

# Microsoft Azure cloud console project approach

**Services used from Azure :** Virtual Machine(VM) Compute instances , Machine Learning from Analytics , Machine Learning Studio.

1: Creating a machine learning workspace under analytics division of the cloud by creation of resource group (**Creating resource group is very important in this step**).

Azure Machine Learning

Default Directory

+ Create Manage view Refresh Export to CSV Open query Assign tags Delete

Filter for any field... Subscription equals all Resource group equals all Location equals all Add filter

No grouping List view

Name	Resource group	Location	Subscription
MLdata_analysis	machinelearning-kamal	West US	Azure cloud explorer

Resource group

[machinelearning-kamal](#)

Location

West US

Subscription

[Azure cloud explorer](#)

Subscription ID

5f5a8c88-783c-4974-a343-ccbcbde95e6d

Storage

[mldataanalaysi2608789975](#)

Studio web URL

<https://ml.azure.com/?tid=e0c8e694-808b-4d37-9ab4-2e3824d1d7d9...>

Registry

[Kamalm](#)

Key Vault

[mldataanalaysi8605420089](#)

Application Insights

[mldataanalaysi5396005264](#)

MLflow tracking URI

azureml://westus.api.azureml.ms/mlflow/v1.0/subscriptions/5f5a8c88-...

2 : Machine learning workspace has been registered and deployed at the expected time.

✓ **Deployment succeeded**



Deployment 'Microsoft.MachineLearningServices' to resource group 'machinelearning-kamal' was successful.

Microsoft Azure Machine Learning Studio


Default Directory > MLdata\_analysis > Notebooks

**Notebooks**

Files Samples

Users

kamalesh.sselvaraj



Notebooks allow users to work with files, folders and Jupyter Notebooks directly in the workspace.

Browse your files and shared files with easy collaboration tools. You can also start with a Jupyter Notebook in the workspace with easy access to all workspace assets including experiment details, datasets, models and more. [Learn more](#)

[+ Create](#) [Terminal](#)

[View Azure Machine Learning tutorials](#)  
[View Release Notes to learn more about the latest features](#)  
[Notebooks documentation](#)

3 : After the ML model registration has been deployed , creating the virtual machine for taking an authorization in the services that have been used for this project.

[All services >](#)

Create a virtual machine ...



**Basics** Disks Networking Management Advanced Tags Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

**Project details**

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \*

Resource group \*   
[Create new](#)

**Instance details**

Virtual machine name \*

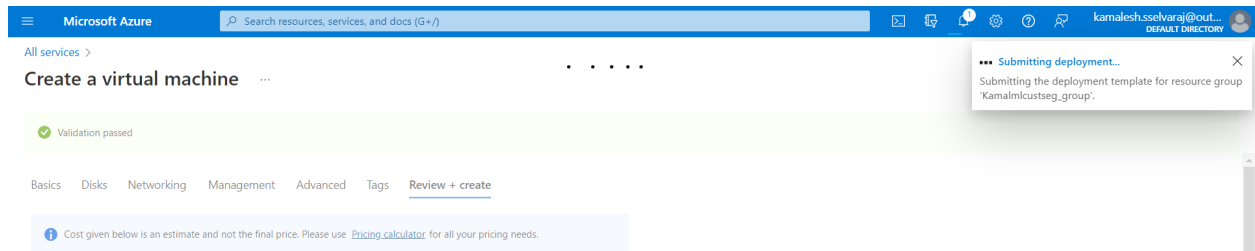
Region \*

Availability options

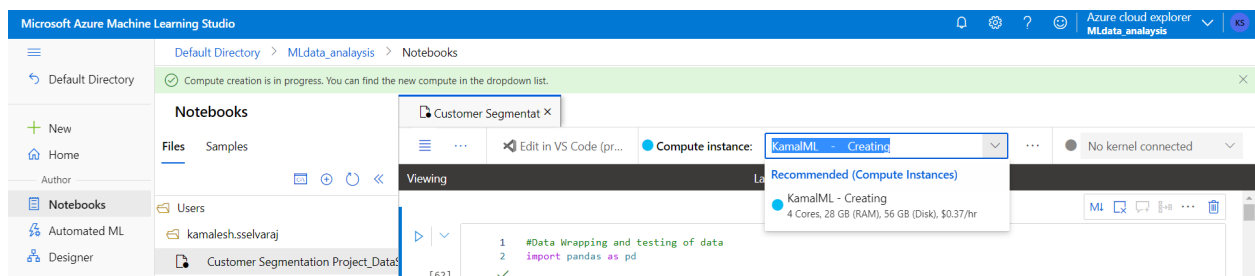
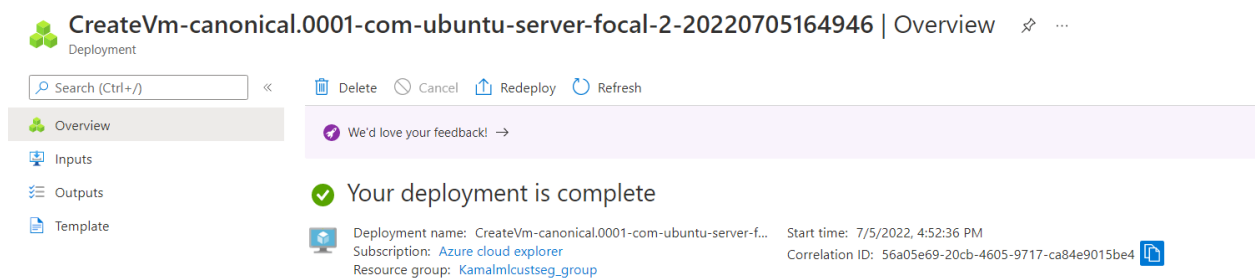
Security type

[Review + create](#) [Previous](#) [Next: Disks >](#)

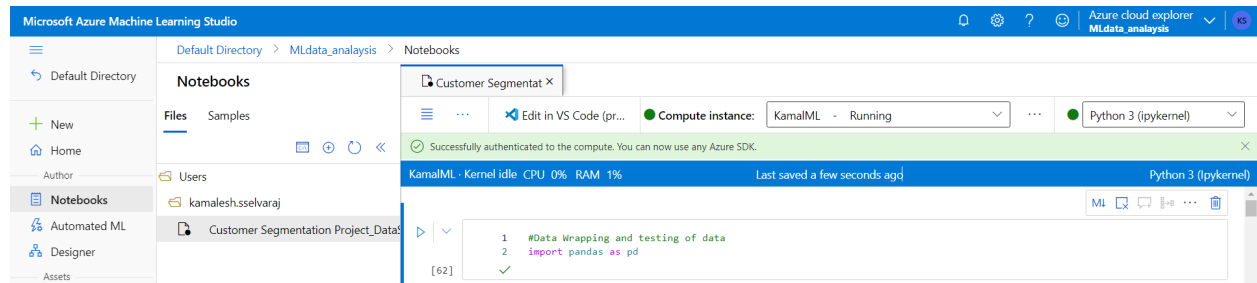
4 : Virtual machine that has been created from the compute instances has been deployed and extracted the deployment log details in the JSON format.



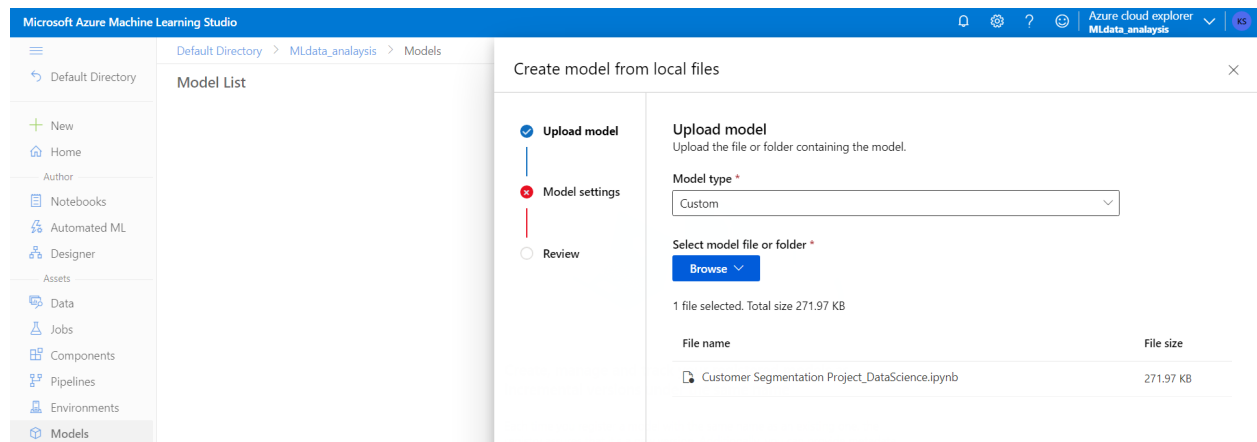
5 : After the VM has been deployed , now moving onto Machine Learning Studio as a web version for registering the ML model that has been already developed and for deployment operations.



6 : Registering the ML model of customer segmentation in the Azure ML studio with setting up the configurations like size and authentication details.



7 : Model is getting ready by adding the necessary configuration for the smooth running of the process.



## Create model from local files



✓ Upload model

✓ Model settings

✓ **Review**

### Review

Review or make changes to your selections.

#### Upload model



Model type  
Custom

Files  
1 file selected. Total size 271.97 KB

Customer Segmentation  
Project\_DataScience.ipynb

#### Model settings



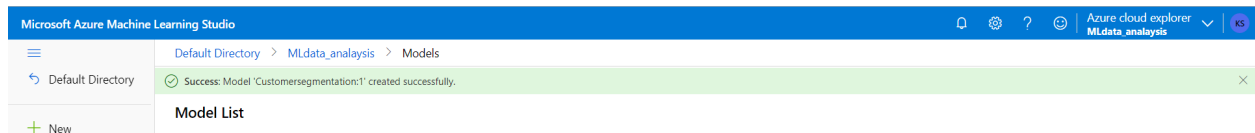
Name  
Customersegmentation

Description  
Customer Segmentation is the process of dividing customers into groups based on common characteristics so companies can market to each group effectively and appropriately.

Version  
1

Tags  
Clustering : 90

8 : Model has been registered successfully and compute instances have also been created for making the deployment process as expected.



9 : Now moving onto the final and main part of this project, deploying the model into the version of real time endpoint depending upon the endpoint versions. Allocating the traffic service upto 100% for handling the rollout blue/green deployments as safe by balancing requests between different instances.

The screenshot displays the Microsoft Azure Machine Learning Studio interface. The top navigation bar shows the path: Default Directory > MLdata\_analysis > Models > Customersegmentation:1. The left sidebar contains a navigation menu with options like New, Home, Author, Notebooks, Automated ML, Designer, Assets, Data, Jobs, Components, Pipelines, Environments, Models (selected), Endpoints, Manage, Compute, Datastores, and Linked Services.

The main content area is titled 'Customersegmentation:1' and includes tabs for Details, Versions, Artifacts, Endpoints, Data, Explanations (preview), Fairness (preview), and Responsible AI (preview). The 'Details' tab is active, showing a 'Deploy' button with a dropdown menu. The dropdown menu has three options: 'Deploy to real-time endpoint' (selected), 'Deploy to batch endpoint', and 'Deploy to web service'. A tooltip for 'Deploy to real-time endpoint' is visible, stating 'Deploy the model using the new real-time endpoint wizard'.

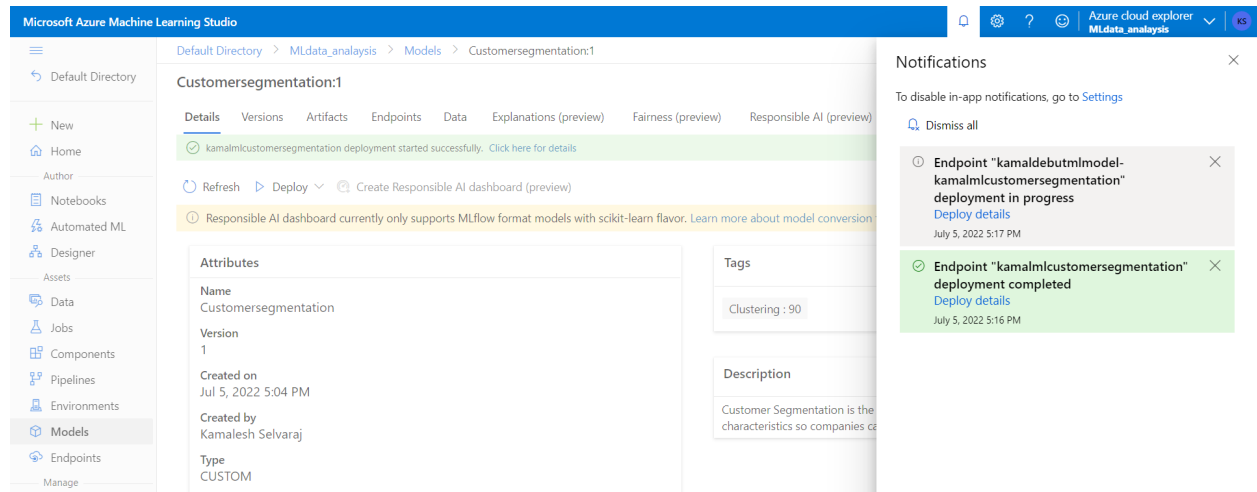
Below the dropdown, a table lists the model's attributes:

Attribute	Value
Name	Custom
Version	1
Created on	Jul 5, 2022 5:04 PM
Created by	Kamalesh Selvaraj
Type	CUSTOM
Job (Run ID)	--
Asset ID	azureml://locations/westus/workspaces/5d162718-9596-446f-aa2b-09c511e53526/models/Customersegmentation/versions/1

On the right, the 'Tags' section shows 'Clustering : 90'. The 'Description' section states: 'Customer Segmentation is the process of dividing customers into groups based on common characteristics so companies can market to each group effectively and appropriately.'

Below the main content area, a 'Create deployment' dialog box is open. It shows a progress bar with steps: Endpoint (checked), Model (checked), Deployment (checked), Environment (checked), Compute (checked), Traffic (checked), and Review (unchecked). The 'Traffic' step is currently active, showing a 'Traffic allocation %' slider set to 100% for the deployment named 'kamaldebitmlmodel'. The 'Total traffic percentage' is also shown as 100%.

10 : Finally the machine learning model that I had created in my machine learning notebook has been deployed into the public version of Azure Cloud Machine Learning Migration service with success message at the greater time complexity along with its endpoint configurations.



**Machine Learning Model : Customer Segmentation Model using Unsupervised Machine Learning is been deployed successfully**

**Contributors of this cloud work :**

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