Microsoft

Multi Class Logistic Regression with Azure ML

Contents

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Goals and Requirements

Estimated time to complete lab is 15-20 minutes.

Goals

1. Predict the Wine Quality using the dataset provided.
2. Multi Class Logistic Regression Model Implementation

Requirements

1. Access to an Azure subscription (with subscription administrator permissions).

Multi Class Logistic Regression

Project Expectation: To Build a Predictive Model for Wine Quality

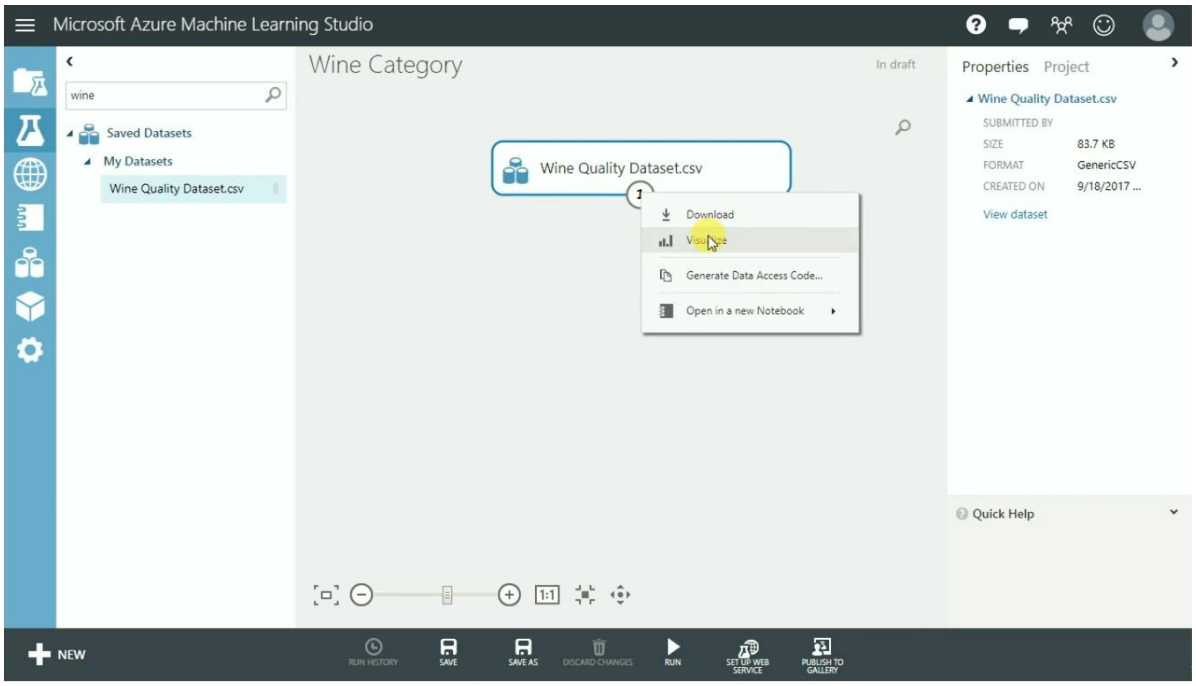
Wine Quality Prediction

- Fixed and Volatile Acidity
- Citric acid
- Residual sugar
- Chlorides
- Free and Total Sulfur dioxide
- Density
- pH
- Sulphates
- Alcohol Content

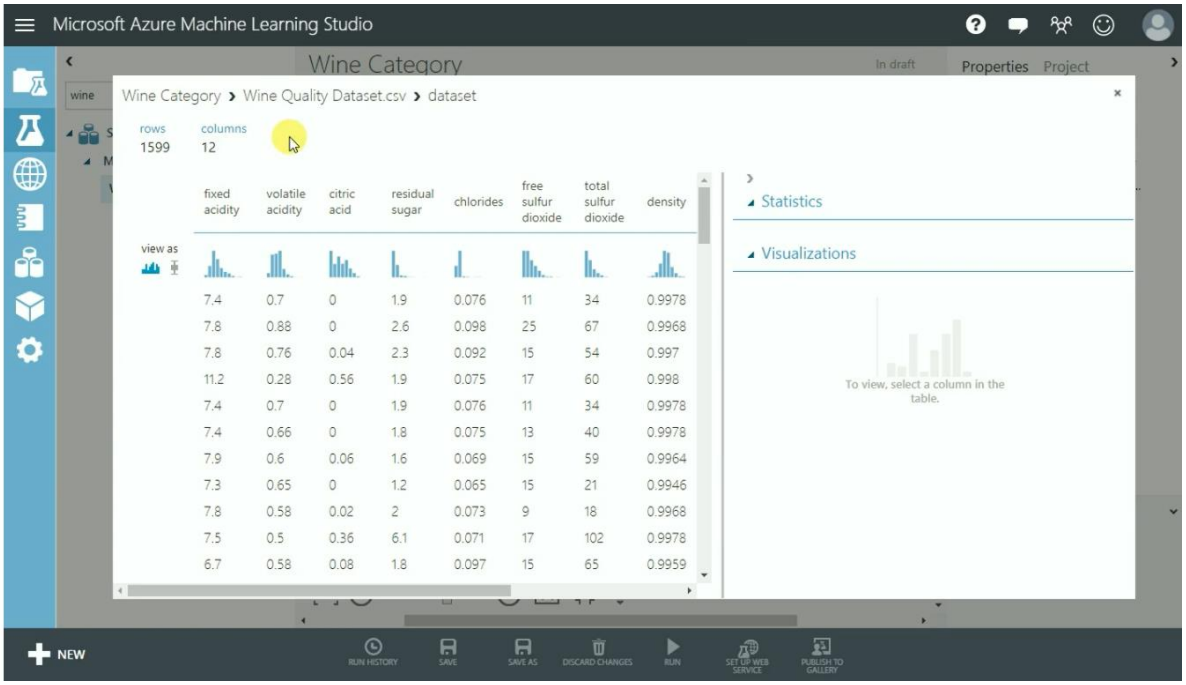
P. Cortez, A. Cerdeira, F. Almeida, T. Matos and J. Reis.
Modeling wine preferences by data mining from physicochemical properties. In Decision Support Systems, Elsevier, 47(4):547-553, 2009

Dataset Selection

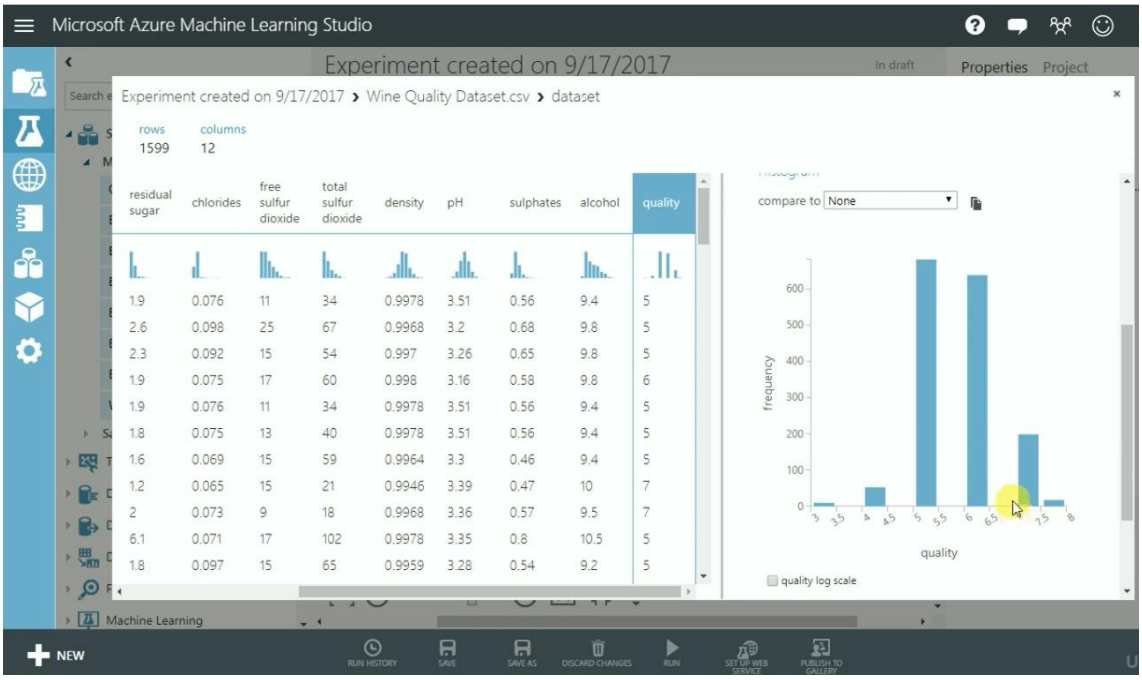
Select the dataset and drop in canvas and visualize the same



Visualize the data

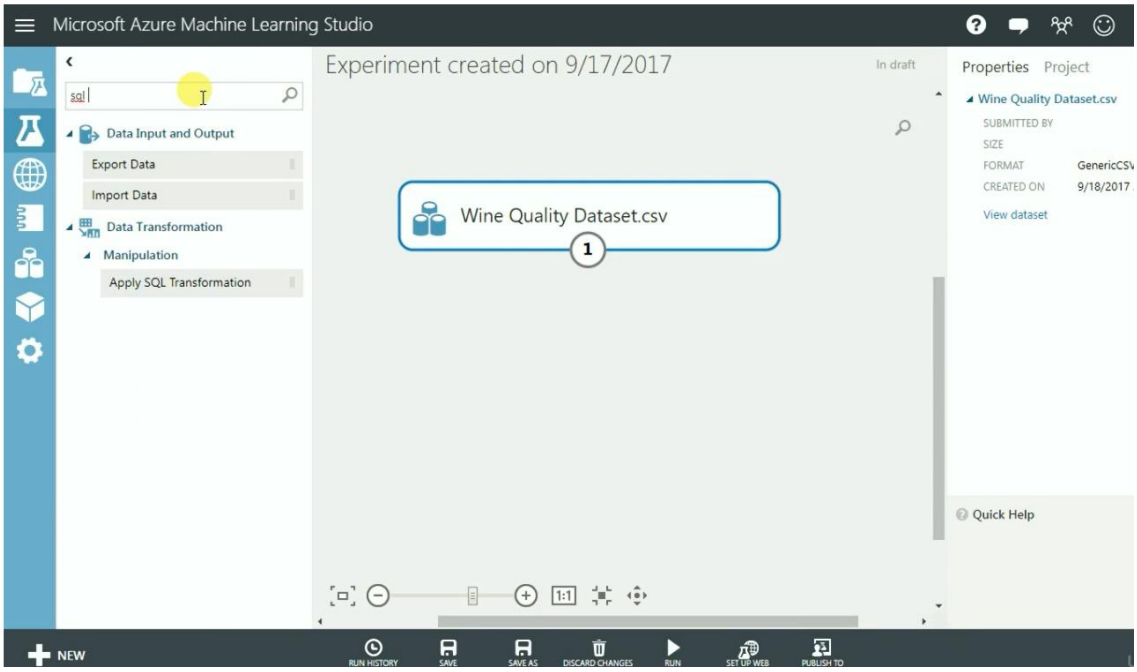


Considering 3 and 4 as low, 5 and 6 as medium, 7 and 8 as high from graph

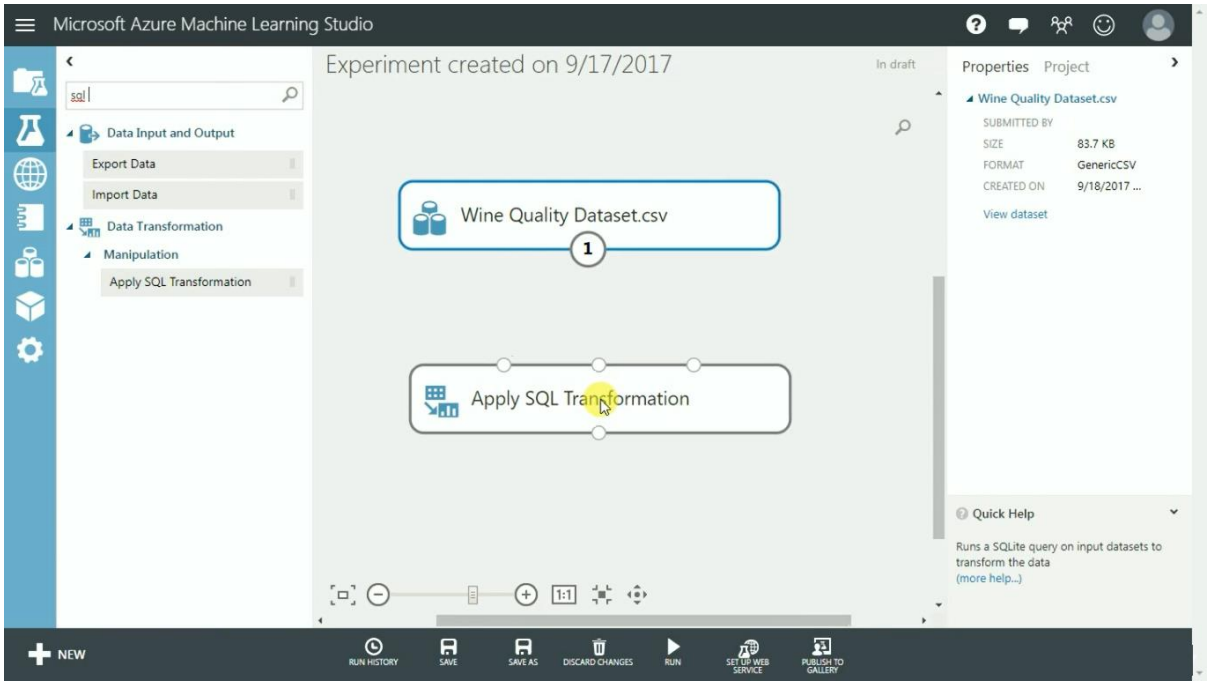


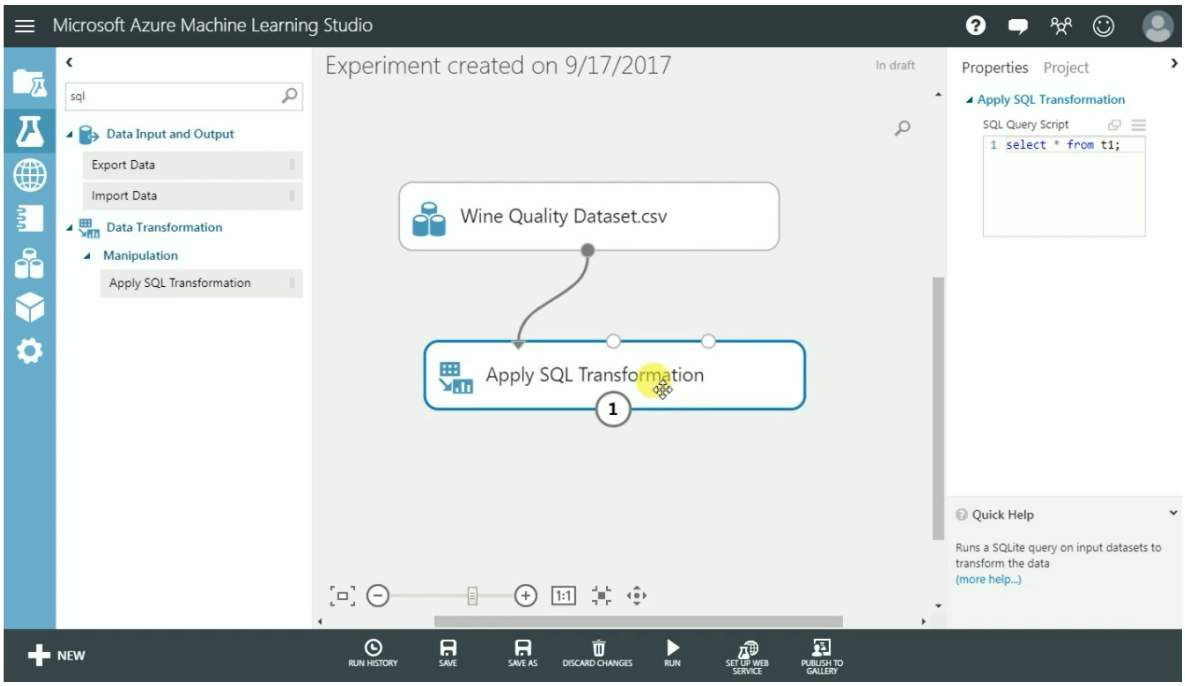
SQL Transformation

Search for Apply SQL transformation



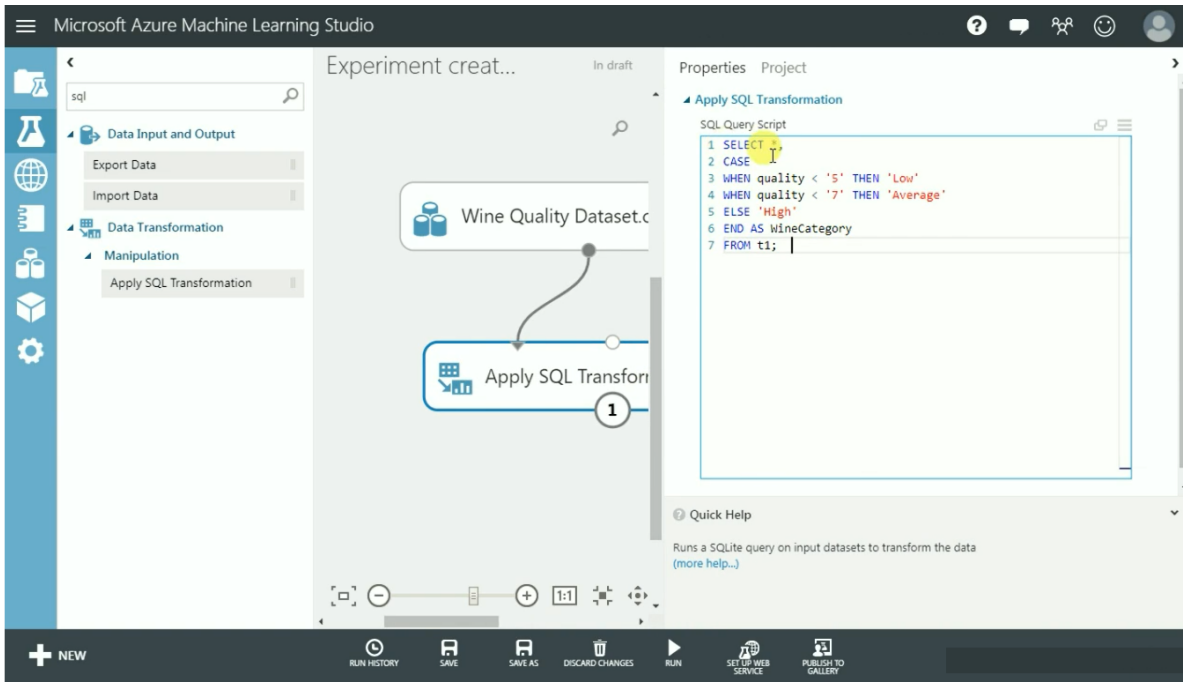
Connect the nodes



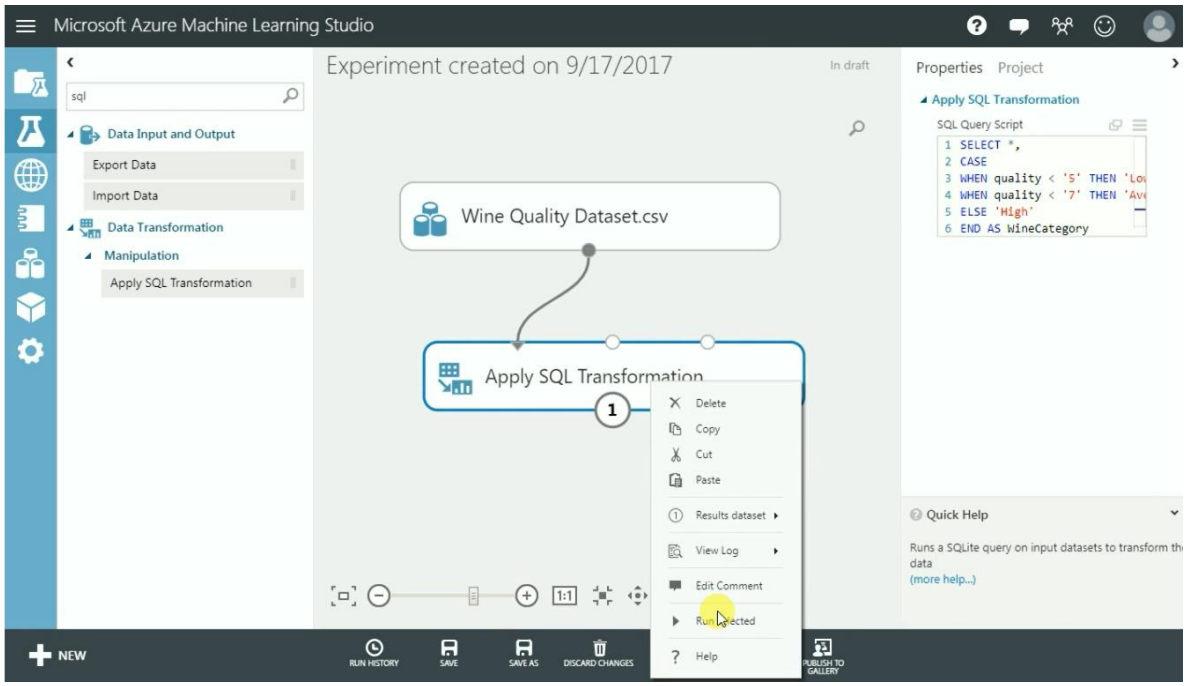


Query Script

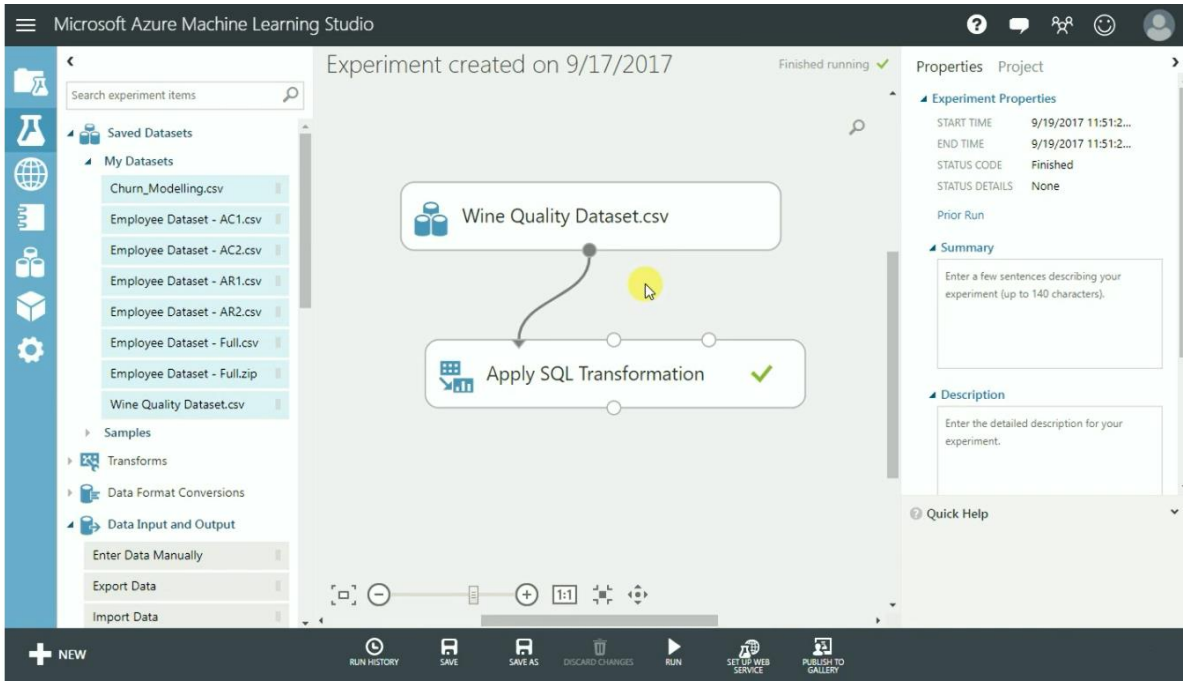
Enter the query script in the right to categorize



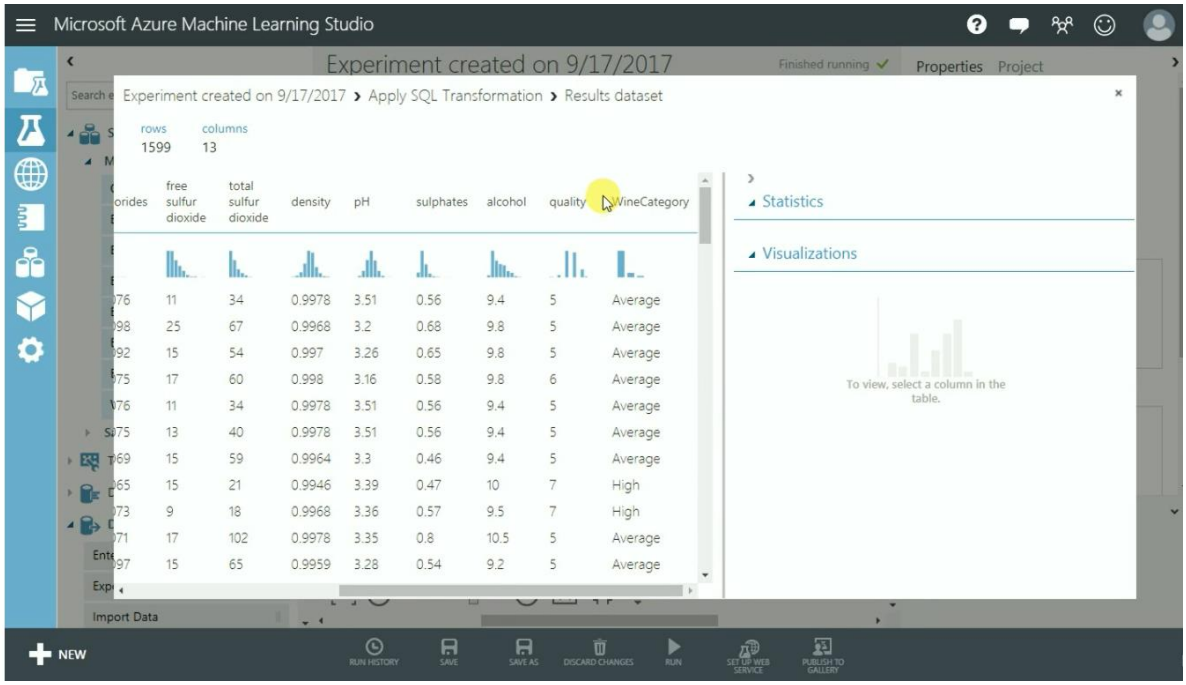
Run for output



Right click and visualize for result

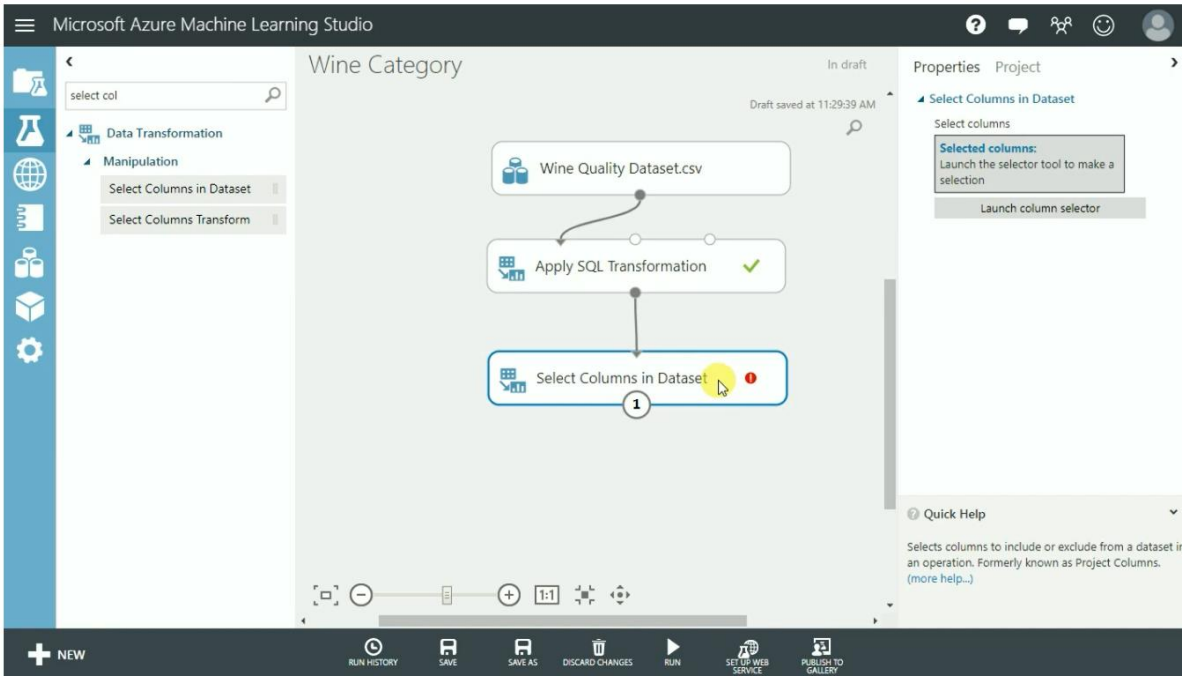


Result

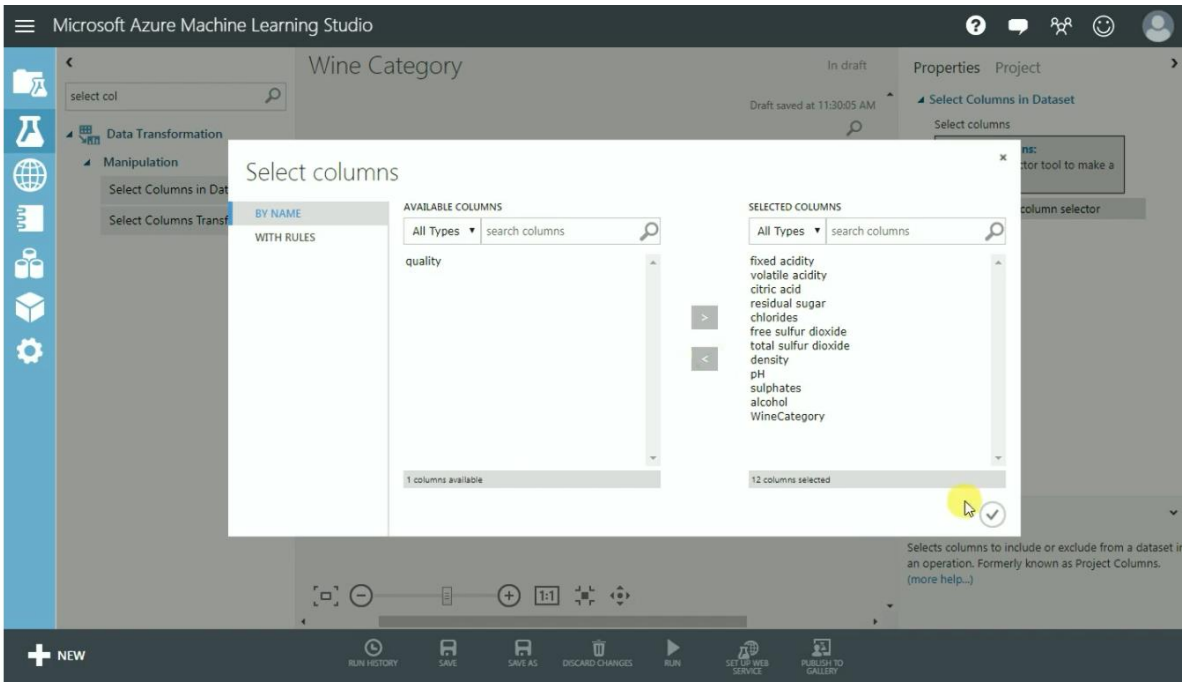


Select Columns

Search for select columns in dataset and connect with existing dataset

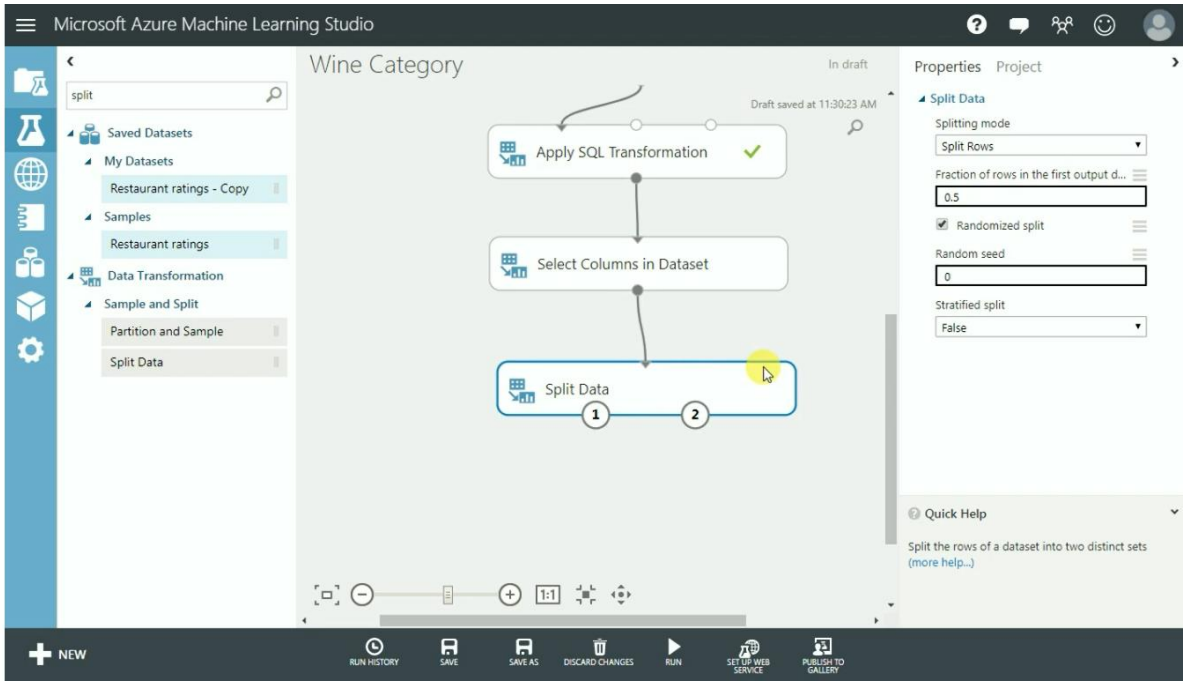


Launch column selector and select all types except quality and click ok

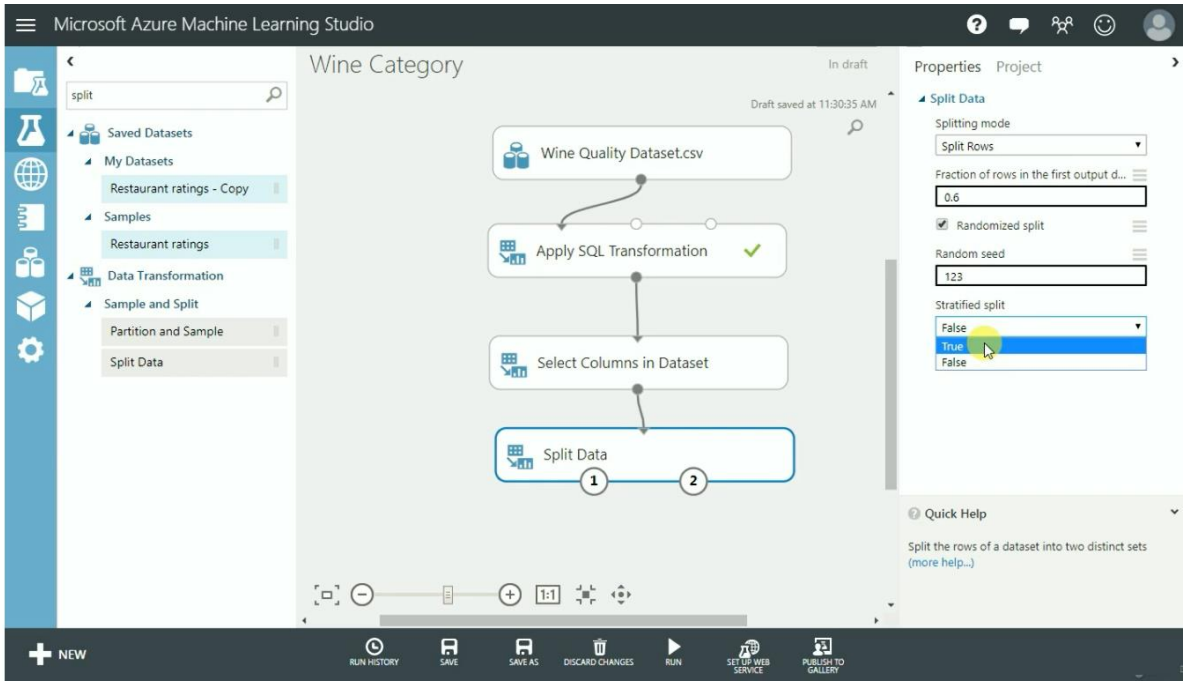


Split Data

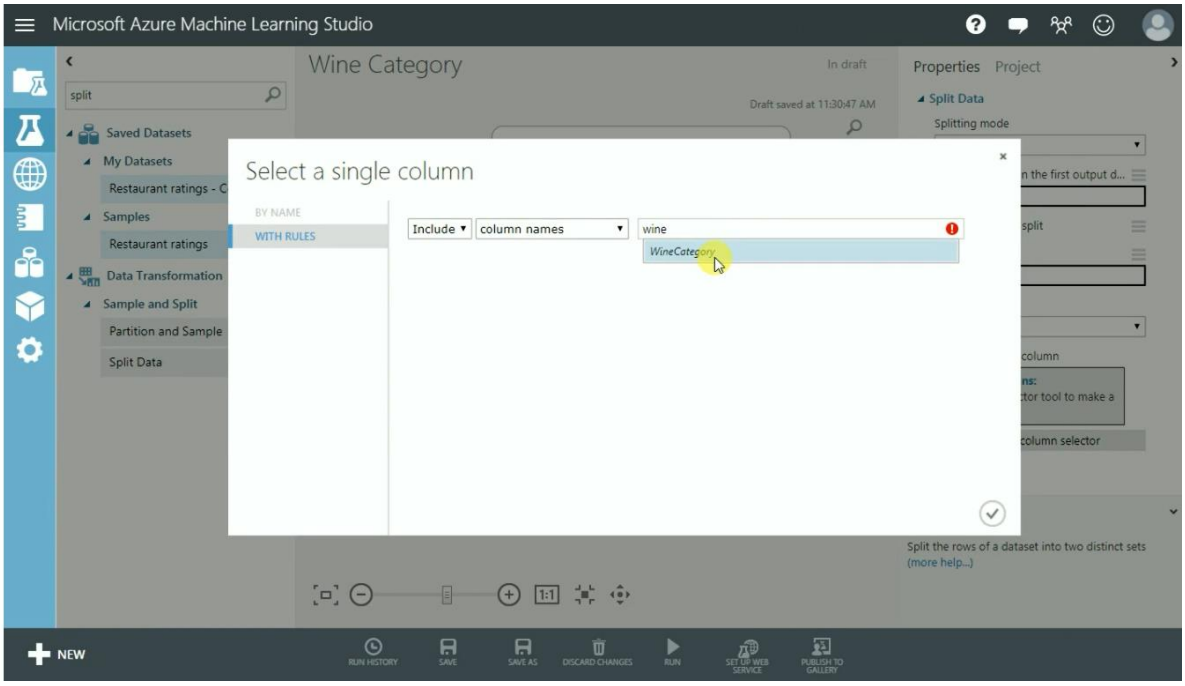
Search for split data and connect with select column dataset



Change the parameters as shown and stratified split as true



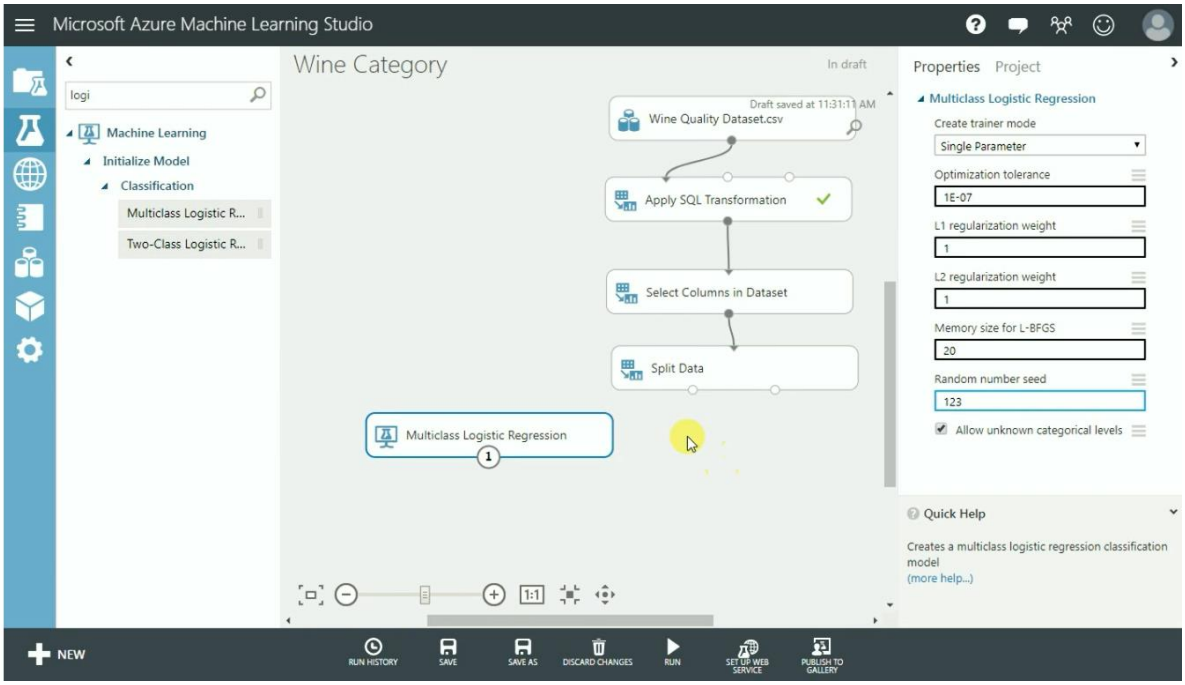
Launch column selector and change to wine category and click ok



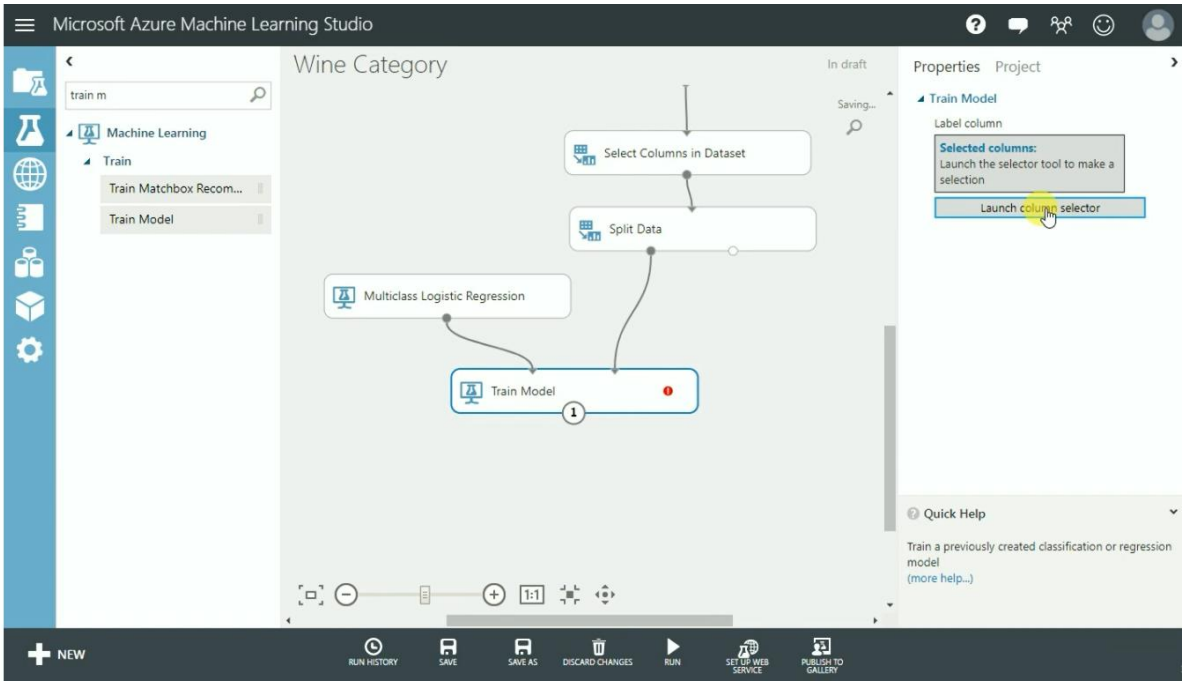
Multi Class Logistic Regression

Search for multiclass logistic regression and change random number seed

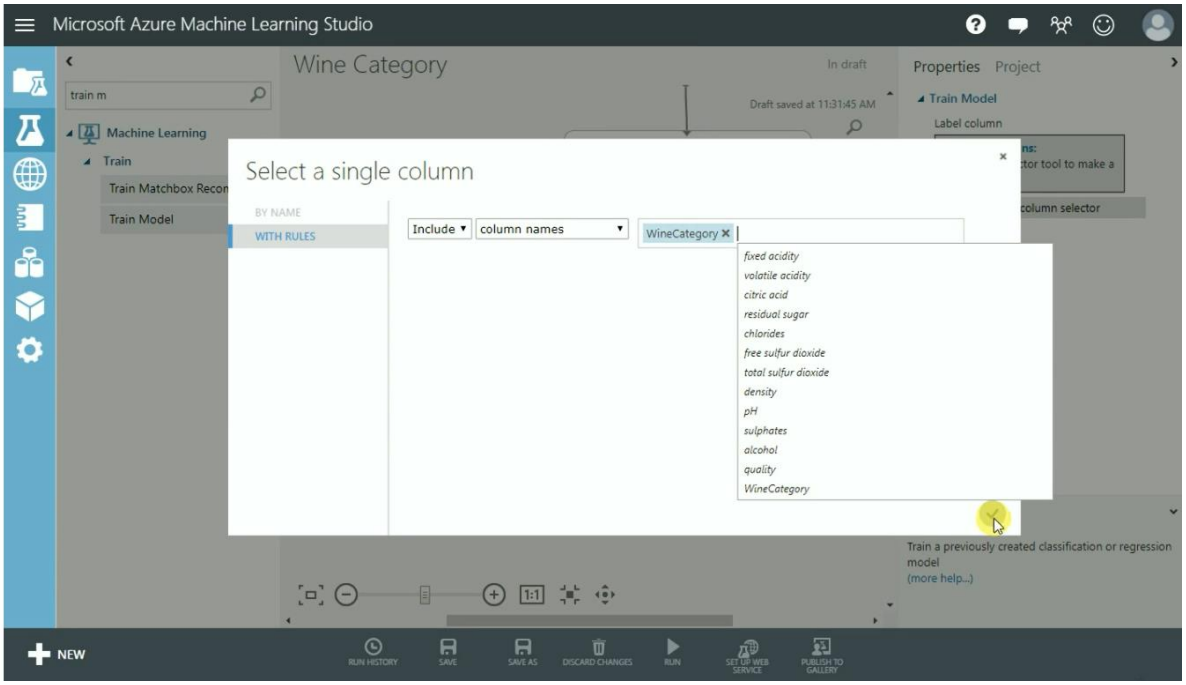
Parameter as 123



Add train model in canvas and connect nodes as shown

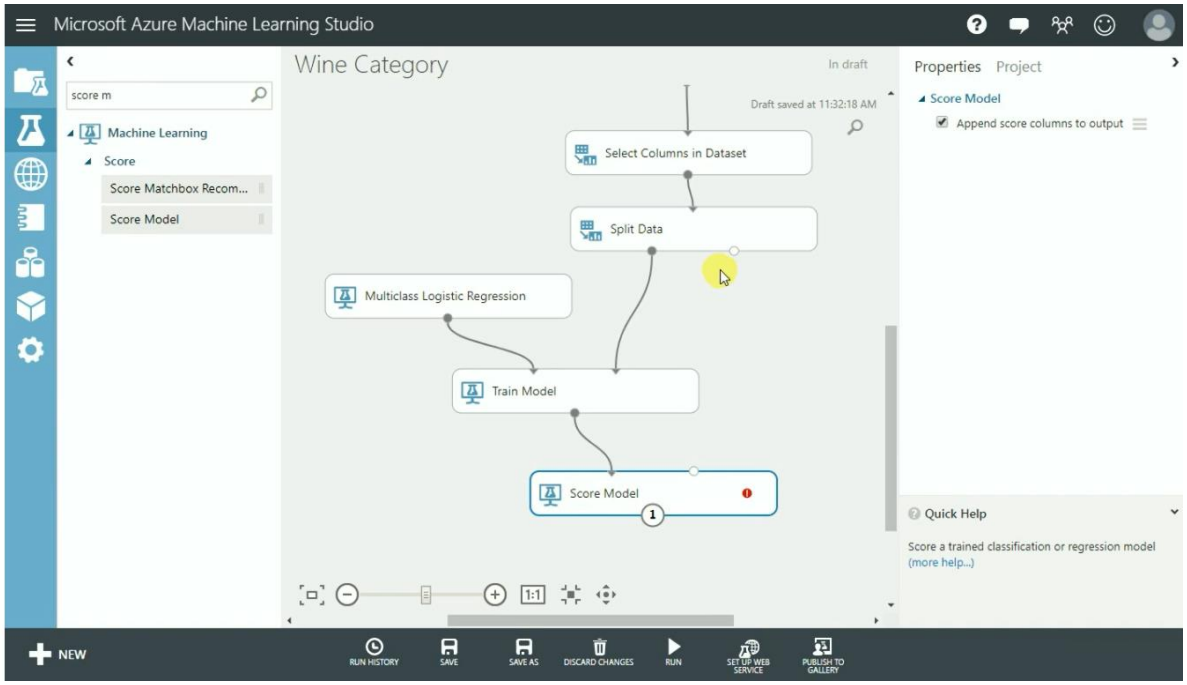


Launch column selector and select wine category and click ok

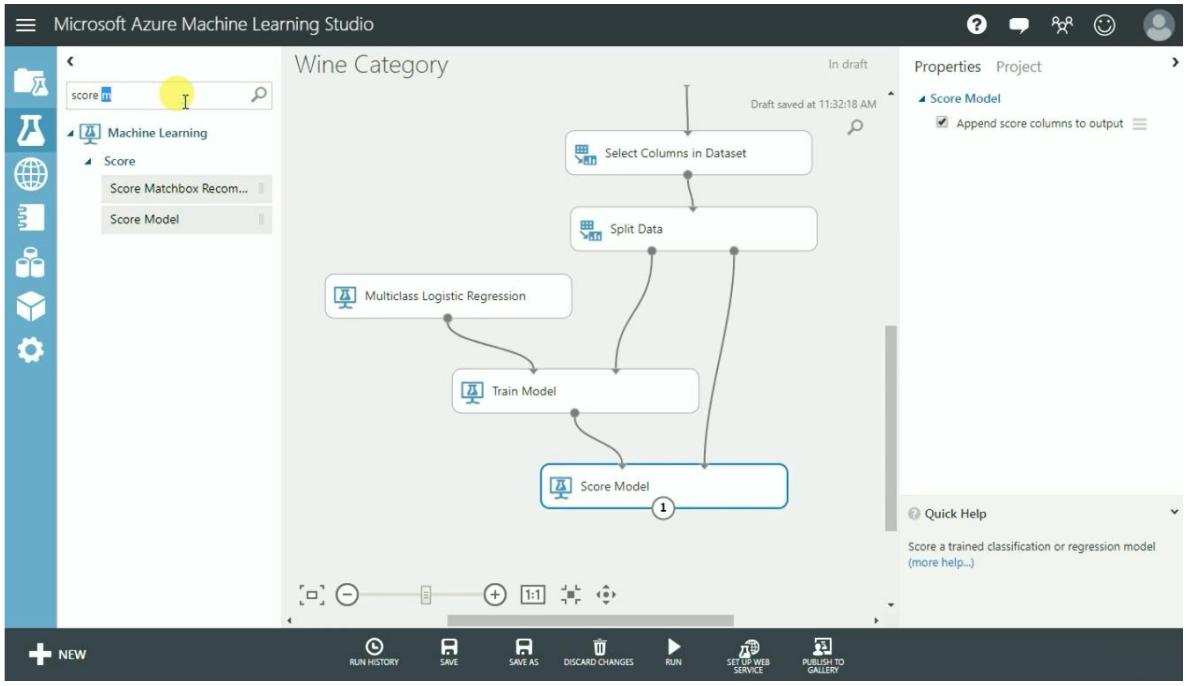


Score & Evaluate Model

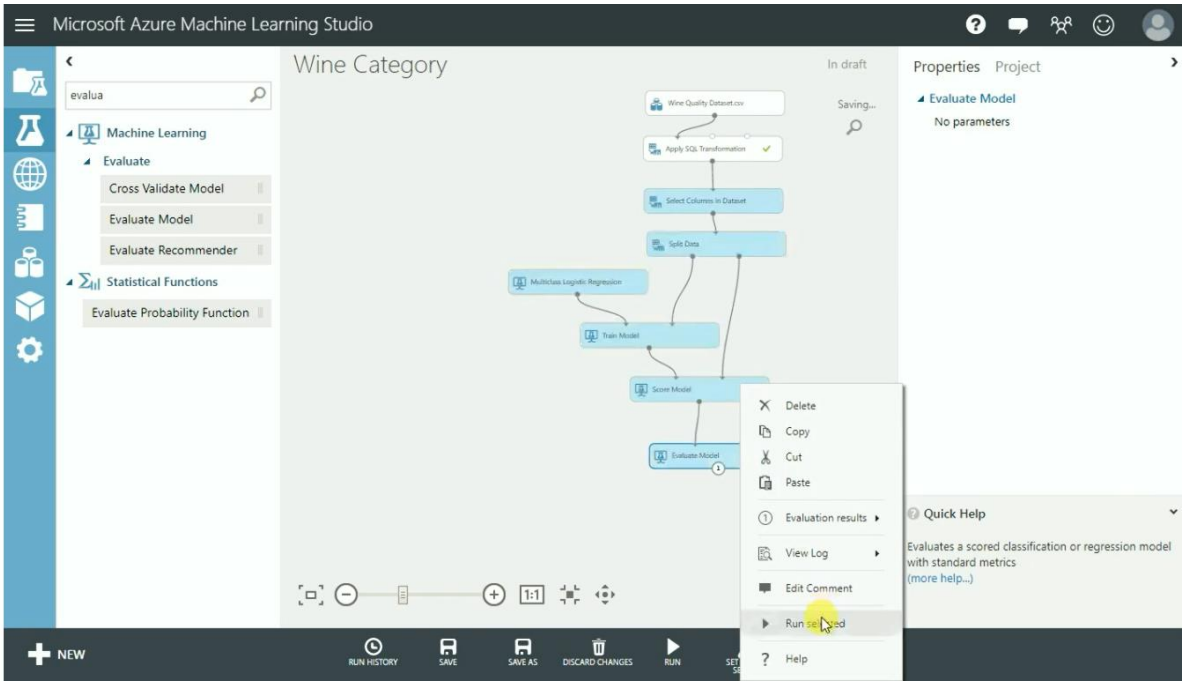
Drag and drop the Score model now and connect node1 with Train model



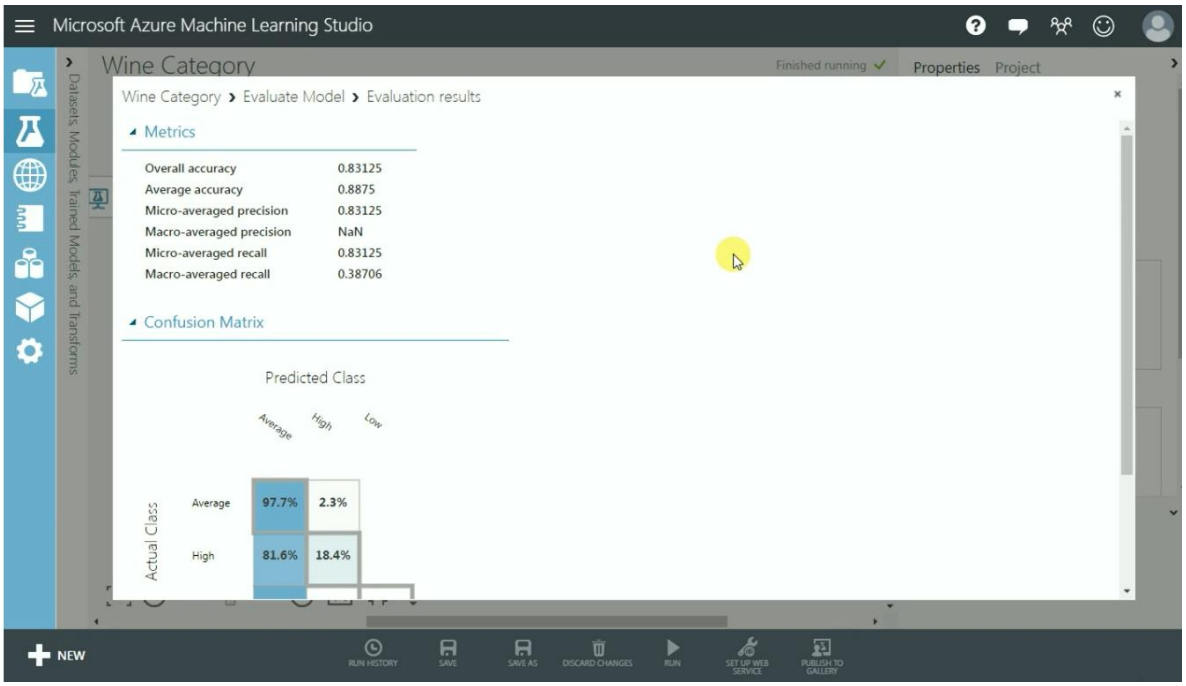
Connect node 2 with split data output node 2



Finally add evaluate model and connect with score model and run the module



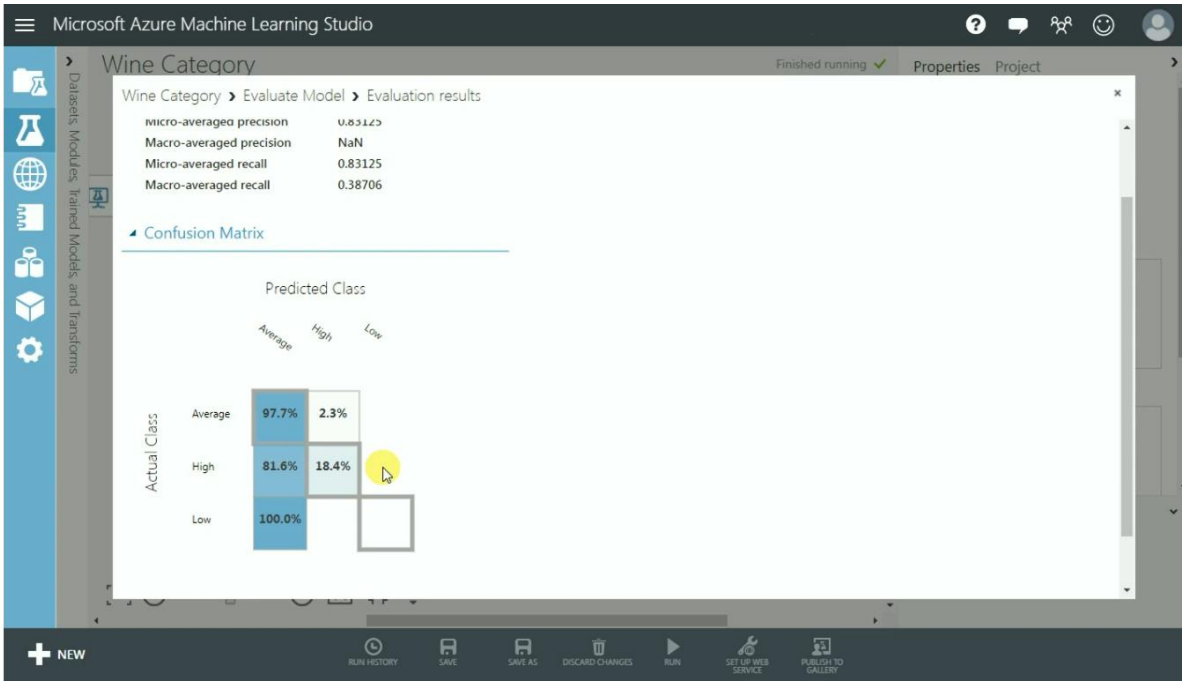
Visualize the result



Result

As the result high and low quality is not predicted as expected due to

Low observation available


Microsoft Azure Machine Learning Studio
Wine Category
Finished running
Properties
Project
Wine Category › Evaluate Model › Evaluation results
Micro-averaged precision 0.83125
Macro-averaged precision NaN
Micro-averaged recall 0.83125
Macro-averaged recall 0.38706
Confusion Matrix
Predicted Class
Average
High
Low
Actual Class
Average
High
Low
97.7%
2.3%
81.6%
18.4%
100.0%
NEW
RUN HISTORY
SAVE
SAVE AS
DISCARD CHANGES
RUN
SET UP WEB SERVICE
PUBLISH TO GALLERY