

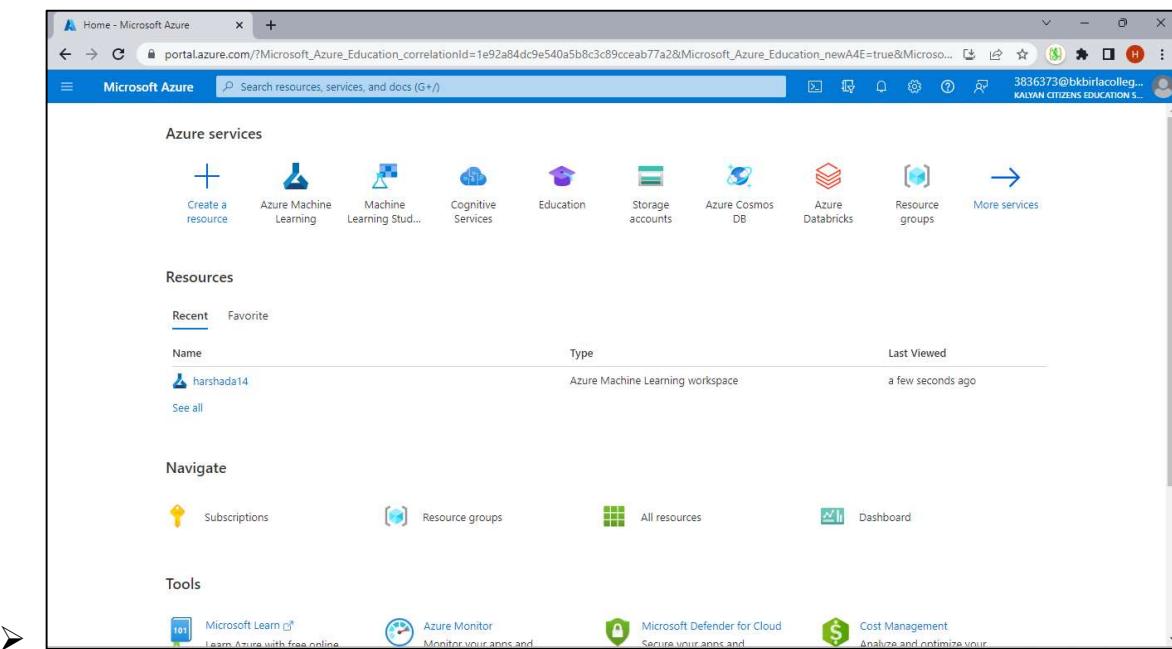
Data on cloud

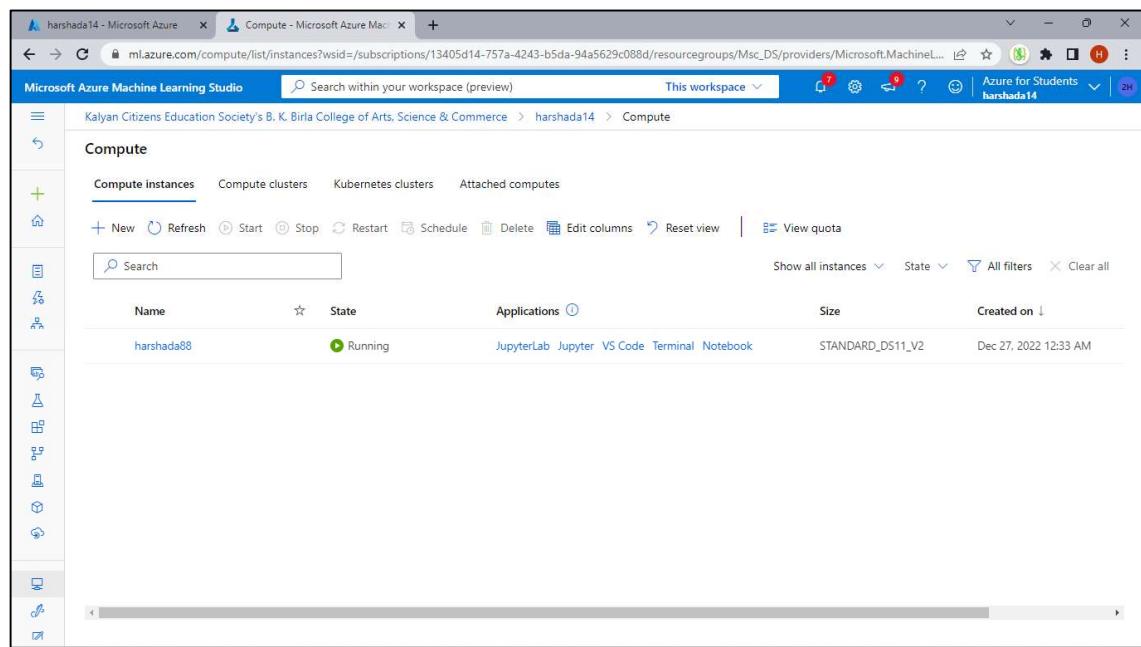
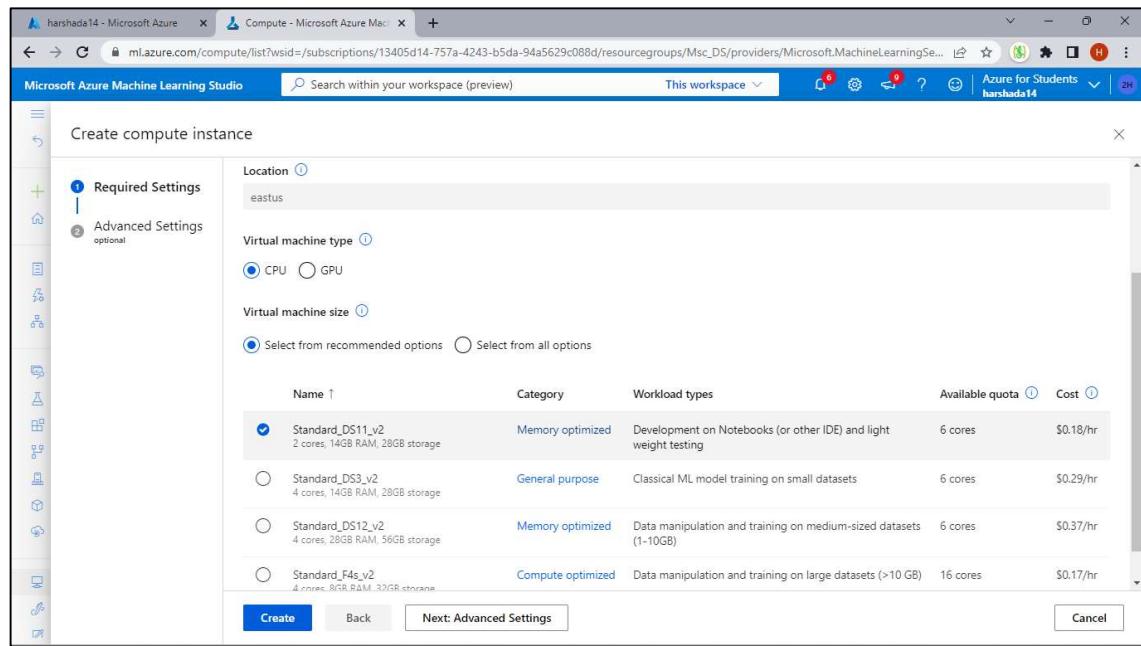
[Practical 8 & 9]

24 Dec 2022

P.No.[8] Demonstrate regression model using in Azure ML designer using Azure Machine.

- Open Microsoft Azure > Go to Azure machine learning > create workspace > go to resource > Launch studio >go to compute >
- create compute instance >
- In compute instance give the name to compute and select virtual machine size [0.18] > click on create button .





- After create instance then create compute cluster select virtual machine size [0.29] for general purpose > 2 nodes and keep other details as it is .



Microsoft Azure Machine Learning Studio

Create compute cluster

Virtual Machine

Dedicated

Virtual machine type

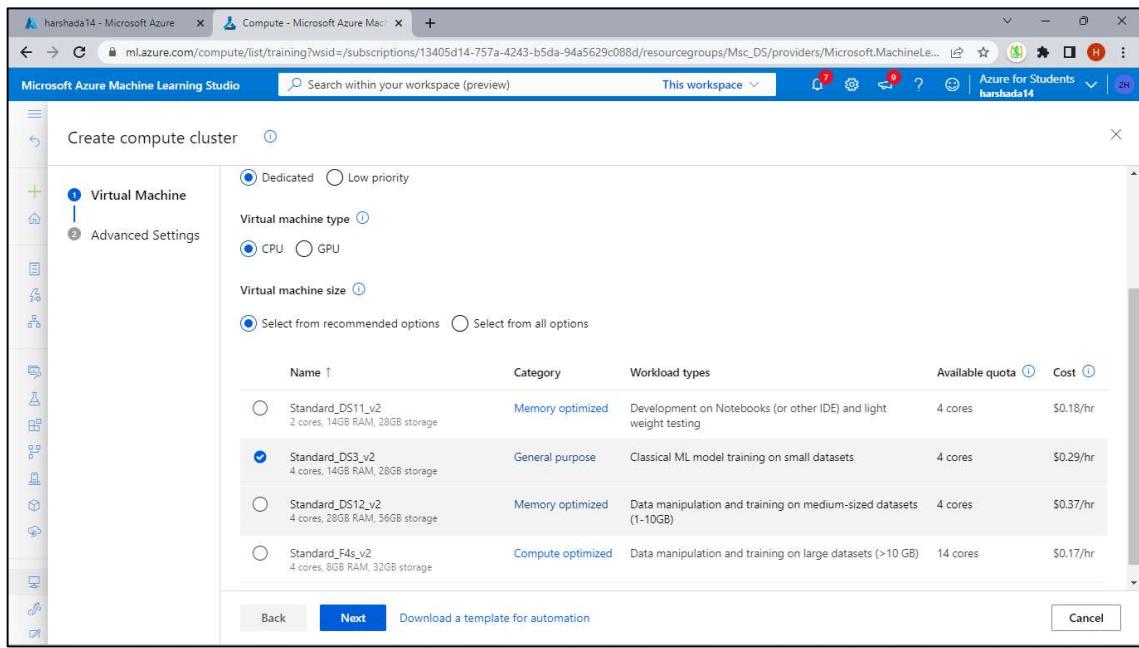
CPU

Virtual machine size

Select from recommended options

Name ↑	Category	Workload types	Available quota	Cost
Standard_DS11_v2 2 cores, 14GB RAM, 28GB storage	Memory optimized	Development on Notebooks (or other IDE) and light weight testing	4 cores	\$0.18/hr
Standard_DS3_v2 4 cores, 14GB RAM, 28GB storage	General purpose	Classical ML model training on small datasets	4 cores	\$0.29/hr
Standard_DS12_v2 4 cores, 28GB RAM, 56GB storage	Memory optimized	Data manipulation and training on medium-sized datasets (1-10GB)	4 cores	\$0.37/hr
Standard_F4s_v2 4 cores, 8GB RAM, 32GB storage	Compute optimized	Data manipulation and training on large datasets (>10 GB)	14 cores	\$0.17/hr

Back Next Download a template for automation Cancel



Microsoft Azure Machine Learning Studio

Create compute cluster

Virtual Machine

Compute name *

harshada22

Minimum number of nodes *

0

Maximum number of nodes *

1

Idle seconds before scale down *

120

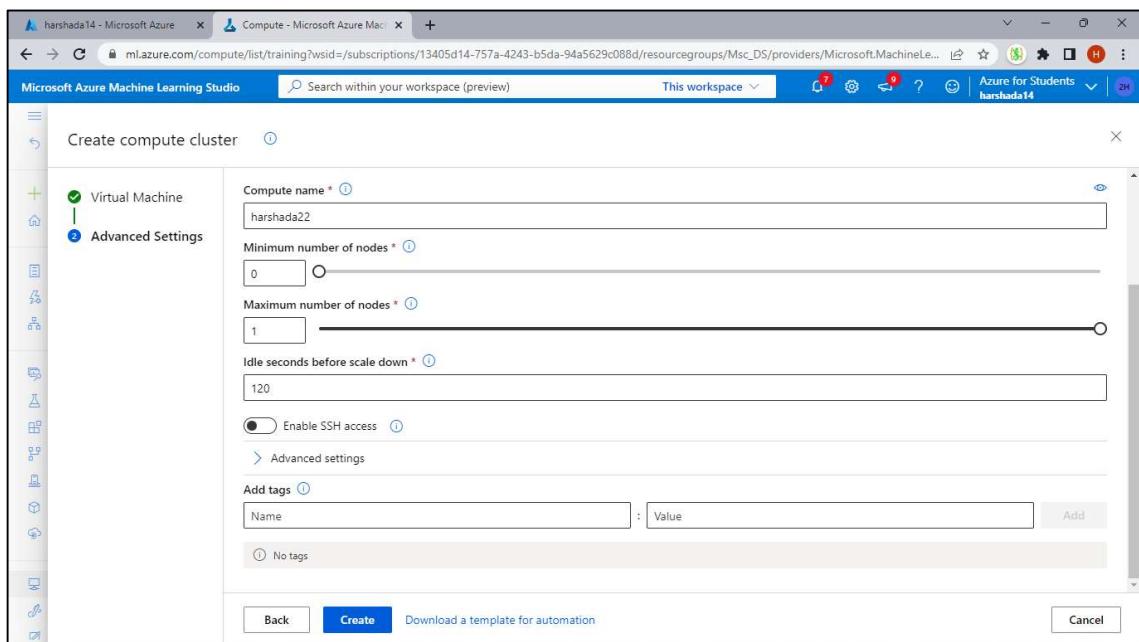
Enable SSH access

Add tags

Name : Value

No tags

Back Create Download a template for automation Cancel

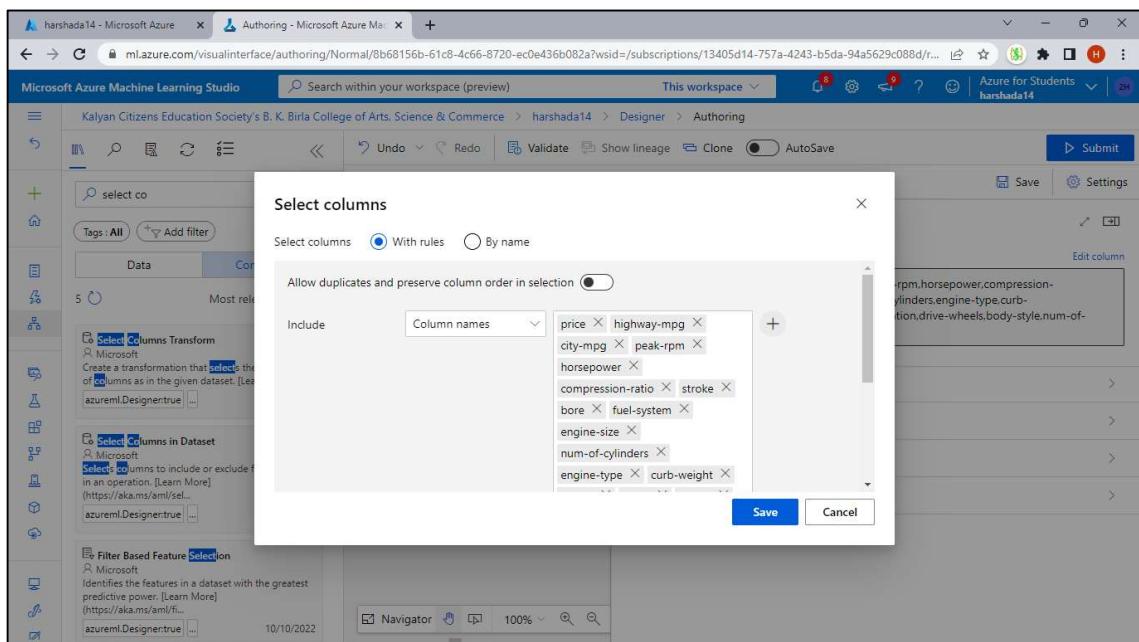
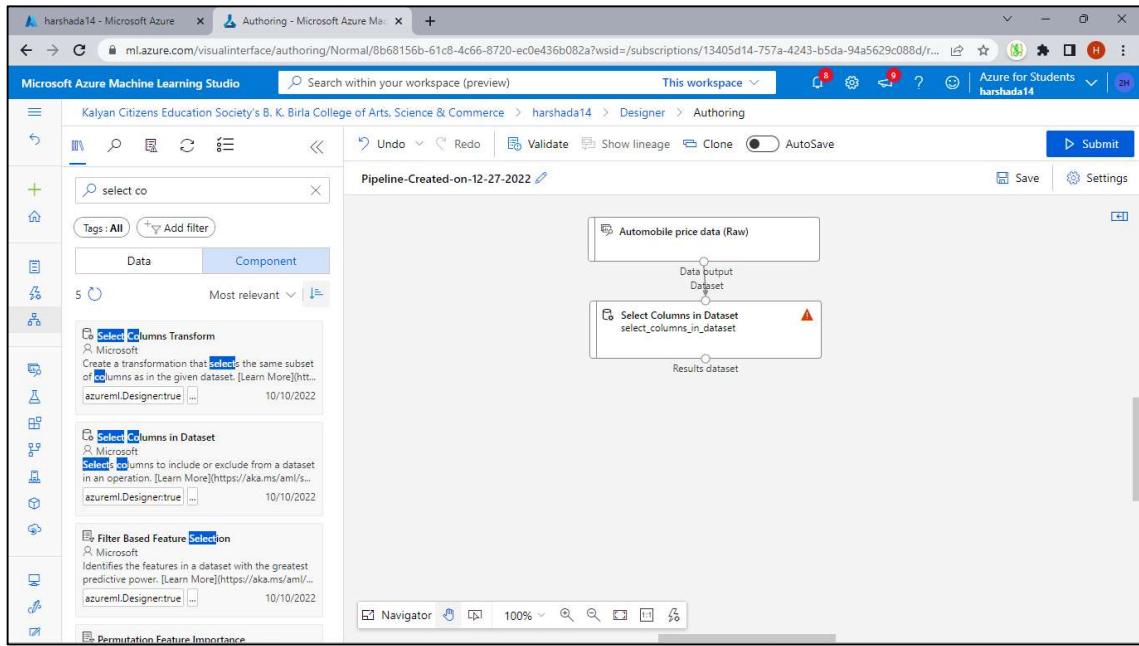


The screenshot shows the Microsoft Azure Machine Learning Studio interface. The left sidebar has a 'Compute' section with icons for Compute instances, Compute clusters, Kubernetes clusters, and Attached computes. The main area is titled 'Compute clusters' and shows a table with one row:

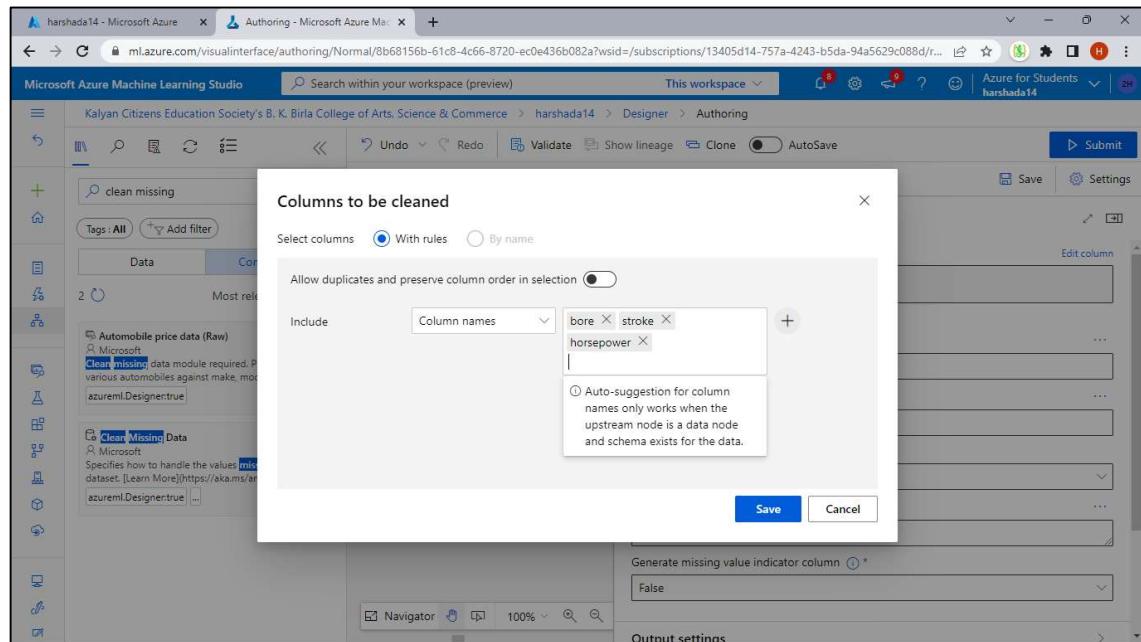
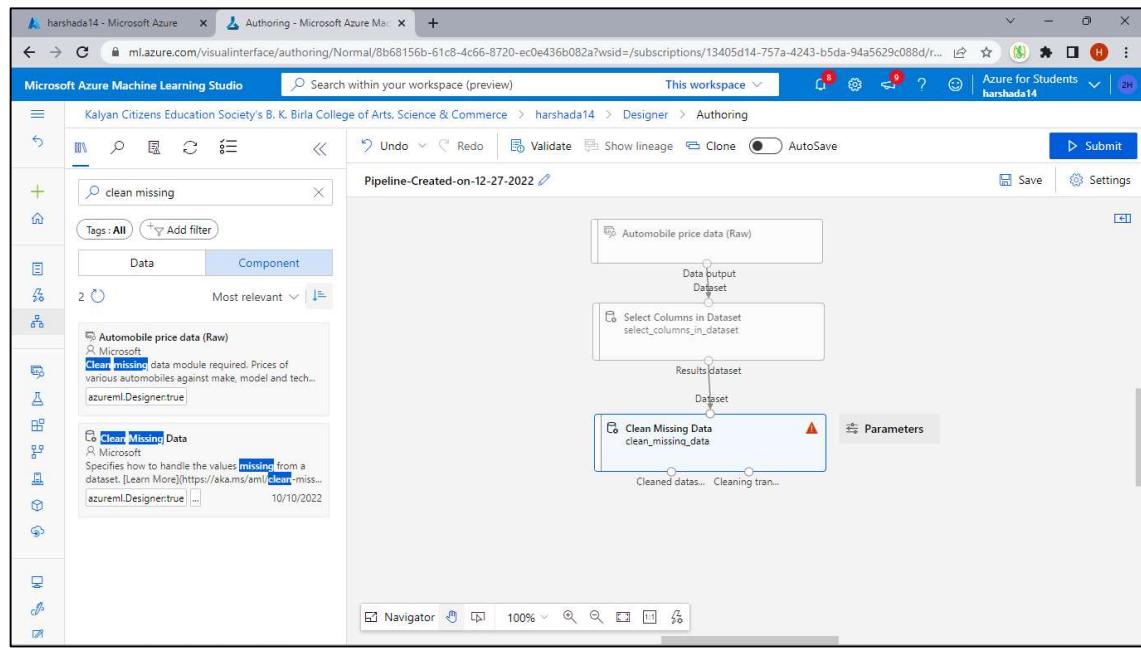
Name	State	Size	Location	Created on	Active runs	Idle nodes	Busy nodes
harshada22	Succeeded (0 nodes)	STANDARD_DS3_V2	eastus	Dec 27, 2022 12:45 AM	0	0	0

At the top right, there is a message: 'Compute "harshada22"- provisioning succeeded' and a link 'Compute details'. The browser address bar shows 'ml.azure.com/compute/list/training?wsid='.

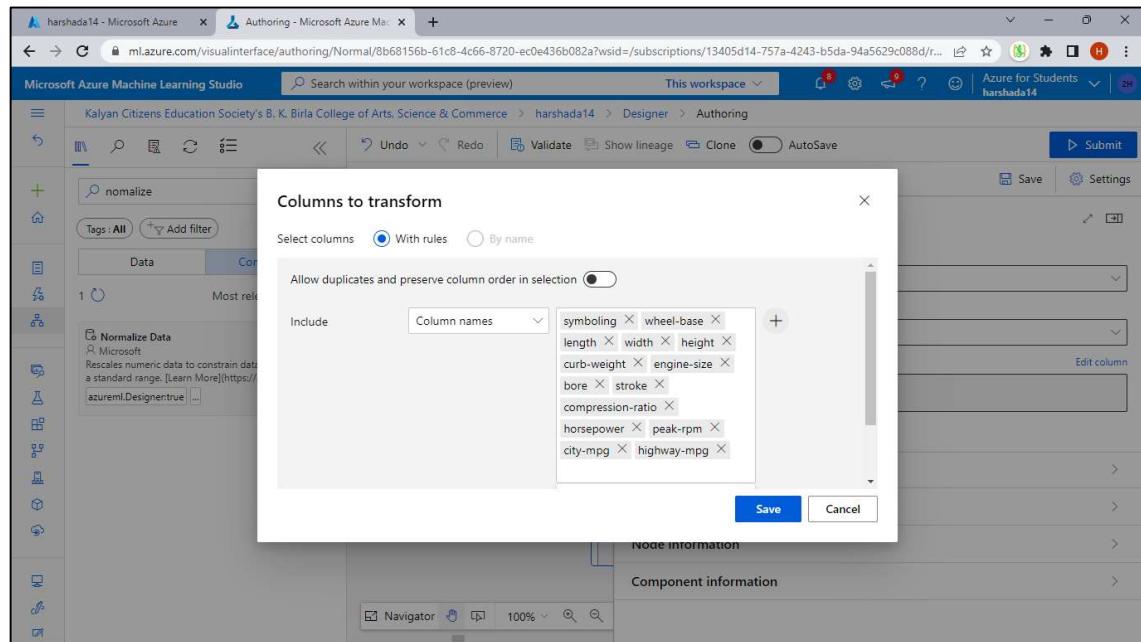
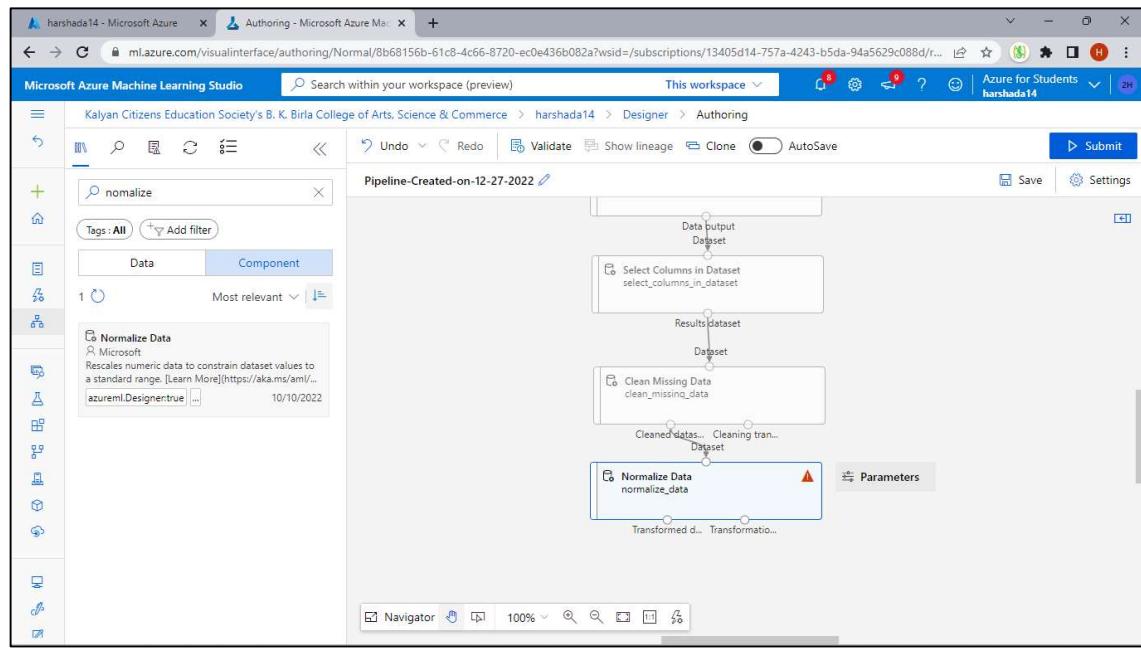
- Go to Designer >click on create new pipe line ..
- click on component > search and select Automobile Price raw date set >drag it and drop on side space >search Select columns in dataset >drag and drop on the space > connect the nodes : Data output and dataset..
- Double click on select columns in dataset box >click on th edit columns >select columns by name or with rule >
- select columns : **symboling,make,fuel-type,aspiration,num-of-doors,body-style,drive-wheels,engine-location,wheel-base,length,width,height,curb-weight,engine-type,num-of-cylinders,engine-size,fuel-system,bore,stroke,compression-ratio,horsepower,peak-rpm,city-mpg,highway-mpg,price.**



- Add Clean missing Data form component> connect the nodes : Data set and Results data set > edit columns : select - **bore , stroke , horsepower**.



- Add down Normalize Data into the space > connect the nodes : cleaned dataset and dataset > Double click on Normalize data > select minmax Transformation method >
- edit columns : **symboling,wheel-base,length,width,height,curb-weight,engine-size,bore,stroke,compression-ratio,horsepower,peak-rpm,city-mpg,highway-mpg.**



- Go to the setting > select compute cluster > click on submit > set up pipeline job > create new > after created Pipeline click on Job detail > then you see data in processing >
- if you get error then check it again..

Microsoft Azure Machine Learning Studio

Search within your workspace (preview)

This workspace

Authoring - Microsoft Azure

Kalyan Citizens Education Society's B. K. Birla College of Arts, Science & Commerce > harshada14 > Designer > Authoring

Pipeline-Created-on-12-27-2022

Settings

Default compute

Select compute type

Compute cluster

Select Azure ML compute cluster

harshada22

Create Azure ML compute cluster Refresh Compute

Pipeline parameters

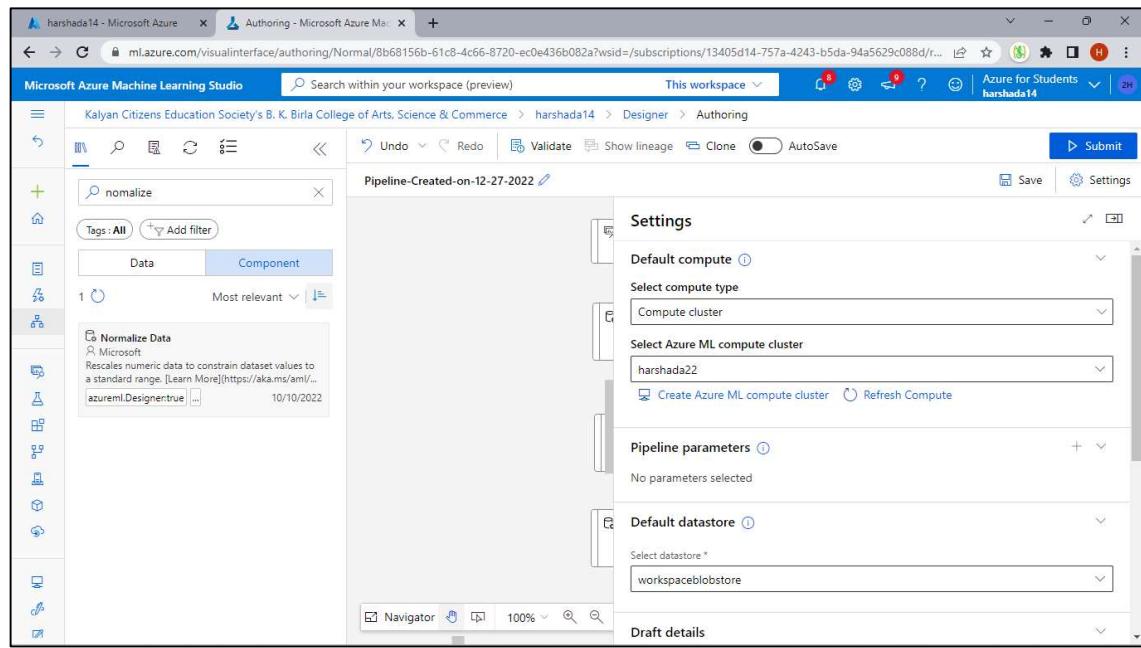
No parameters selected

Default datastore

Select datastore

workspaceblobstore

Draft details



Microsoft Azure Machine Learning Studio

Search within your workspace (preview)

This workspace

Authoring - Microsoft Azure

Kalyan Citizens Education Society's B. K. Birla College of Arts, Science & Commerce > harshada14 > Designer > Authoring

Set up pipeline job

Experiment

Experiment name

Select existing Create new

New experiment name *

Pipelineforlinearregression

Job display name

Pipeline-Created-on-12-27-2022

Job description

Pipeline created on 20221227

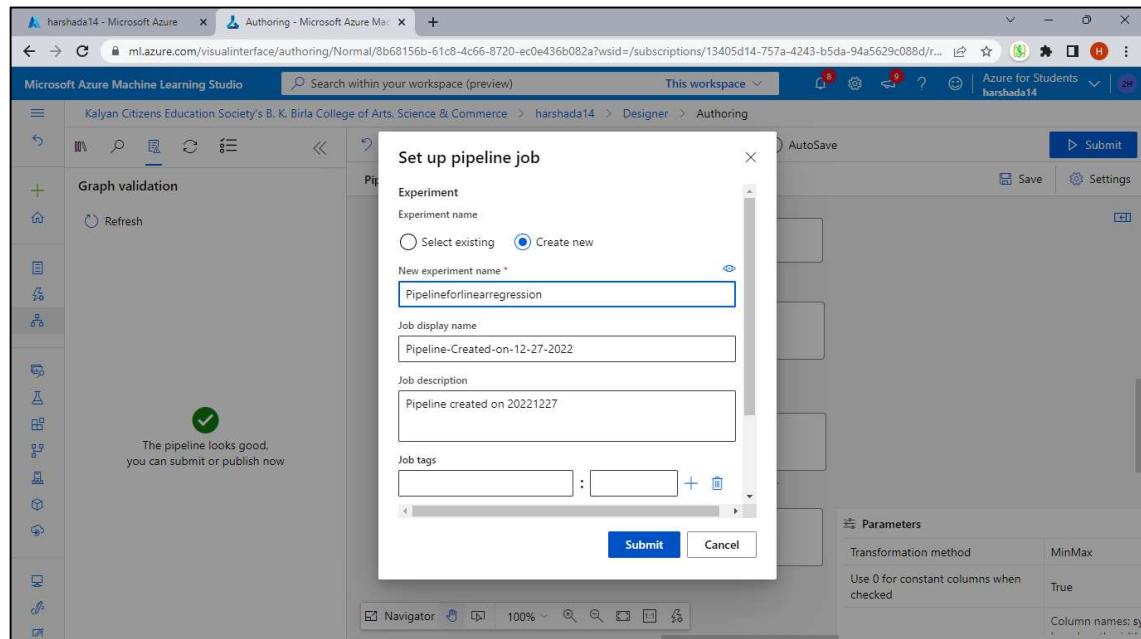
Job tags

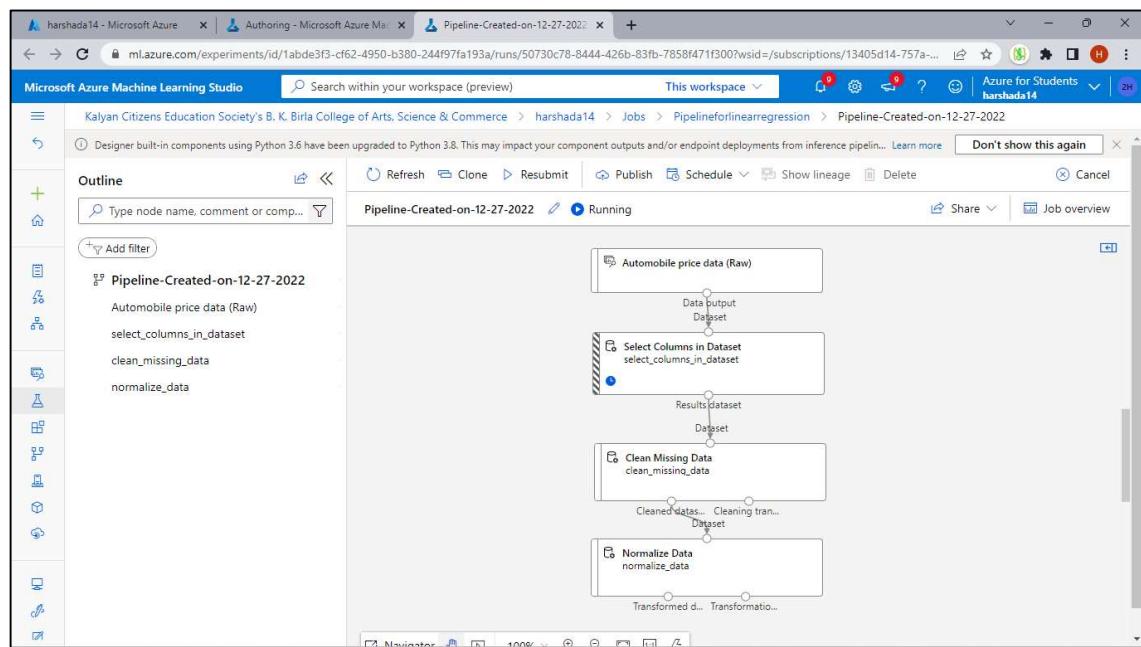
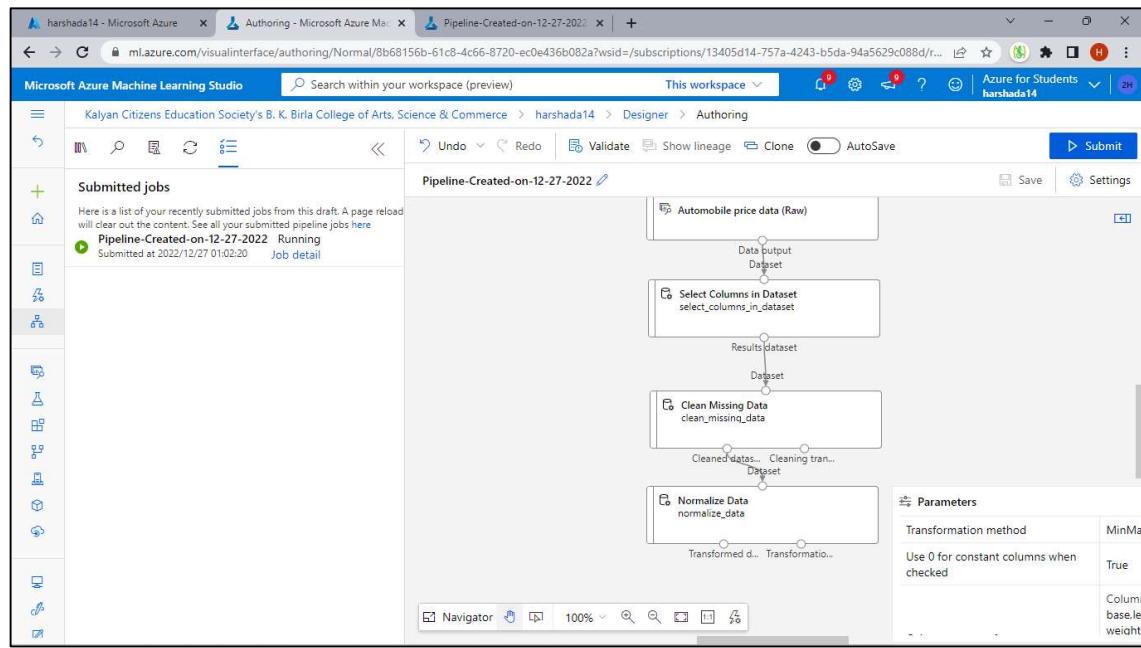
Submit Cancel

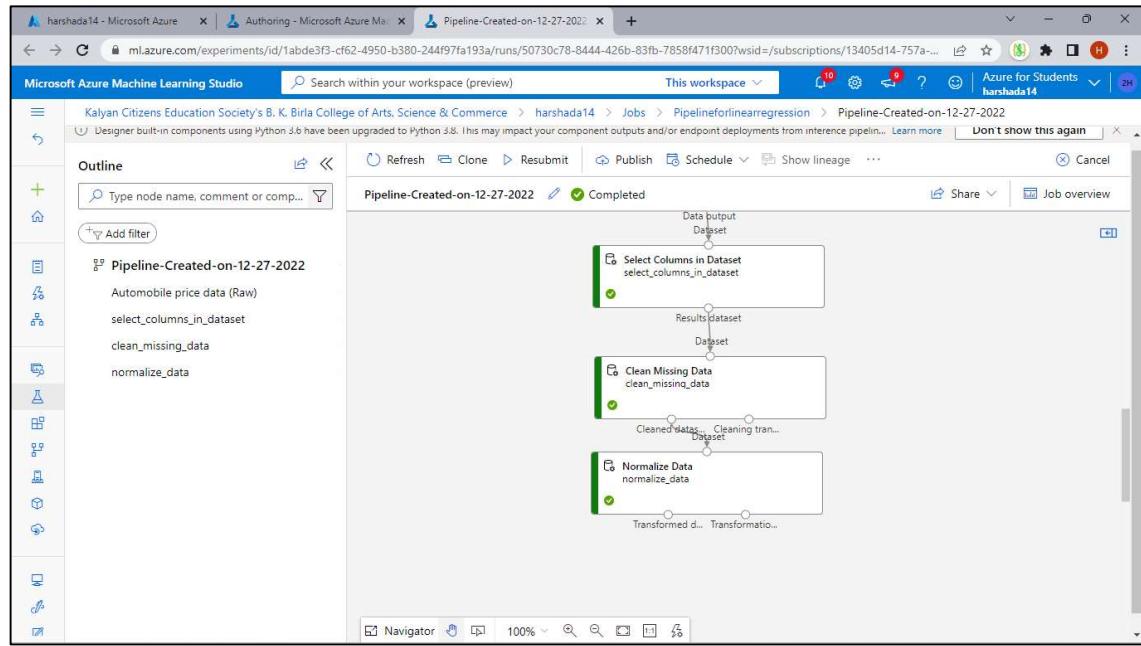
AutoSave

Parameters

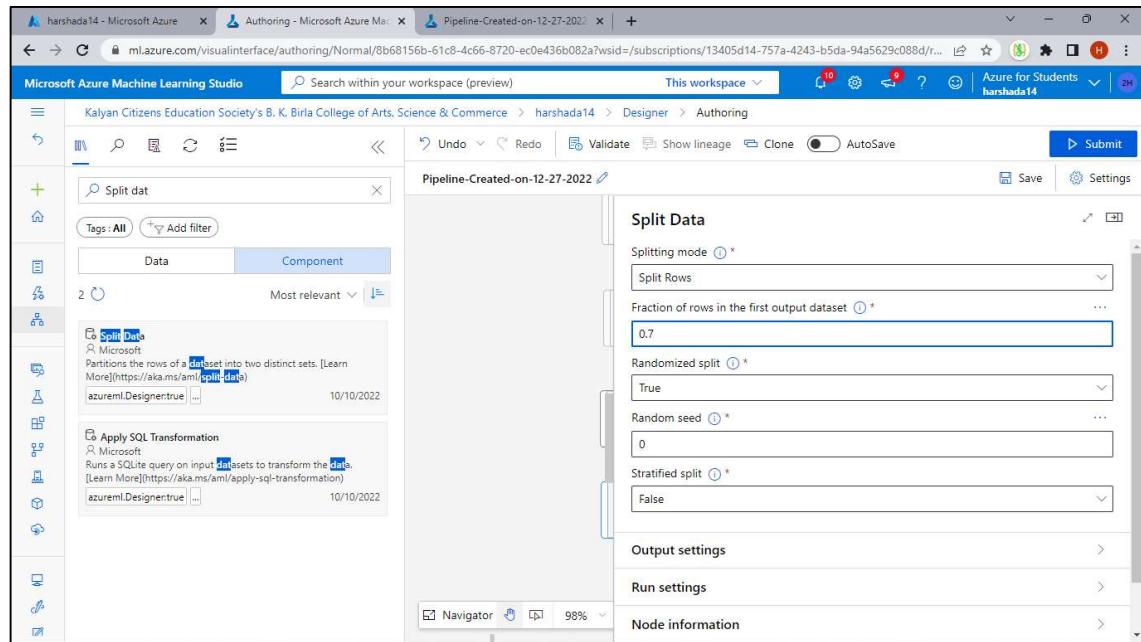
Transformation method	MinMax
Use 0 for constant columns when checked	True
Column names:	sy



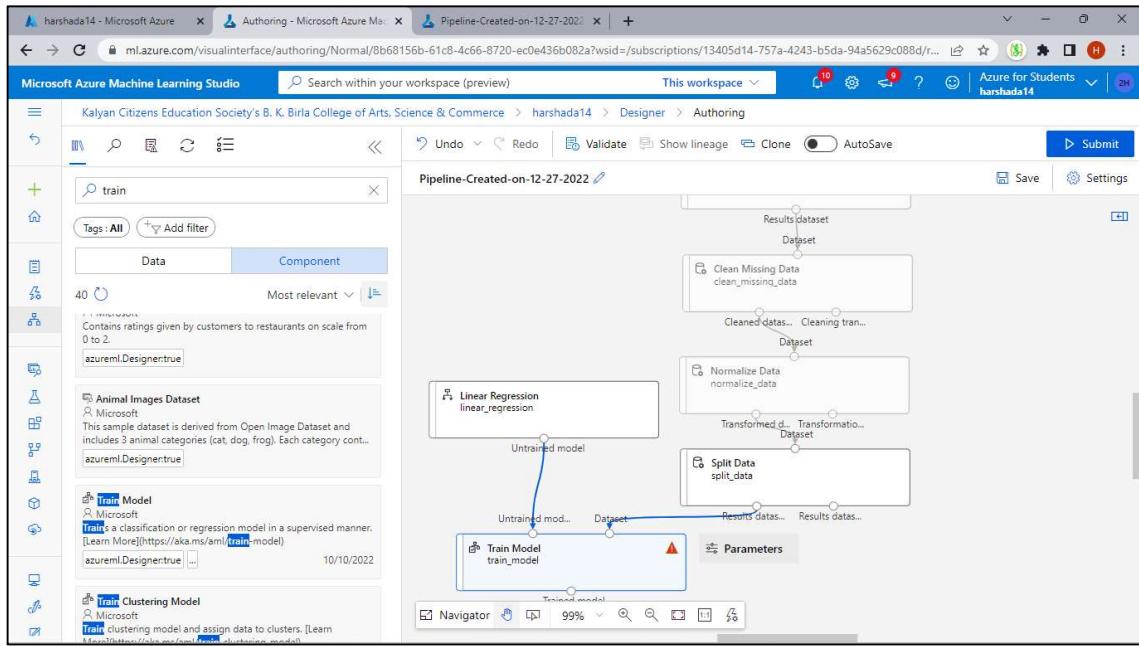




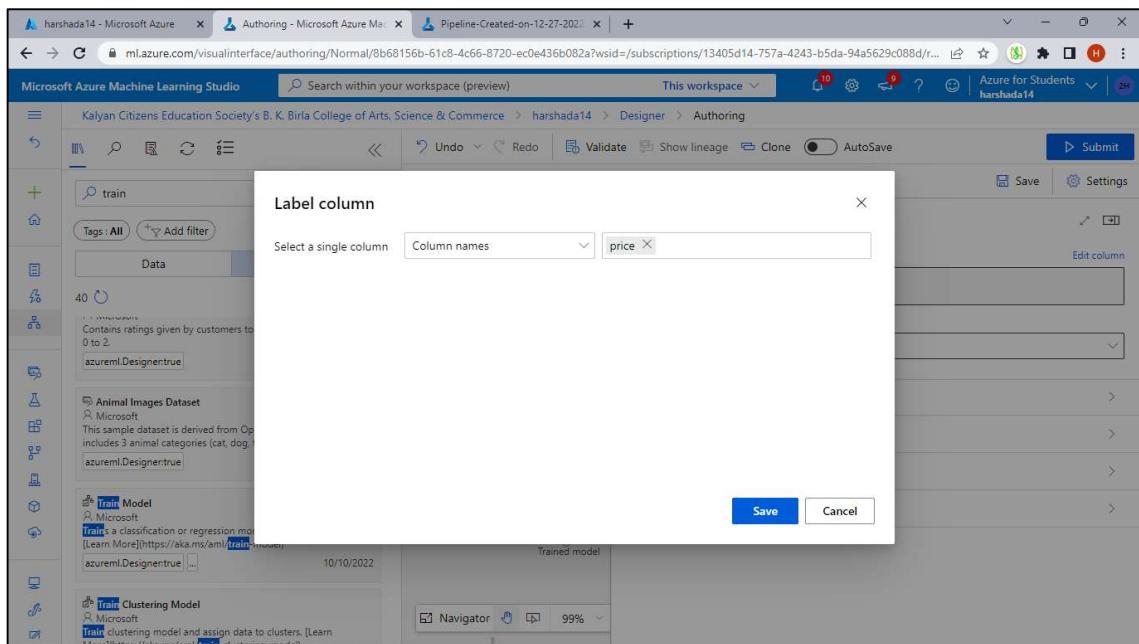
- Add Split data > connect nodes : transformed Dataset and Data set > split the data fraction 70 – 30 means type there 0.7 ..



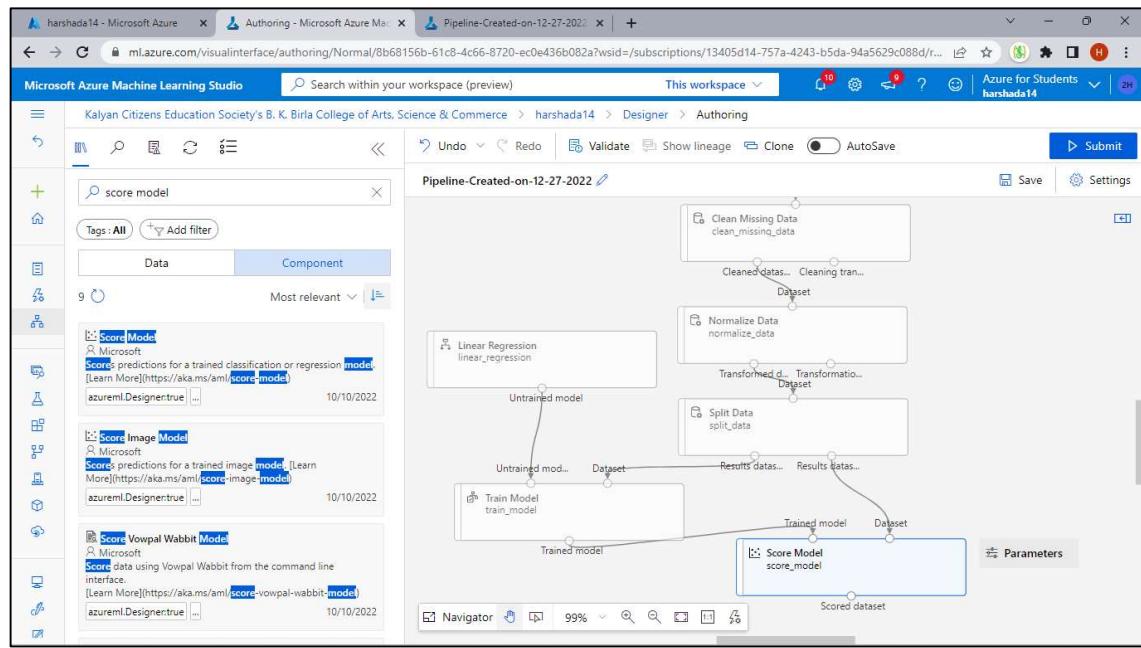
- Drag or add Linear Regression > add Train Model > connect the notes : Result dataset to dataset and Untrain Dataset to Untrain Dataset.



- Double click on Train model the edit column : price .



- Add Score Model > connect nodes : Trained Dataset to Trained dataset and Dataset to Result Dataset > add one more model Evaluate Model > submit



Microsoft Azure Machine Learning Studio

Search within your workspace (preview)

This workspace

Authoring - Microsoft Azure Machine Learning Studio

Pipeline-Created-on-12-27-2022

Graph validation

Refresh

The pipeline looks good. You can submit or publish now.

Set up pipeline job

Experiment

Experiment name

Select existing Create new

Existing experiment * Pipelineforlinearregression

Job display name Pipeline-Created-on-12-27-2022

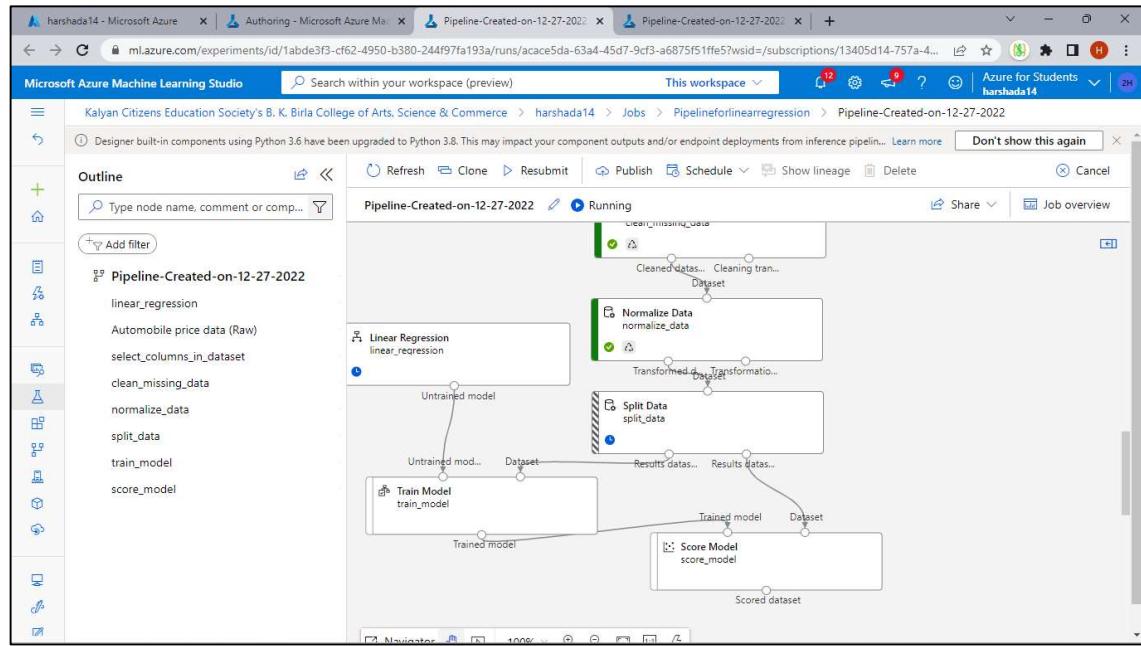
Job description Pipeline created on 20221227

Job tags

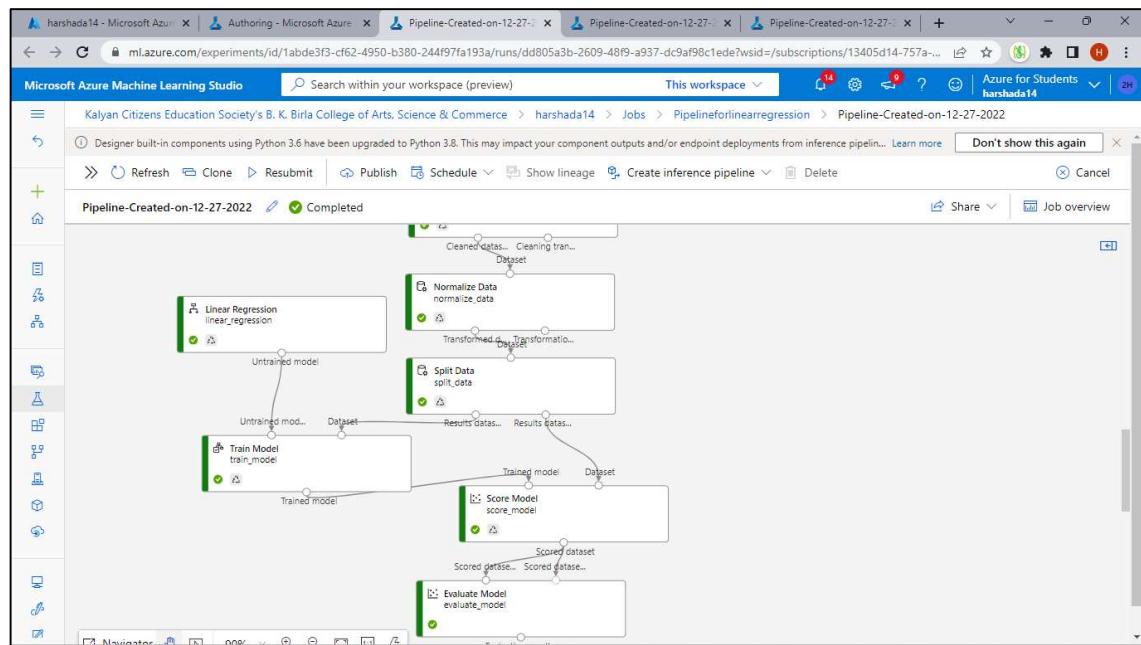
Submit Cancel

Output

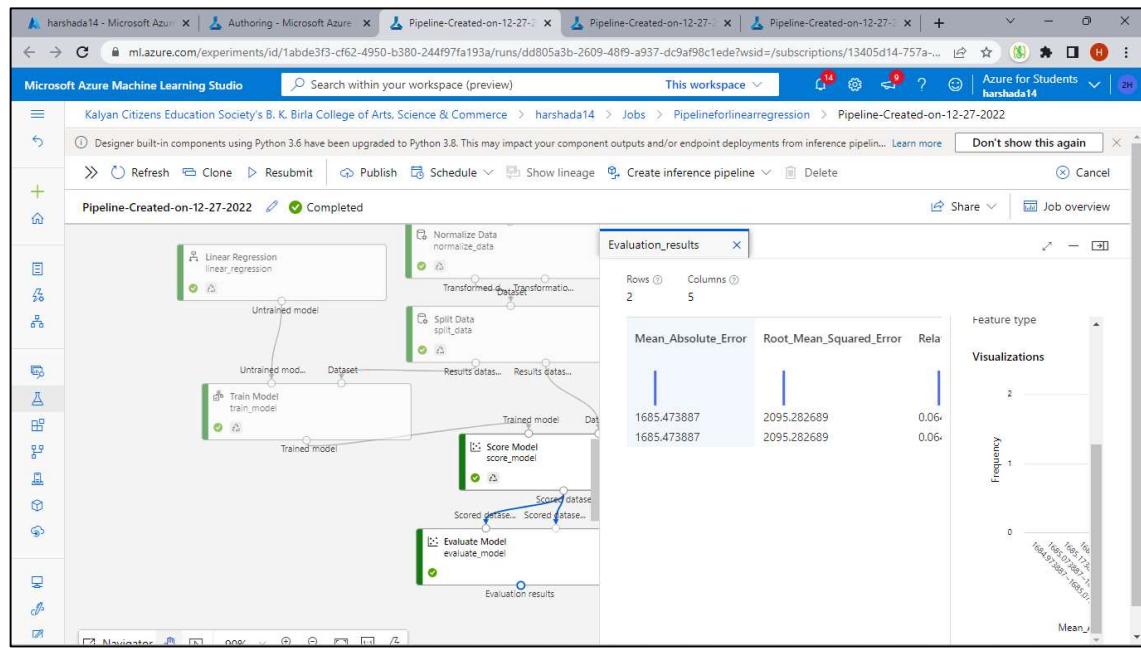
Split Data Navigator 100%



- It is completely done..



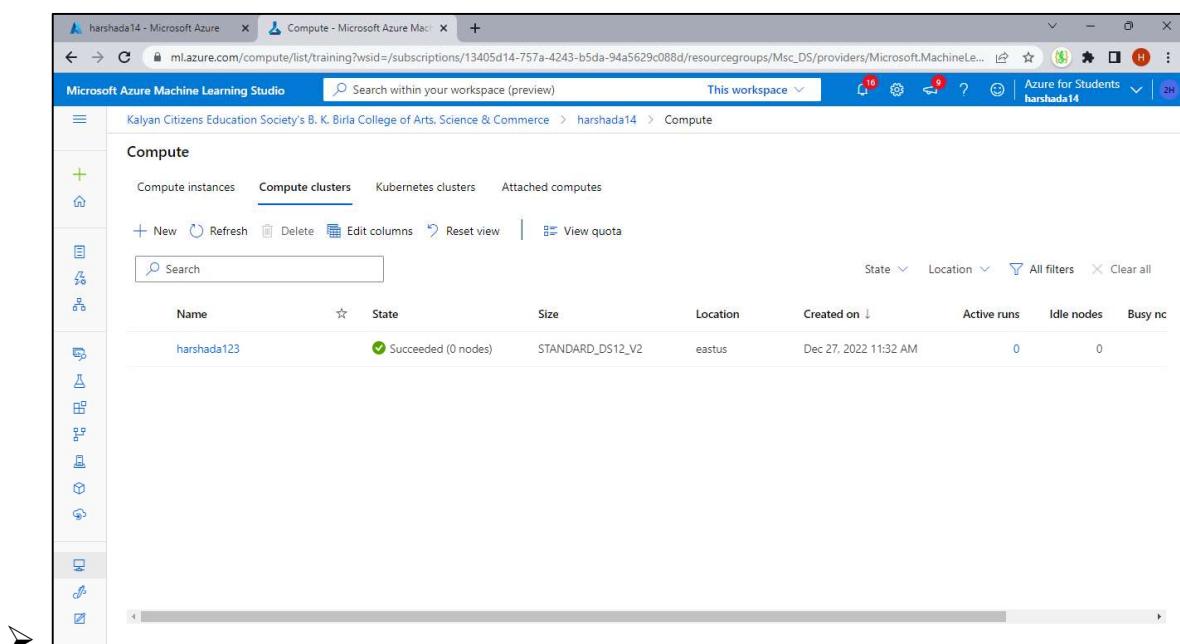
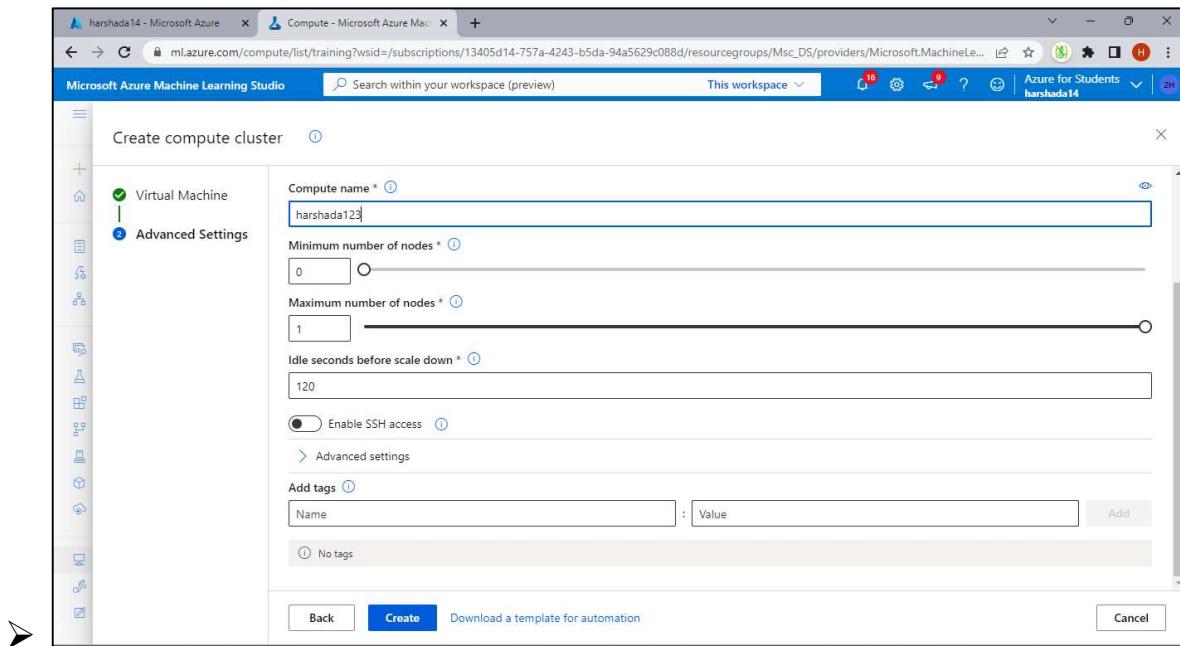
- Double click on Evaluate Model > Go to the Outputs + log > click on Show data output > then click on graph icon > you get Evaluation result.



P.No.[9] Demonstrate regression model using Auto ML using Azure Machine learning studio.

- Open Microsoft Azure > Go to Azure machine learning >in the created workspace > create Compute cluster > select 0.37 or 0.29 in virtual machine size.

Name ↑	Category	Workload types	Available quota	Cost
Standard_DS11_v2 2 cores, 14GB RAM, 28GB storage	Memory optimized	Development on Notebooks (or other IDE) and light weight testing	6 cores	\$0.18/hr
Standard_DS3_v2 4 cores, 14GB RAM, 28GB storage	General purpose	Classical ML model training on small datasets	6 cores	\$0.29/hr
Standard_DS12_v2 4 cores, 28GB RAM, 56GB storage	Memory optimized	Data manipulation and training on medium-sized datasets (1-10 GB)	6 cores	\$0.37/hr
Standard_F4s_v2 4 cores, 8GB RAM, 32GB storage	Compute optimized	Data manipulation and training on large datasets (>10 GB)	16 cores	\$0.17/hr



- click on Automated ML > click on New Automated ML job .

The screenshot shows the Microsoft Azure Machine Learning Studio interface. At the top, there are four main cards: 'Create new' (Notebooks, Automated ML, Designer), 'Notebooks' (Code with Python SDK and run sample experiments), 'Automated ML' (Automatically train and tune a model using a target metric), and 'Designer' (Drag-and-drop interface from prepping data to deploying models). Below these are sections for 'Recent resources' (Jobs, Compute, Models, Data) and a table of recent automated ML jobs.

Display name	Experiment	Status	Logs	Submitted time	Submitted by	Job type
Pipeline-Created-on-1...	Pipelineinfo...	Completed	Logs	Dec 27, 2022 1:4...	HARSHA...	Pipeline
Pipeline-Created-on-1...	Pipelineinfo...	Completed	Logs	Dec 27, 2022 1:3...	HARSHA...	Pipeline
Pipeline-Created-on-1...	Pipelineinfo...	Completed	Logs	Dec 27, 2022 1:0...	HARSHA...	Pipeline
icy_atemoya_5fr6cv0	potatods	Completed	Logs	Dec 24, 2022 9:1...	HARSHA...	Automated...

The screenshot shows the 'Automated ML' section of the Microsoft Azure Machine Learning Studio. It includes a 'Recent Automated ML jobs' table and a 'Documentation' section with links to 'Concept: What is Automated ML?', 'Tutorial: Create your first classification model with Automated ML', and 'Blog: Build more accurate forecasts with new capabilities in Automated ML'.

Display name	Experiment	Status	Created on	Duration	Created by	Compute target	Tags
icy_atemoya_5fr6cv0	potatods	Completed	Dec 24, 2022 9:17 AM	50m 57s	HARSHADA PA...	harshada14	dynamic_allowlist ...

- Download Dataset of Potato Price from DeltaOptimist extend (near about 100-150) rows of the data set in Excel save it .

The screenshot shows a Microsoft Edge browser window with several tabs open. The active tab is 'DeltaOptimist (DeltaOptimist) /' with the URL 'github.com/DeltaOptimist?tab=repositories&q=linear_po&type=&language=&sort='.

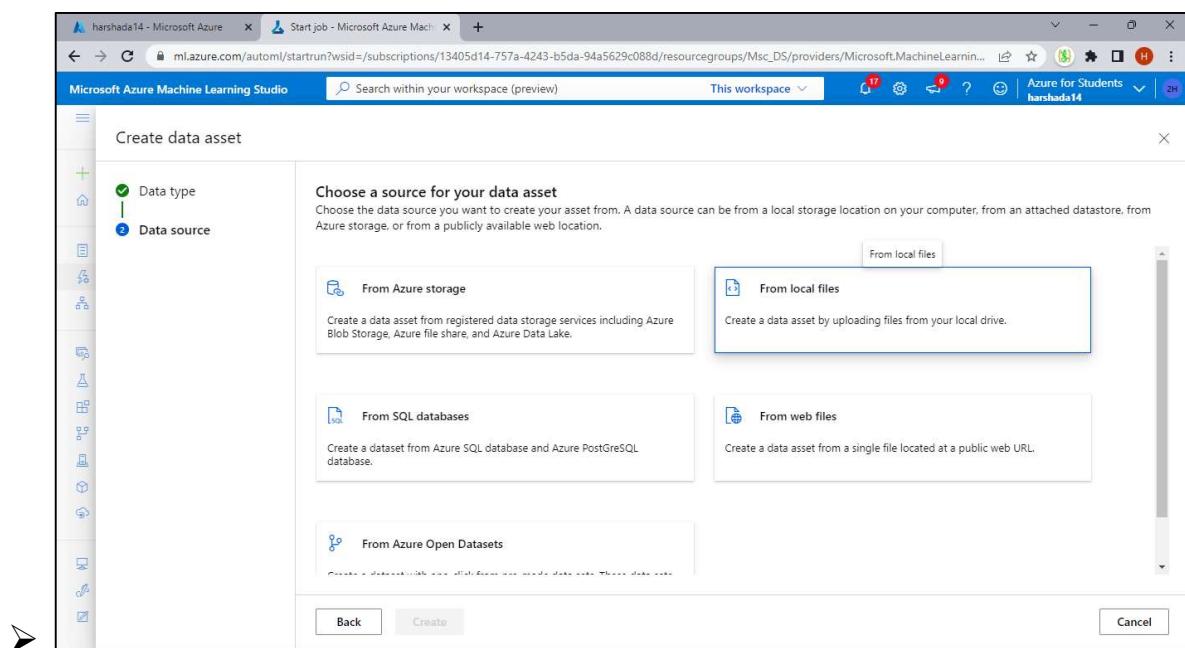
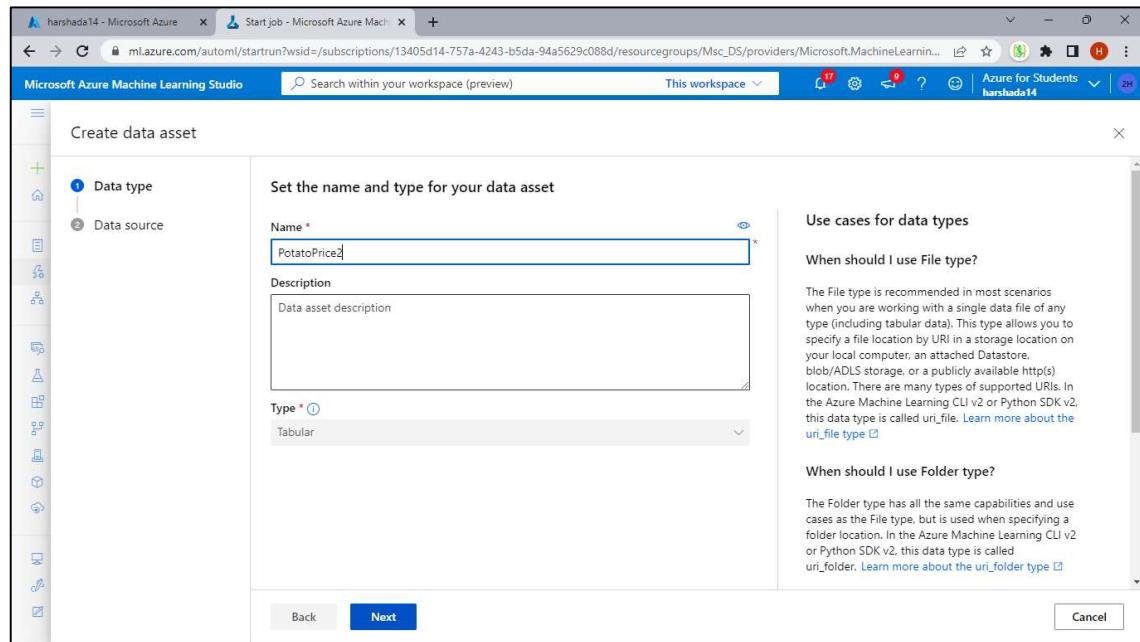
The GitHub interface displays a search bar with the query 'linear_po'. Below it, a message says '1 result for repositories matching linear_po sorted by last updated'. A single repository is listed: 'Linear Regression Potato Price' (Public). It is described as a Jupyter Notebook with 1 star and 1 fork, updated on Jul 18, 2021.

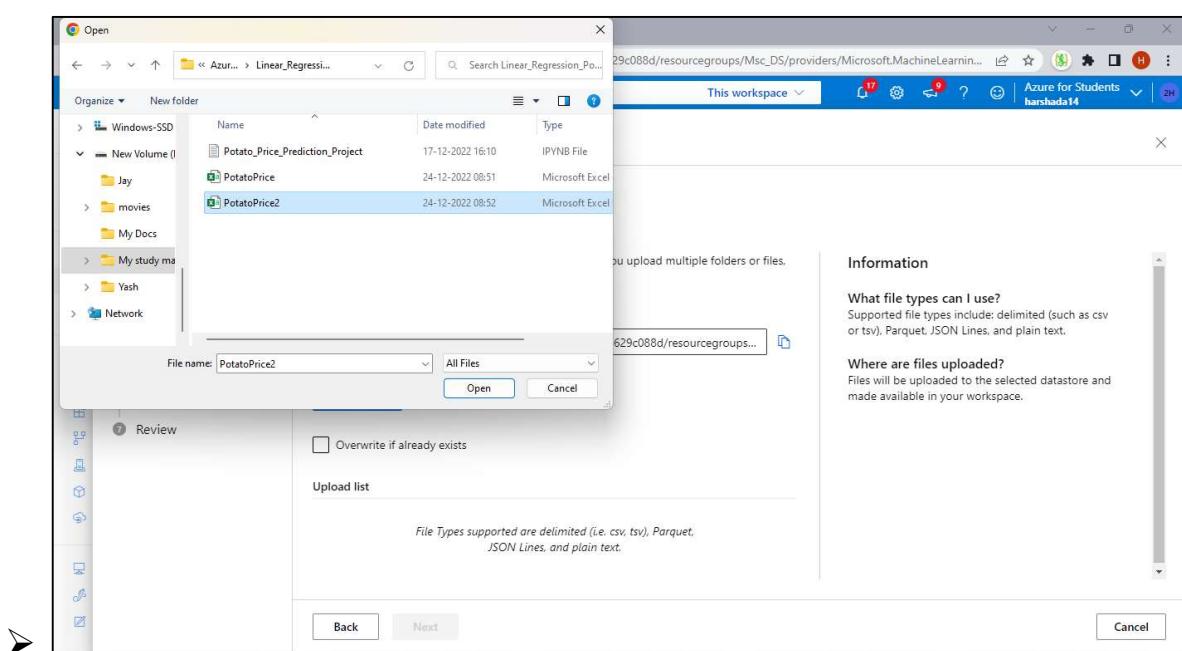
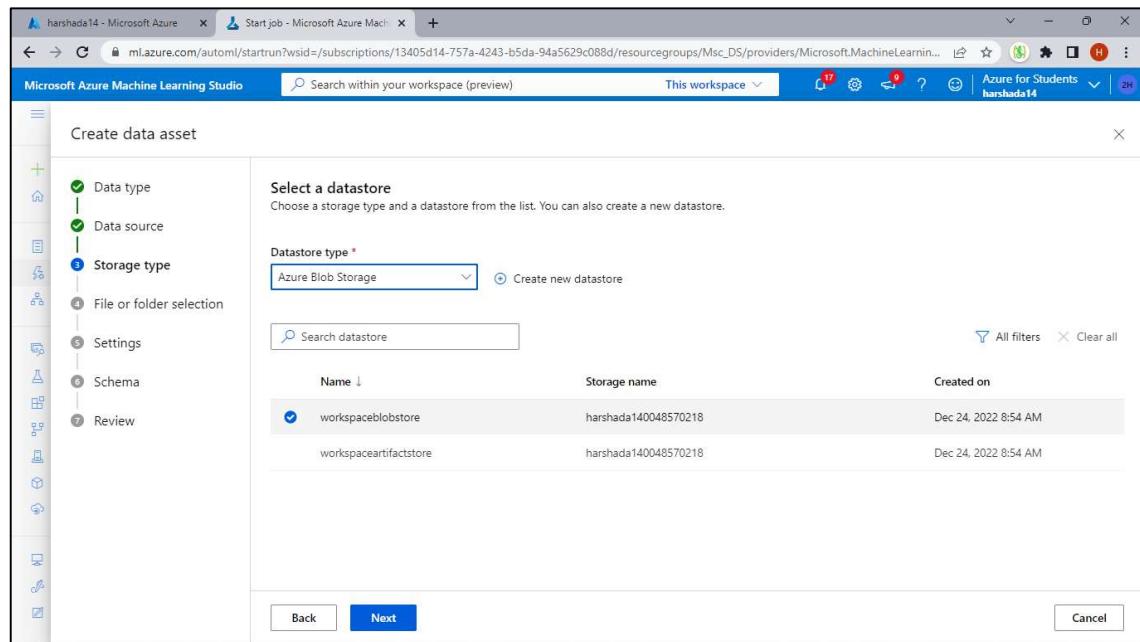
The repository's profile page is shown below, featuring a large circular profile picture of a person in a futuristic or military-style helmet and gear. The profile name is 'DeltaOptimist' and the owner is 'DeltaOptimist'. There is a 'Follow' button. A bio states: 'Nobody's data is perfect. That doesn't mean its not useful.' Below the bio is a link to the repository: 'https://github.com/DeltaOptimist/Linear_Regression_Potato_Price'.

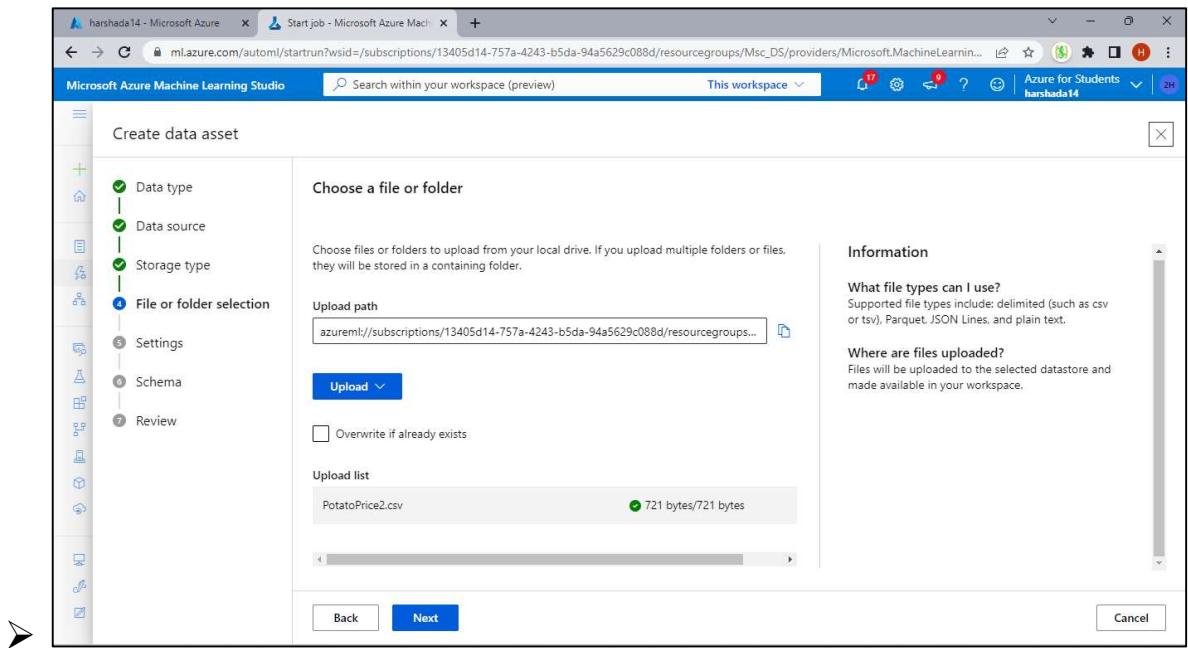
The screenshot shows a Microsoft Excel spreadsheet titled 'PotatoPrice2'. The data is organized into two main sections:

	A	B	C	D	E	F
1	potato_I	price				
2	1	10				
3	2	20				
4	3	25				
5	4	40				
6	5	55				
7	6	75				
8	7	90				
9	8	100				
10	9	115				
11	10	120				
12	1	10				
13	2	20				
14	3	25				
15	4	40				
16	5	55				
17	6	75				
18	7	90				
19	8	100				
20	9	115				
21	10	120				
22	1	10				
23	2	20				
24	3	25				
25	4	40				
26	5	55				
27	6	75				
28	7	90				
29	8	100				
30	9	115				
31	10	120				
32	1	10				
33	2	20				
34	3	25				
35	4	40				
36	5	55				
37	6	75				
38	7	90				
39	8	100				
40	9	115				
41	10	120				
42	1	10				

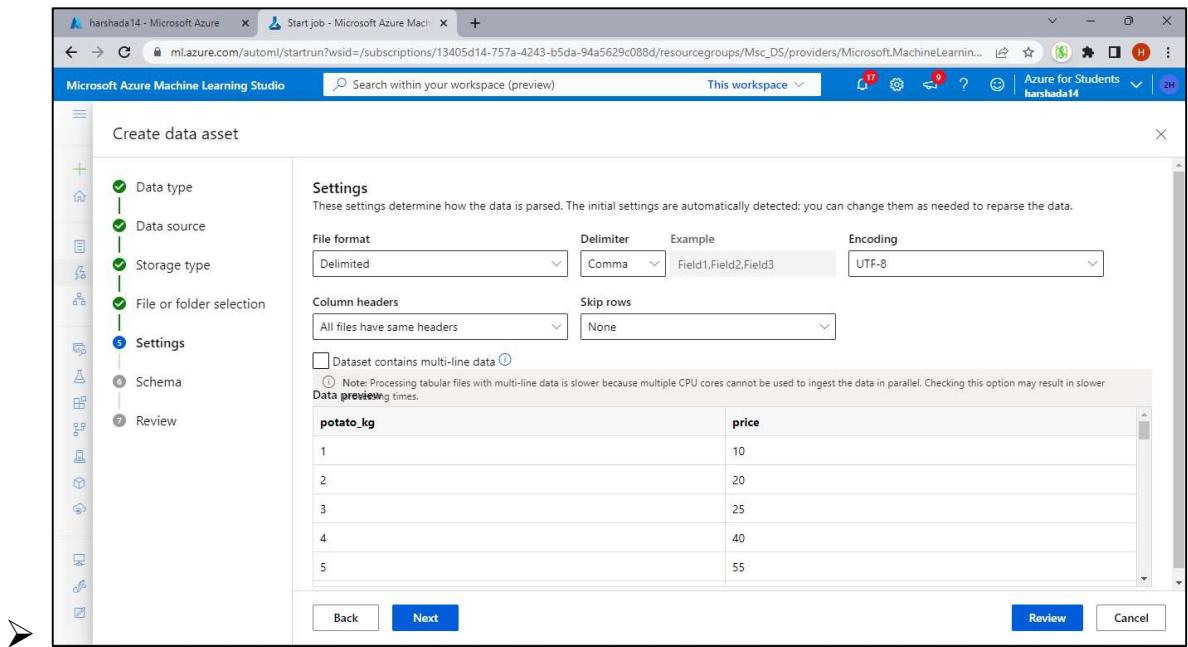
- Now click on create > select new data asset > Data source select from Local files > upload the data .

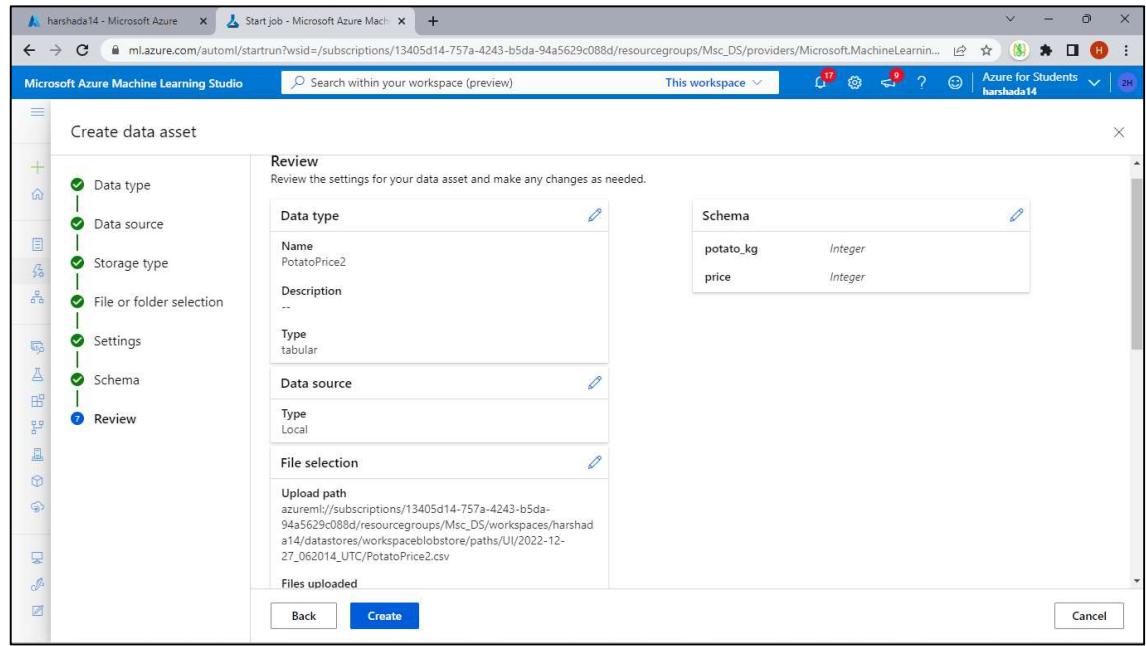




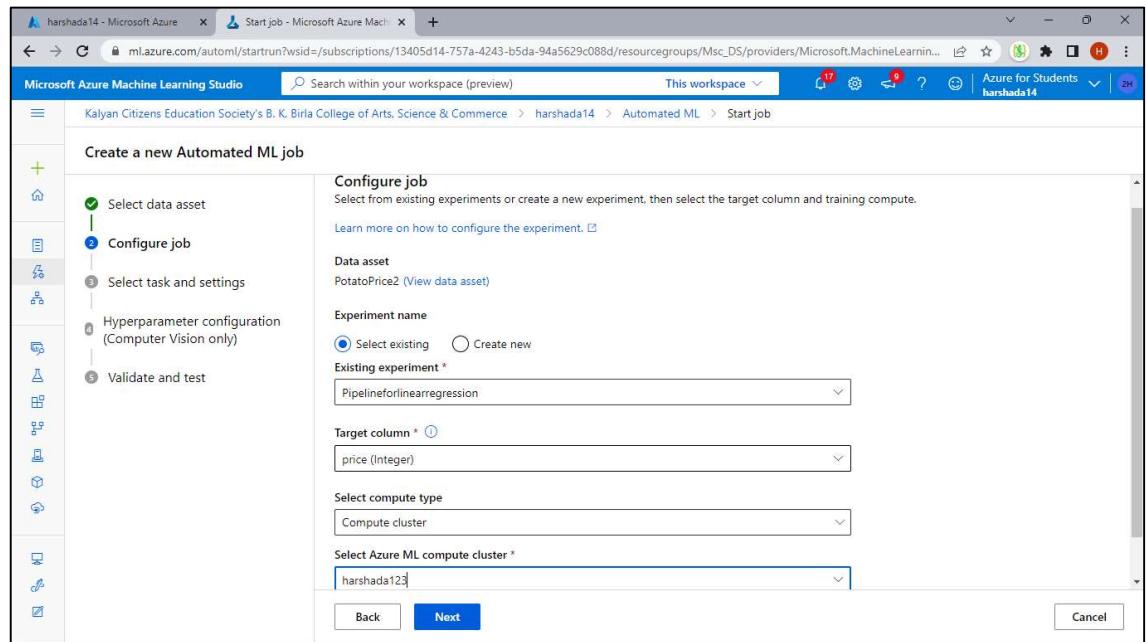


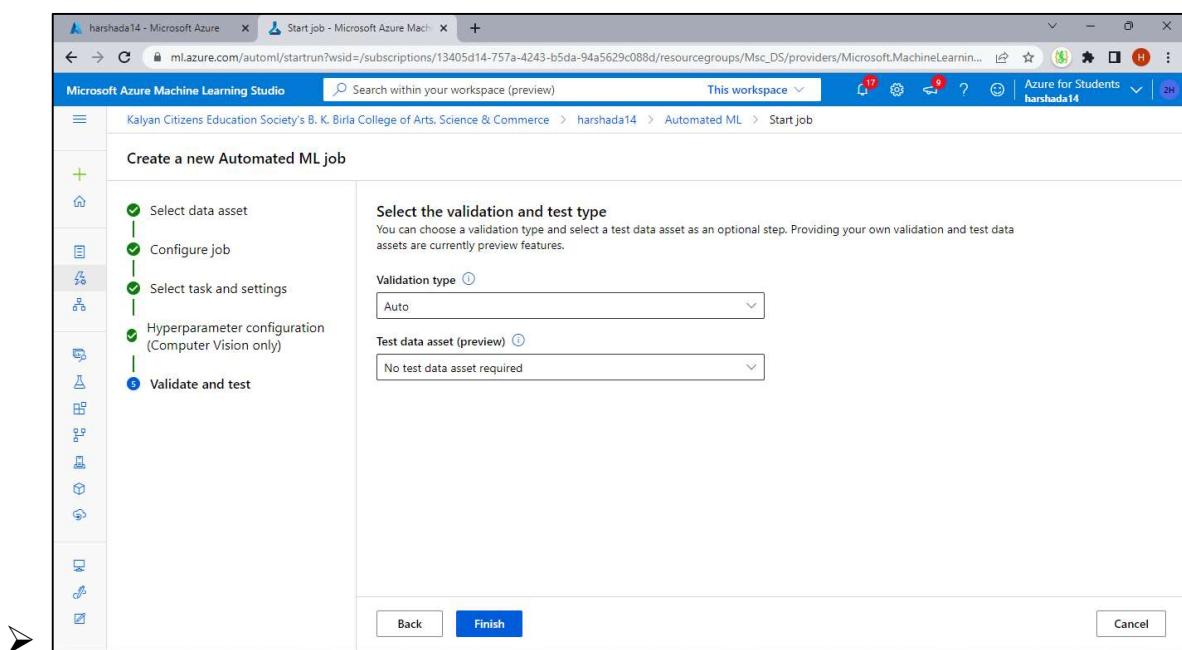
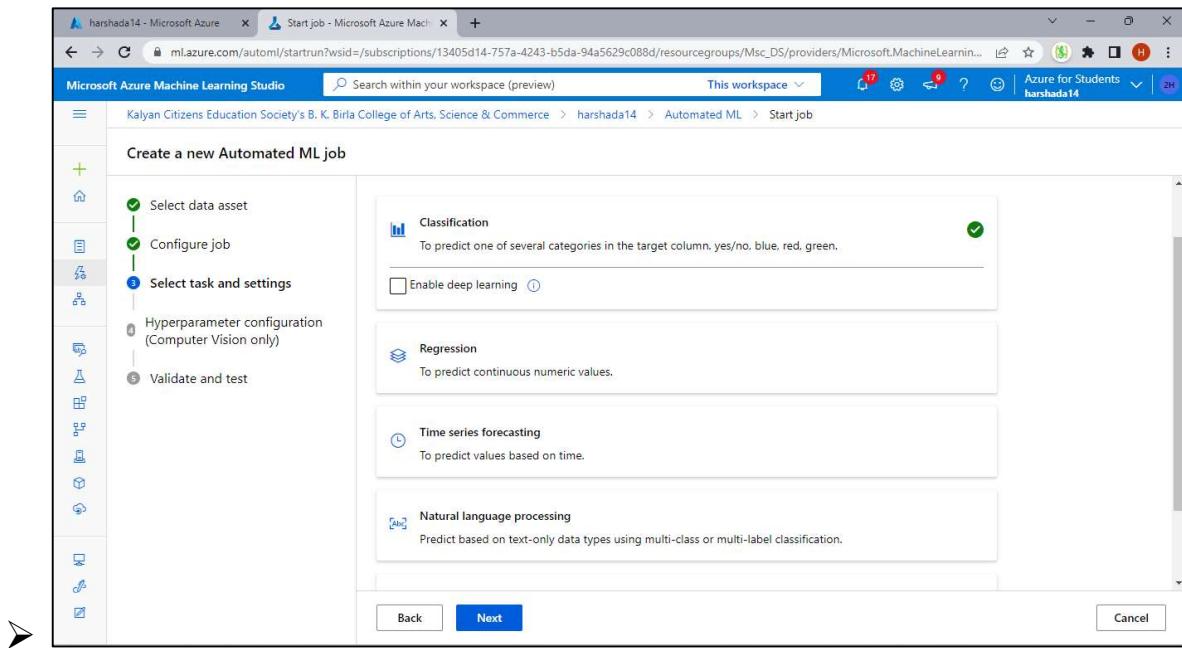
- Keep details of setting ahe schema as it is.





- click on PotatoPrice2 > select target column > Validation Type : Auto > tab to Finish .





- status is running > go to the Model > keep checking models which is Trained .

Microsoft Azure Machine Learning Studio

Search within your workspace (preview) This workspace

Kalyan Citizens Education Society's B. K. Birla College of Arts, Science & Commerce > harshada14 > Automated ML > Pipelineforlinearregression > nifty_raisin_zkbmwdmc

nifty_raisin_zkbmwdmc * Running

Overview Data guardrails Models Outputs + logs Child jobs

Refresh Edit and submit (preview) Register model Cancel Delete Compare (preview)

Properties

Status: Running
Setting up the run

Created on: Dec 27, 2022 11:58 AM

Start time: Dec 27, 2022 11:58 AM

Compute target: harshada123

Name: AutoML_2813b661-b234-4520-8884-7118776ec0b8

Script name: --

Inputs

Input name: training_data
Dataset: PotatoPrice2:1

Best model summary

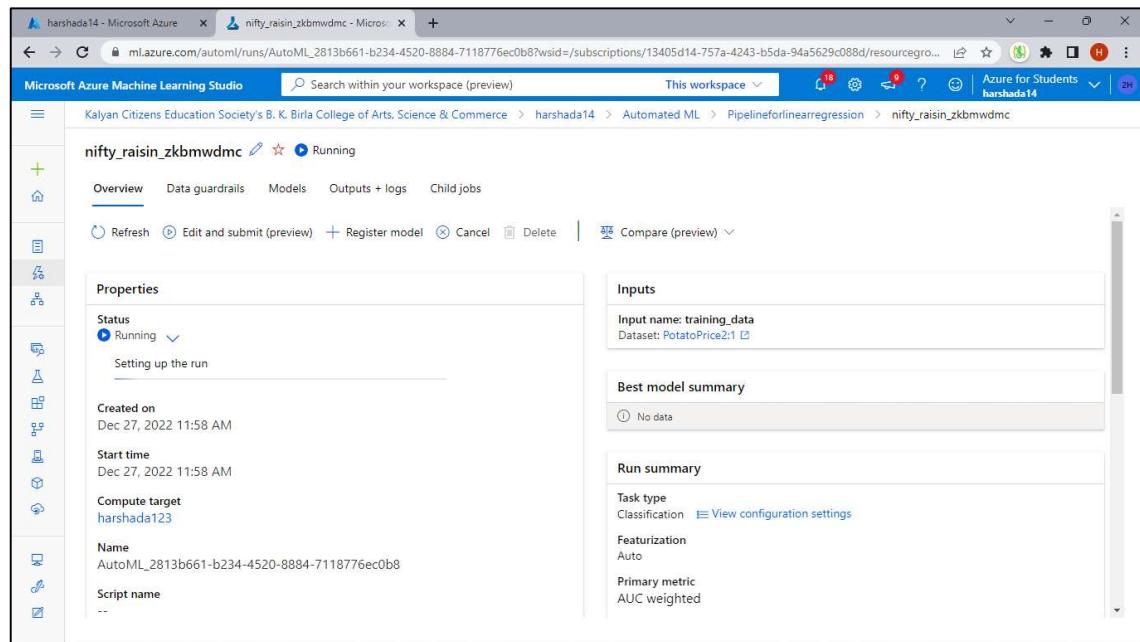
No data

Run summary

Task type: Classification View configuration settings

Featurization: Auto

Primary metric: AUC weighted



Microsoft Azure Machine Learning Studio

Search within your workspace (preview) This workspace

Kalyan Citizens Education Society's B. K. Birla College of Arts, Science & Commerce > harshada14 > Automated ML > Pipelineforlinearregression > nifty_raisin_zkbmwdmc

nifty_raisin_zkbmwdmc * Running

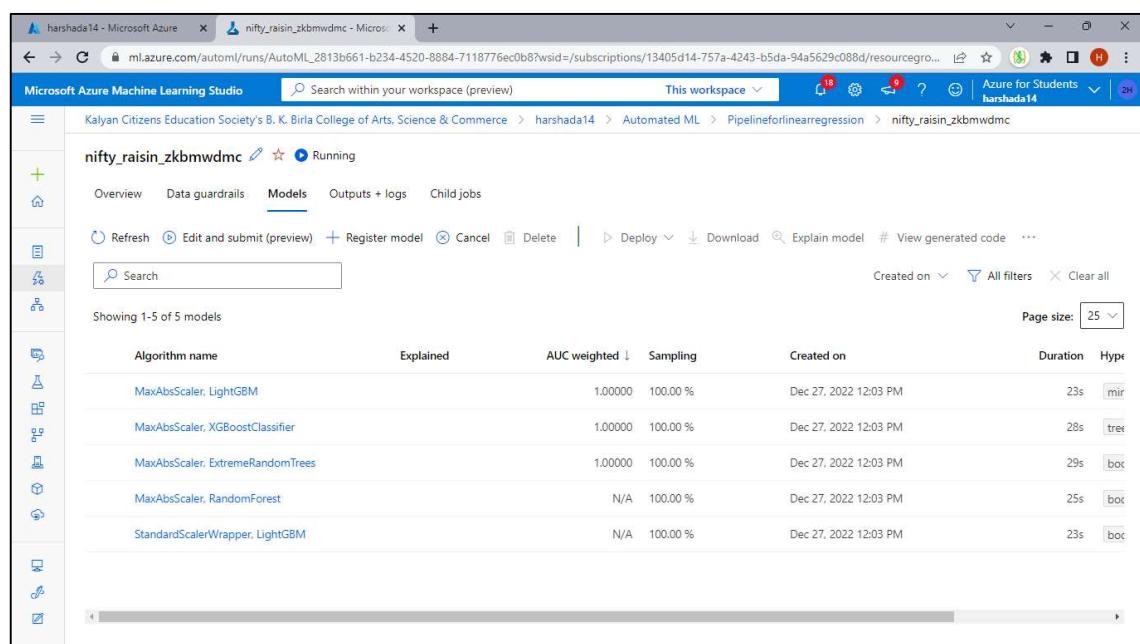
Overview Data guardrails Models Outputs + logs Child jobs

Refresh Edit and submit (preview) Register model Cancel Delete Deploy Download Explain model View generated code ...

Search

Showing 1-5 of 5 models

Algorithm name	Explained	AUC weighted	Sampling	Created on	Duration	Hyp
MaxAbsScaler, LightGBM		1.00000	100.00 %	Dec 27, 2022 12:03 PM	23s	mir
MaxAbsScaler, XGBoostClassifier		1.00000	100.00 %	Dec 27, 2022 12:03 PM	28s	tre
MaxAbsScaler, ExtremeRandomTrees		1.00000	100.00 %	Dec 27, 2022 12:03 PM	29s	box
MaxAbsScaler, RandomForest		N/A	100.00 %	Dec 27, 2022 12:03 PM	25s	box
StandardScalerWrapper, LightGBM		N/A	100.00 %	Dec 27, 2022 12:03 PM	23s	box



➤ Status complete.

➤ After this delete the compute cluster .

Name	State	Size	Location
harshada123	Deleting	STANDARD_DS12_V2	eastus

Made by Harshada Patil