MLOPs Assignment Report

Problem Statement:

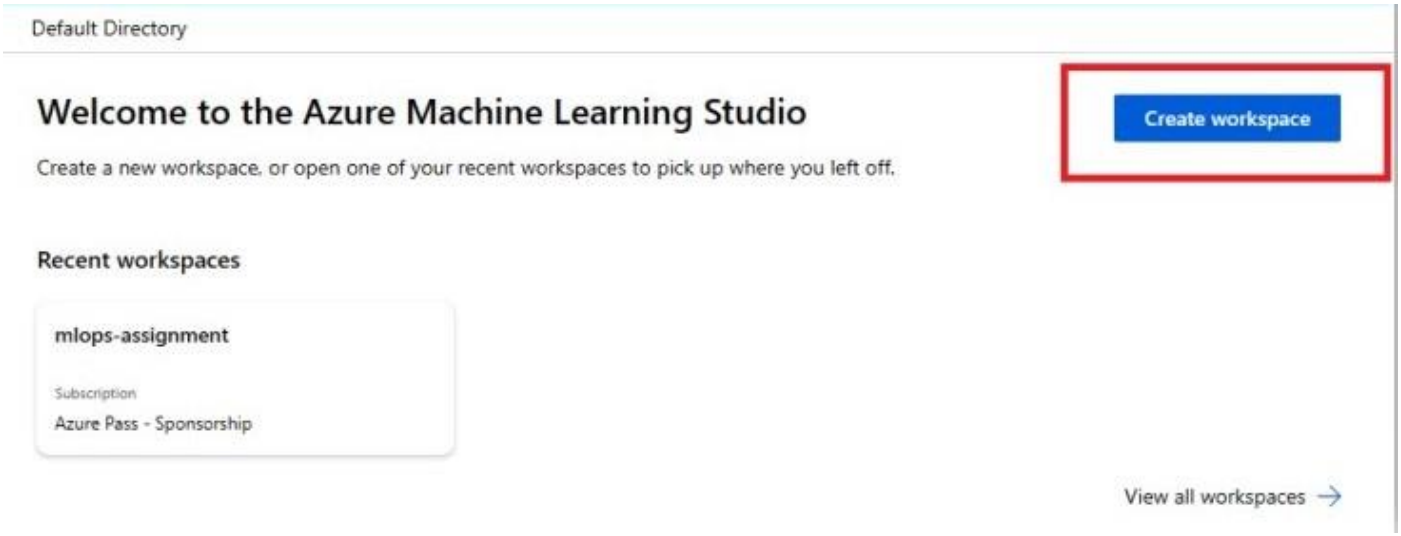
The company wants you to train this data set and deploy the best ML model using Azure ML tools.

Following are the tasks which are expected:

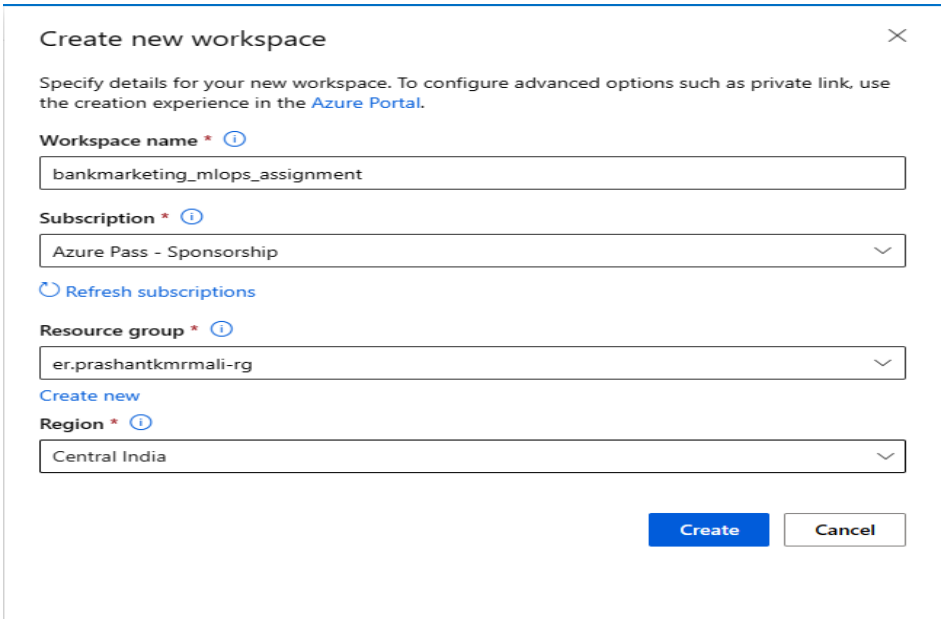
1. Go to Azure Portal. Create a Machine Learning Space to use Azure Machine Learning Model.
2. Upload Bank_Marketing data set (provided).
3. Train the uploaded data set using Azure Automated ML.
4. Finally, create a pipeline to run the model.

1. **Go to Azure Portal. Create a Machine Learning Space to use Azure Machine Learning Model.**

Have created a Machine Learning workspace by visiting, **ml.azure.com,** (See the attached screenshot)



Post, clicking on, " Create Workspace ", Workspace name, Resource group, and region selected.

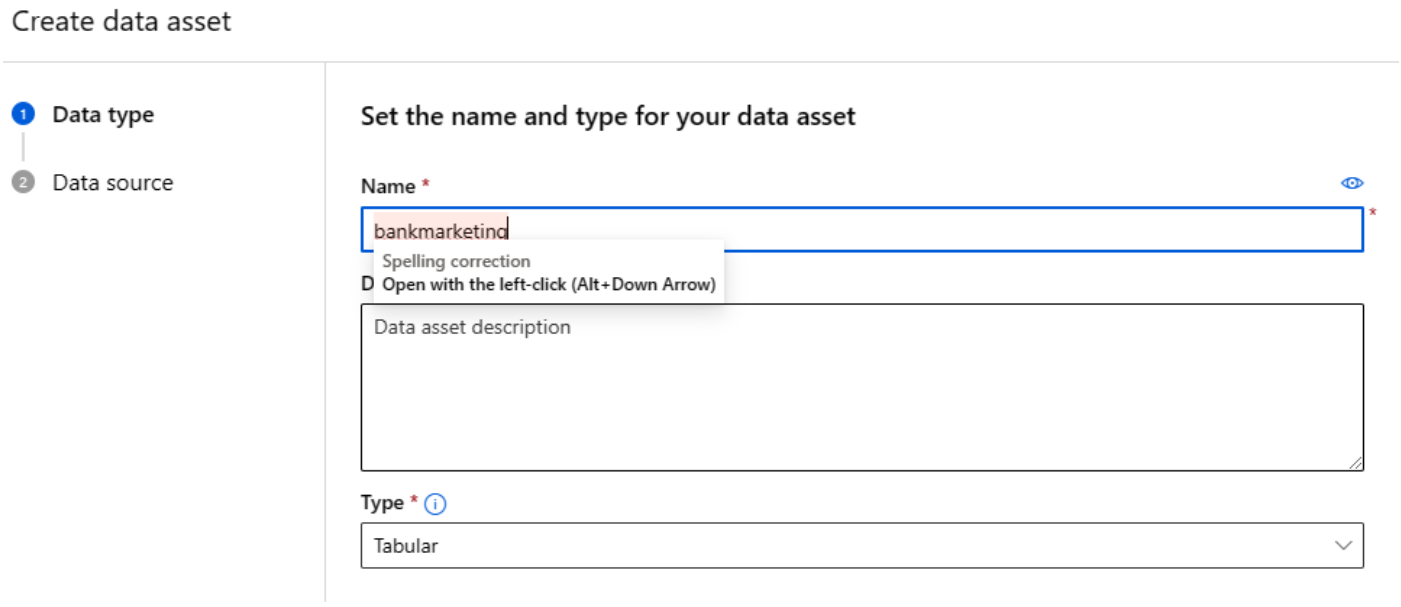


Workspace takes around 3-5 minutes to get finalized, however, to move forward, we have to do few things to create an experiment with shared Dataset (bankmarketing_train-2) using Azure Automated ML and pipeline – workflow.

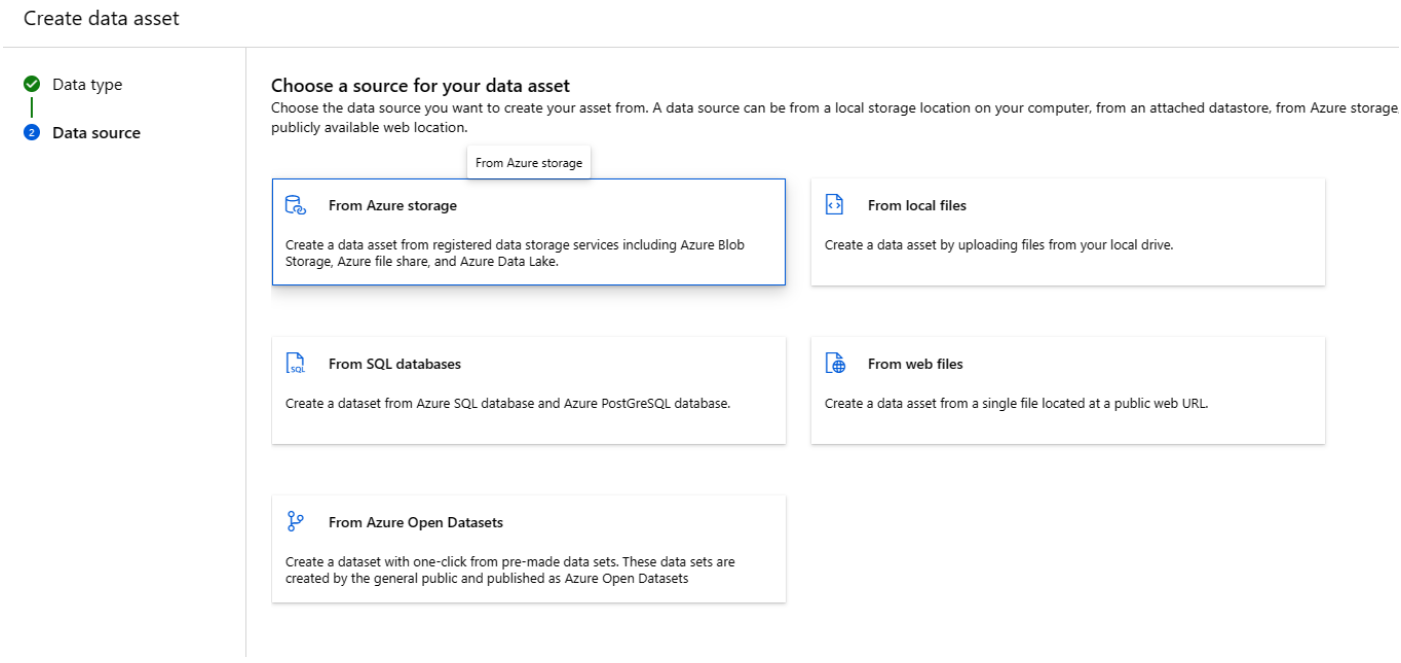
- Create blob storage to upload the dataset
- Then, upload the Dataset,
- Create a compute instance
- Then, we can create an Azure Automated ML job with the uploaded Dataset
- We can also create a pipeline – workflow

2. Upload Bank_Marketing data-set (provided).

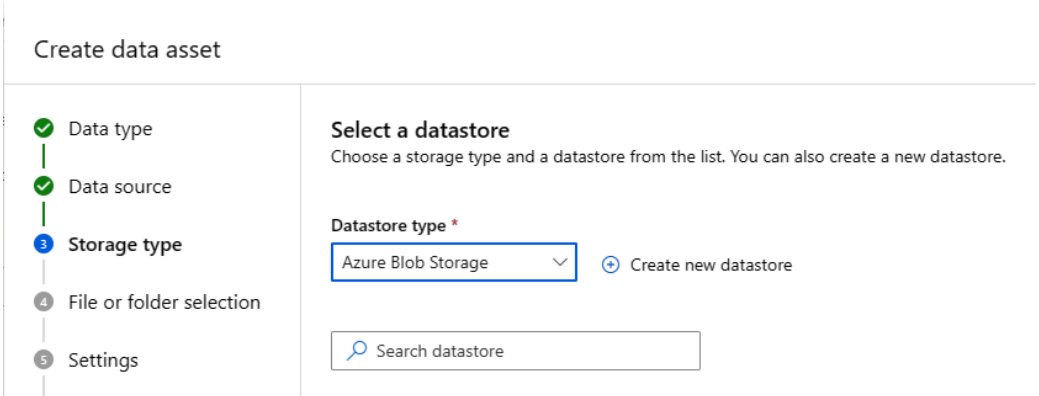
a. Creating a data asset: By clicking on, Data asset under the **Asset section**



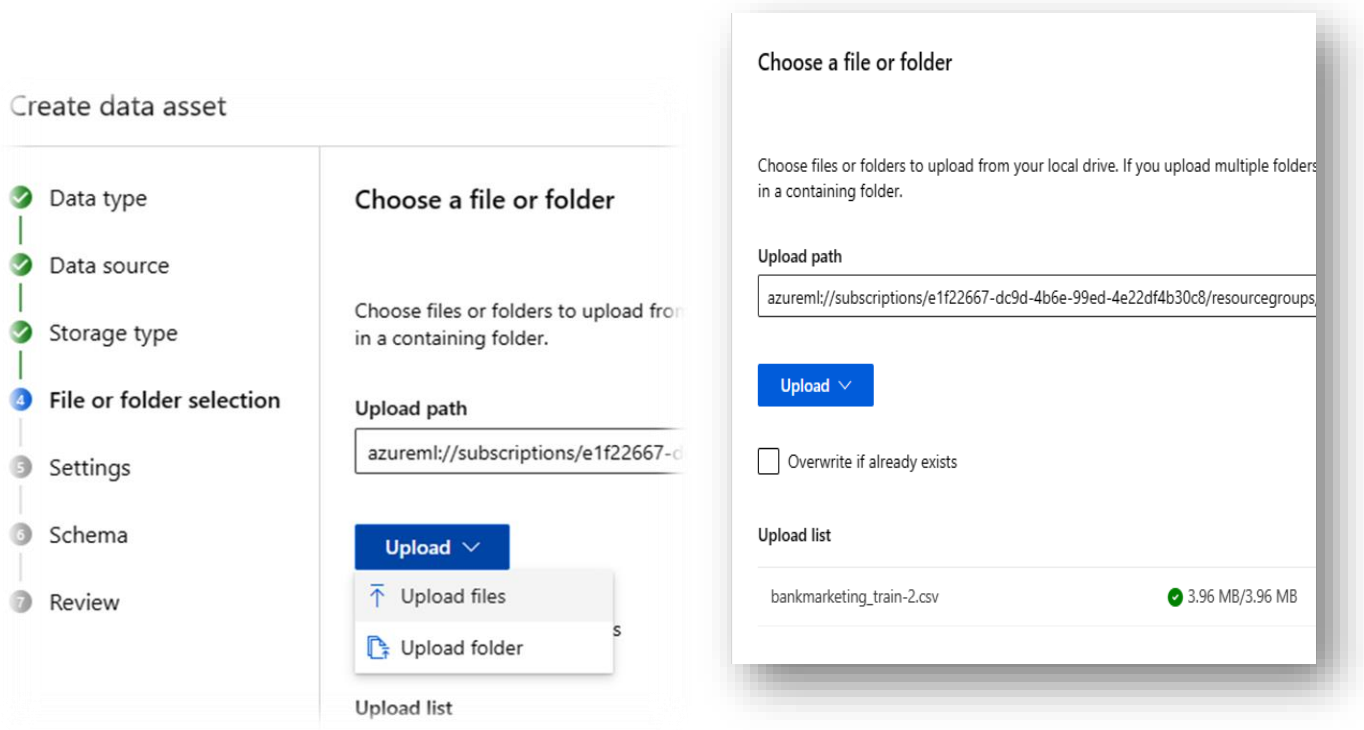
b. Data Source: Data source selected as, **From local files**



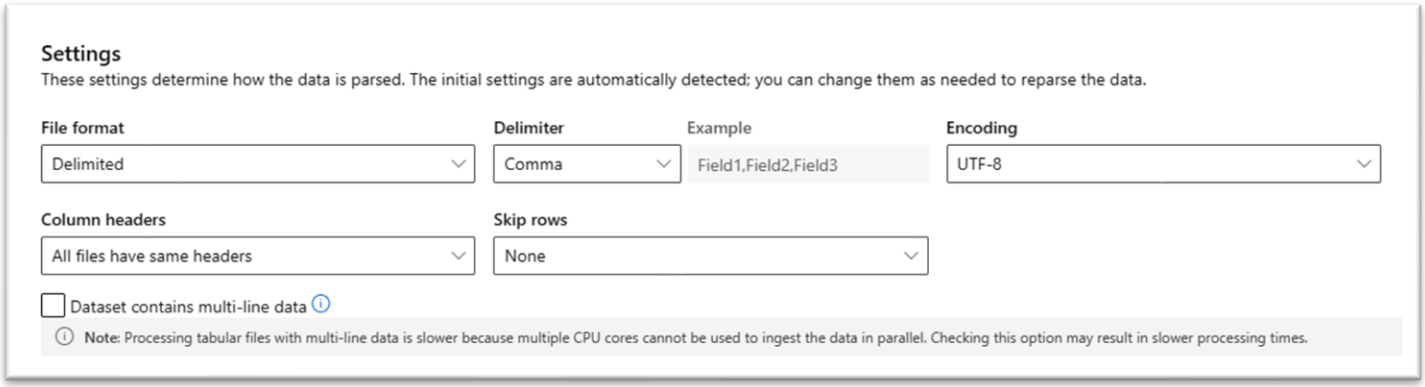
c. Select a datastore: I choose **Azure Blob Storage**



d. Choose to upload files, by clicking **Upload >> Upload files >> Window pop-up, to locate the file, then select**



e. Preview of the uploaded Dataset appears and some setting related to it, I keep it, **Default.**



f. After **Schema,** I am at the **Review** part, where all the related details are visible, i.e., Data type, Data source with location, and related settings are shared.

After uploading the dataset, I created a compute instance to run the Automated ML job or to create pipe line work flow.

3. Train the uploaded data set using Azure Automated ML.

To create an Azure Automated ML job for the binary classification as the target column ‘y’ has ‘yes’ and ‘no’ to predict, I simply clicked on **Start Now** under the **Home tab** or try another way >> **Automated ML** under the **Authoring section** and select **New Automated ML job.**

However, I have done all the processes required and the job created and trained **59 Models** in a total of 1-hour duration. The final model is trained with ‘VotingEnsemble’

I have attached all the relevant screenshots inside a folder named **MLOps_Assignment_Screenshots.**

Also, The Google drive link for the best model obtained with the Azure Automated ML:

https://drive.google.com/drive/folders/1vHtm67OVdviubF2X-pms662hXN9o857Z?usp=sharing

4. Finally, create a pipeline to run the model.

Using the **Designer,** I have created a designer pipeline – workflow to train the model for which screenshots are attached in the same folder.

- Then, I created, the Inference Pipeline >> Real-time pipeline and submitted it.
- After a few minutes, the pipeline was created and then, I deployed it.