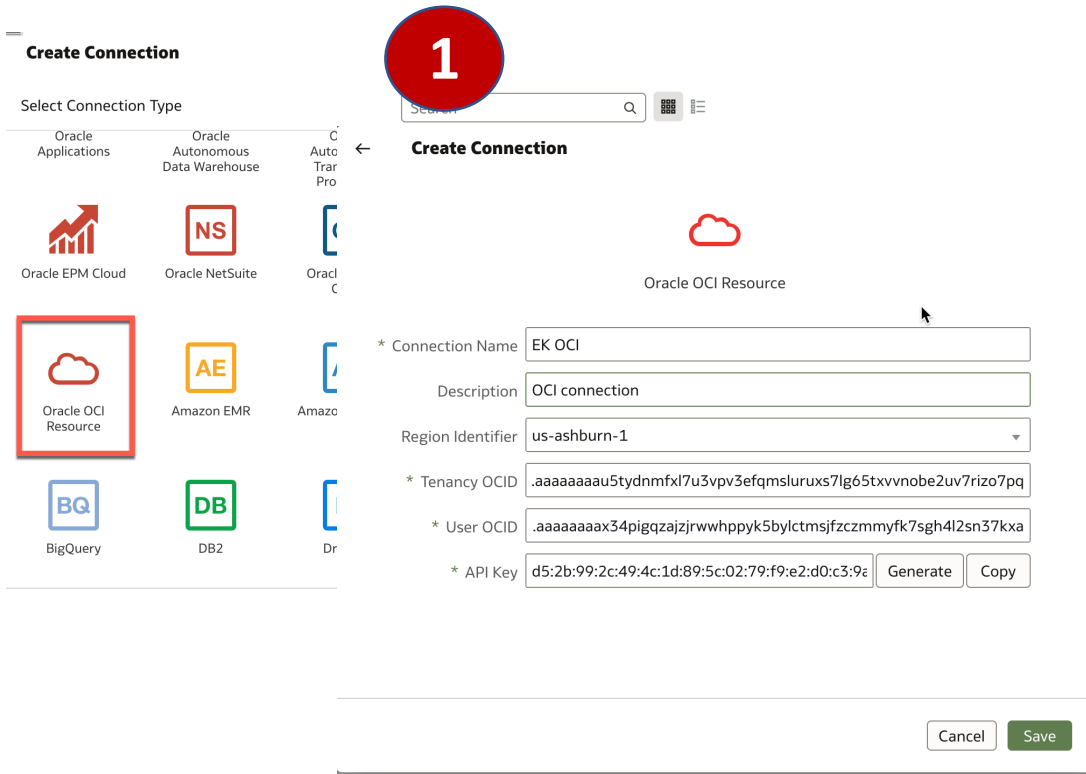


OCI AI VISION

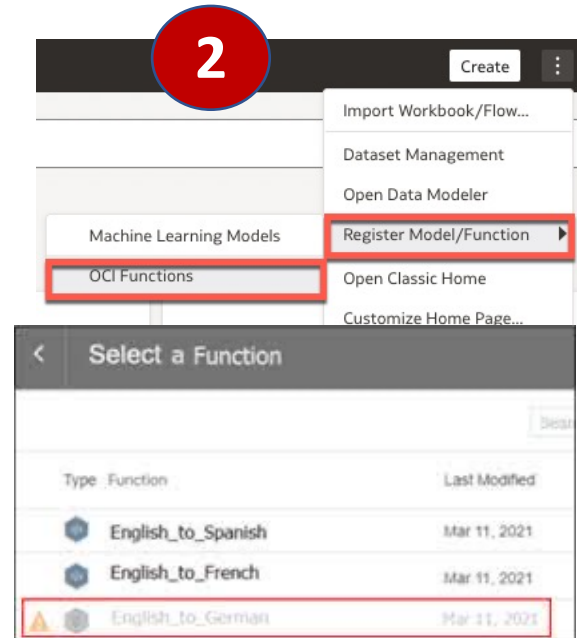


OAC: Register a Database ML Model

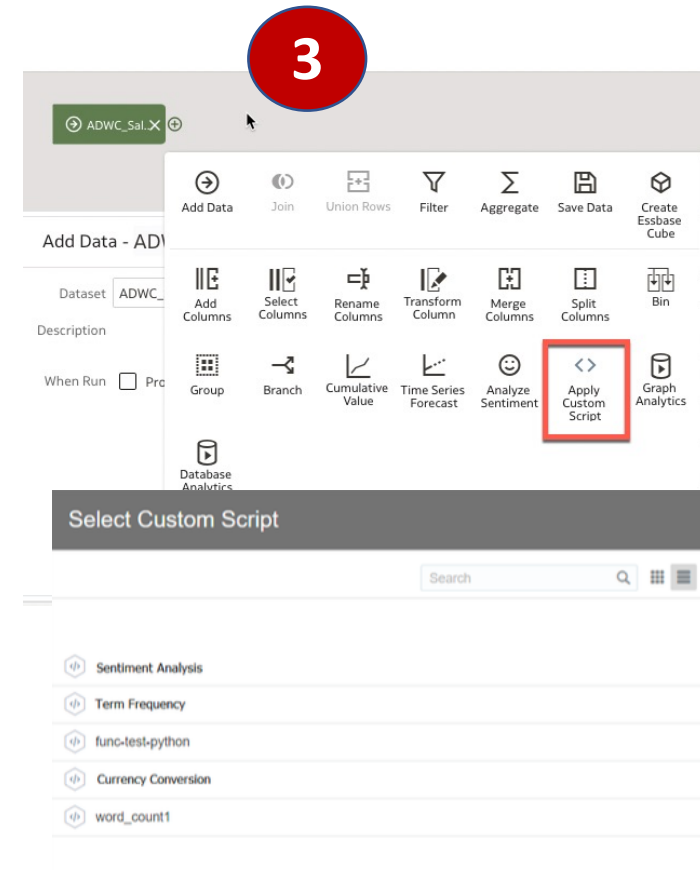
OAC: Register an OCI Function



Create an OCI Connection in OAC

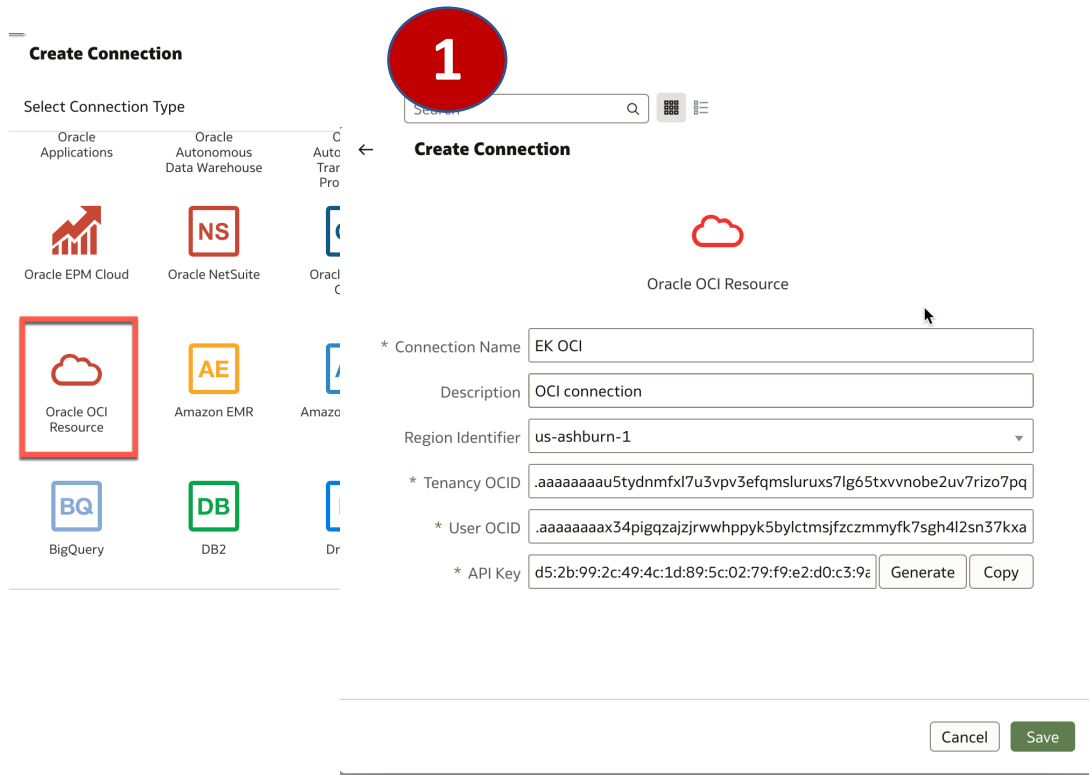


Register an OCI Function in OAC

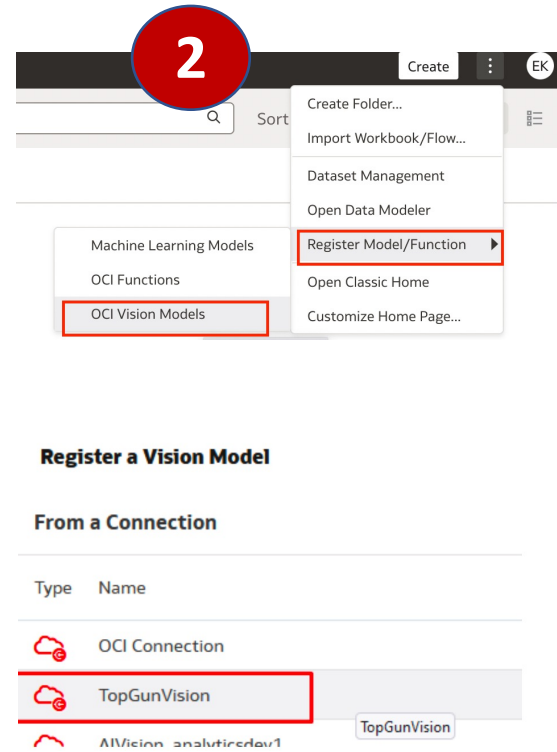


Create a Data Flow to use Apply Custom Script step

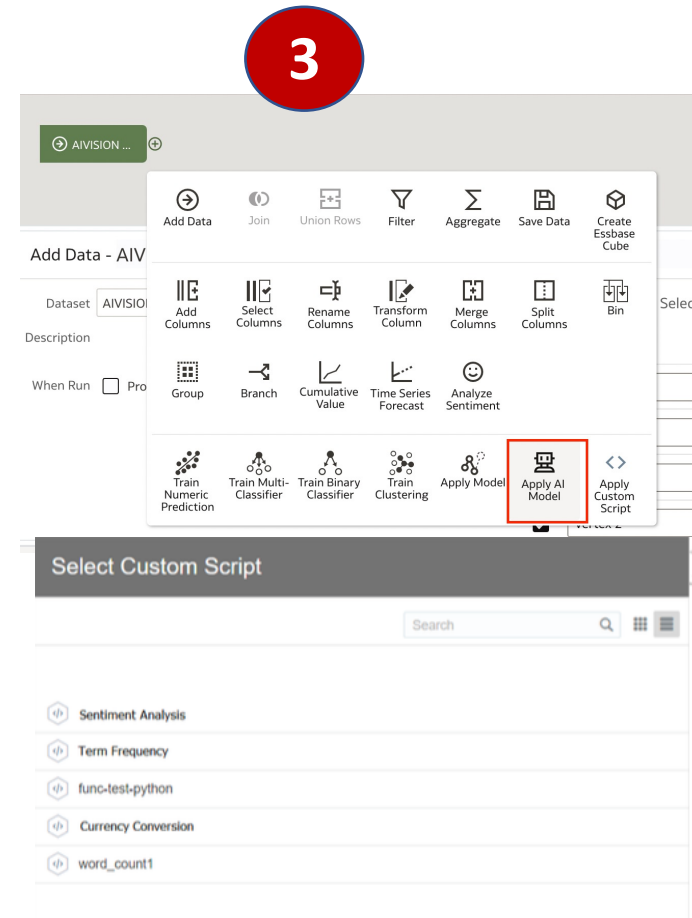
OAC: AI Vision Integration



Create an OCI Connection in OAC



Register an OCI AI Vision Model in OAC



Create a Data Flow to use Apply AI Model step

OAC: Future Roadmap



OCI DATA
SCIENCE



OCI AI
LANGUAGE



Oracle Analytics Cloud Useful Links

- Oracle Free Tier

<https://www.oracle.com/cloud/free/>

- Oracle Analytics Library Extensions

<https://www.oracle.com/business-analytics/data-visualization/extensions/?category=.ext&textfield=&sortBy=date>

- Oracle Analytics Library Examples

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

- Oracle Analytics Youtube

<https://www.youtube.com/c/OracleAnalytics>

- Oracle Analytics Documentation

<https://docs.oracle.com/en/cloud/paas/analytics-cloud/books.html>



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Thank you !



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