

**Department of Software Engineering  
Mehran University of Engineering and Technology, Jamshoro**

**Course: SWE324 - Data Warehousing and Data Mining**

<b>Instructor</b>	Rabeea Jaffari	<b>Practical/Lab No.</b>	11
<b>Date</b>	15-08-2018	<b>CLOs</b>	
<b>Signature</b>		<b>Assessment Score</b>	1 Marks

**Topic** Data mining technique: association rule analysis

- Objectives**
- To learn and implement various classification machine learning algorithms with Azure
  - To evaluate the results of classification algorithm

**Lab Discussion: Theoretical concepts and Procedural steps**

**Task # 01**

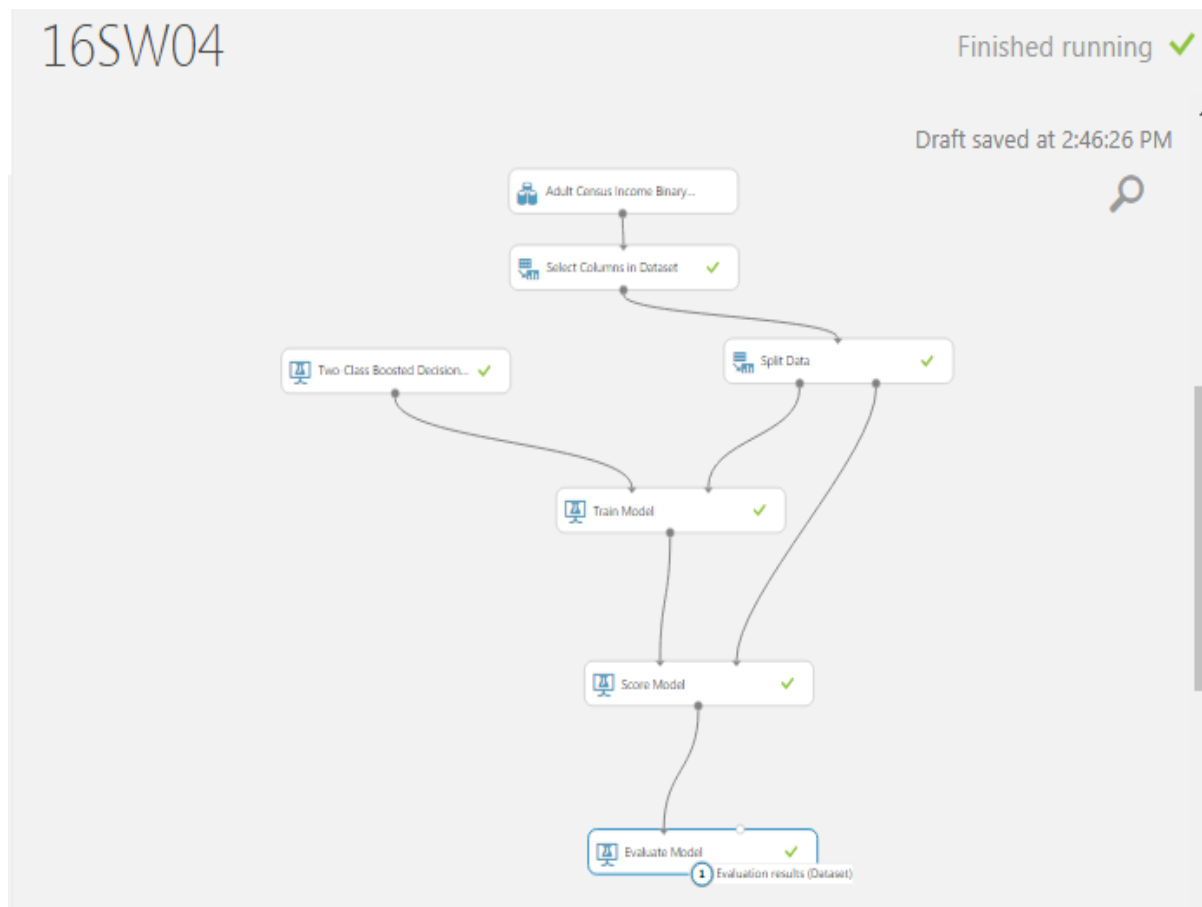
The screenshot displays the Microsoft Azure Machine Learning Studio interface. The top navigation bar shows the user is logged in as 'Jawaria-Free-Workspace'. The main workspace area shows a workflow diagram with the following steps:

- Adult Census Income Ready...** (Data Source)
- Select Columns in Dataset** (Data Preprocessing)
- Train Class Boosted Decision...** (Model Training)
- Split Data** (Data Splitting)
- Train Model** (Model Training)
- Score Model** (Model Scoring)
- Evaluate Model** (Model Evaluation)

The workflow is titled '16SW04' and is marked as 'Finished running'. The 'Evaluate Model' step is selected, and its properties are shown on the right:

- Properties**
  - Evaluate Model**
    - START TIME: 9/4/2019 2:...
    - END TIME: 9/4/2019 2:...
    - ELAPSED TIME: 0:00:00.000
    - STATUS CODE: Finished
    - STATUS DETAILS: Task output was present in output cache

The bottom toolbar includes buttons for 'NEW', 'RUN HISTORY', 'SAVE', 'SAVE AS', 'DISCARD CHANGES', 'RUN', 'SET UP WEB SERVICE', and 'PUBLISH TO GALLERY'. The Windows taskbar at the bottom shows the time as 2:53 PM on 9/4/2019.



Microsoft Azure Machine Learning Studio

Jawaria-Free-Workspace

16SW04 > Evaluate Model > Evaluation results

True Positive: 1929, False Negative: 1928, Accuracy: 0.835, Precision: 0.759, Threshold: 0.5, AUC: 0.852

False Positive: 612, True Negative: 10888, Recall: 0.500, F1 Score: 0.603

Positive Label: > 50K, Negative Label: <= 50K

Score Bin	Positive Examples	Negative Examples	Fraction Above Threshold	Accuracy	F1 Score	Precision	Recall	Negative Precision	Negative Recall	Cumulative AUC
(0.900,1.000]	1155	42	0.078	0.821	0.457	0.965	0.299	0.809	0.996	0.001
(0.800,0.900]	161	64	0.093	0.828	0.499	0.925	0.341	0.818	0.991	0.003
(0.700,0.800]	94	61	0.103	0.830	0.519	0.894	0.366	0.822	0.985	0.005
(0.600,0.700]	285	199	0.134	0.835	0.573	0.822	0.439	0.837	0.968	0.012
(0.500,0.600]	234	246	0.165	0.835	0.603	0.759	0.500	0.850	0.947	0.022

Activate Windows  
Go to PC settings to activate Windows.

2:53 PM  
9/4/2019