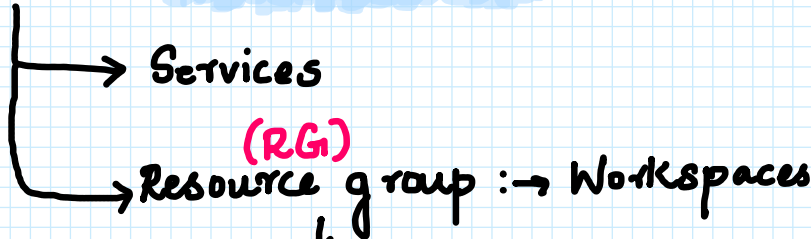
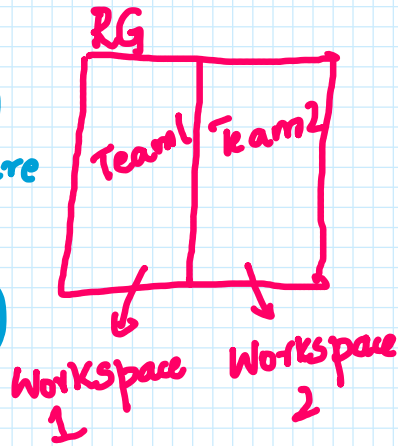


Azure  $\xrightarrow{\text{is a}}$  Cloud Platform



Group of available resources

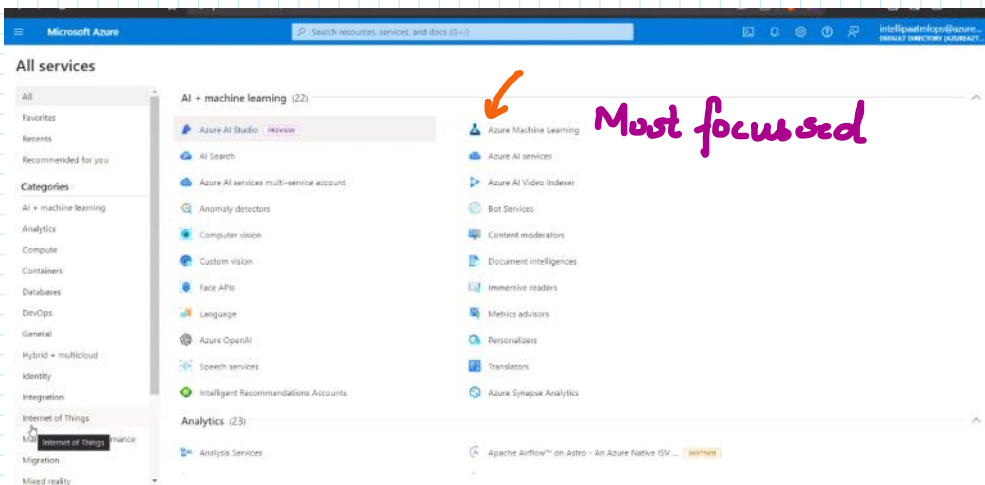
(Like a building with rooms where we can perform different tasks)

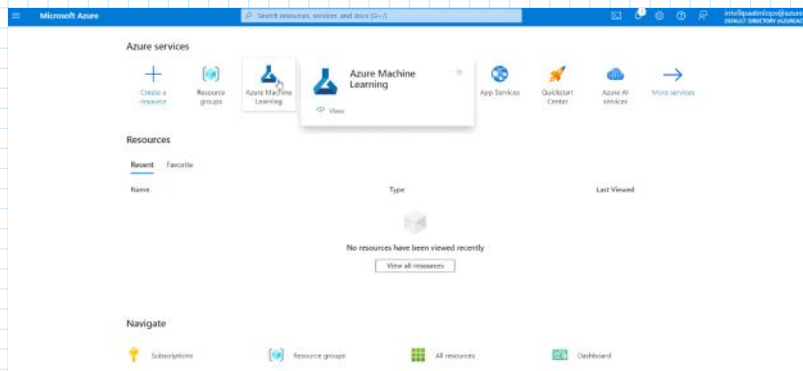
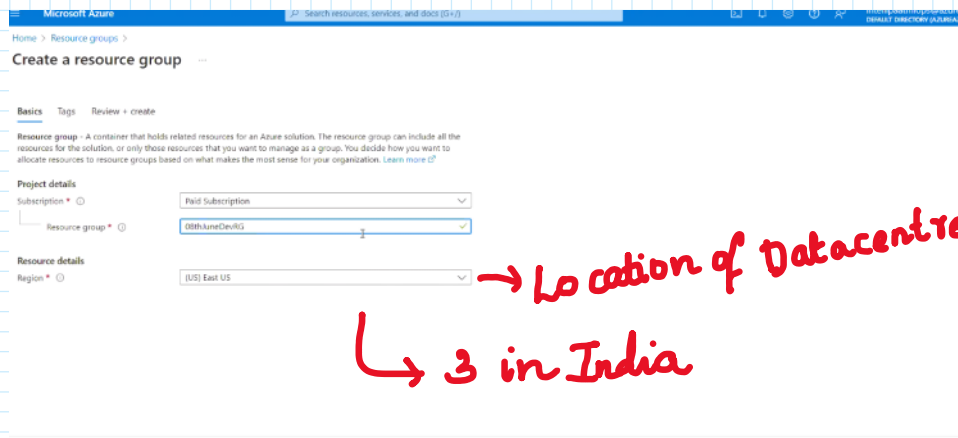
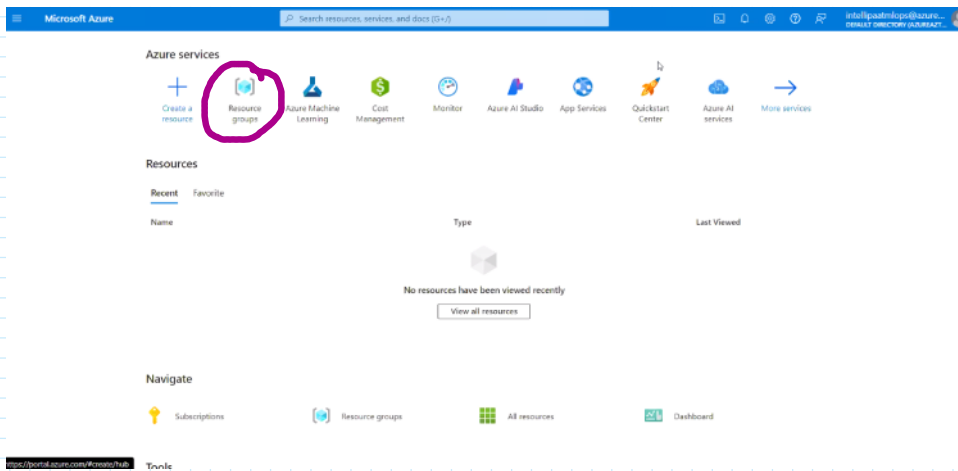


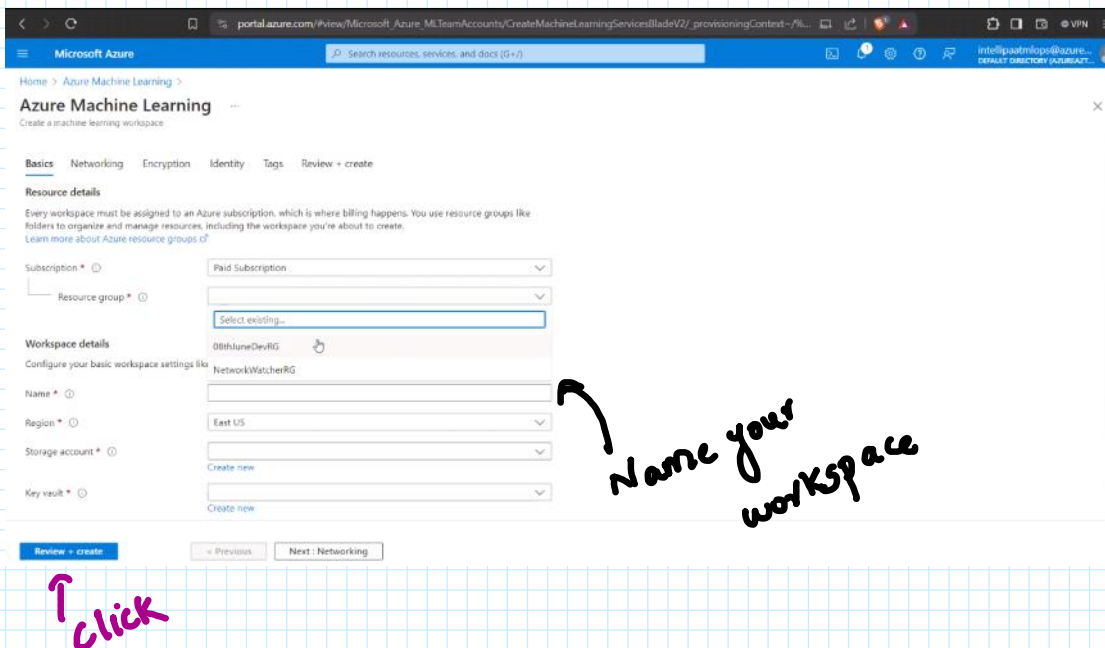
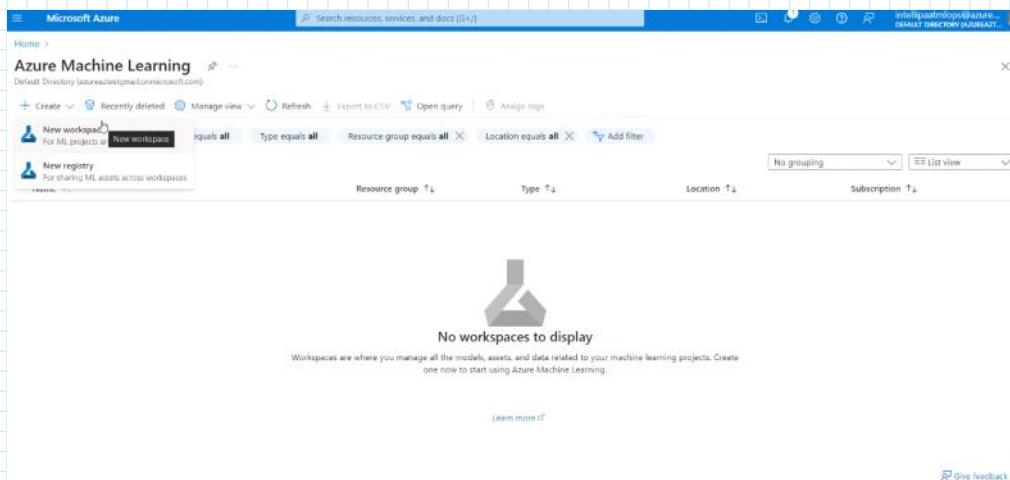
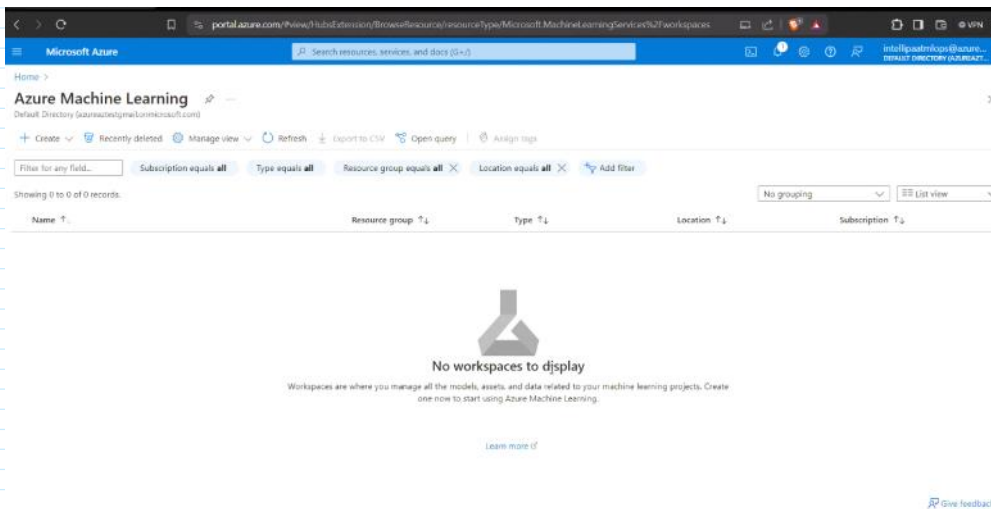
Why do we need workspaces?

> **MLStudio** – a service that helps to do any ML activity

powered by  $\downarrow$  Computer, CPU or RAM







Home > Azure Machine Learning >

## Azure Machine Learning

Create a machine learning workspace

Validation passed

Resource group	CommonSecurity
Region	Central India
Name	DevWorkspacefor8thJune
Storage account	(new) devworkspacefo2849081517
Key vault	(new) devworkspacefo7174646357
Application insights	(new) devworkspacefo1353930782
Container registry	None

**Networking**

Connectivity method	Enable public access from all networks
Network isolation	Public

**Encryption**

Encryption type	Microsoft-managed keys
-----------------	------------------------

**Identity**

Identity type	System assigned
Enable HBI Flag	Disabled

**Create** < Previous Next > Download a template for automation

Click on Create  
Takes ~ 3 mins  
approx

<https://learn.microsoft.com/en-us/azure/machine-learning/overview-what-is-azure-machine-learning?view=azureml-api-2>

Microsoft Azure

Search resources, services, and docs (3+)

Home > Azure Machine Learning >

## Azure Machine Learning

Default Directory (source: design@unimicrosoft.com)

+ Create Recently deleted

Filter for any field...

Name ↑

DevWorkspacefor8thJune

DevWorkspacefor8thJune

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Events

Settings

Monitoring

Automation

Support + troubleshooting

Download config.json Delete

Essentials

Resource group	CommonSecurity
Location	Central India
Subscription	Paid Subscription
Storage	devworkspacefo2849081517

Studio web URL

<https://ml.azure.com/?tid=5c71a6b2-0444-40fe-bb18-c1b6c0d4c9d9>

Container Registry

None

Key Vault

devworkspacefo7174646357

Application Insights

devworkspacefo1353930782

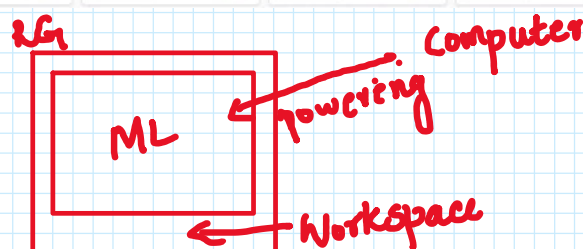
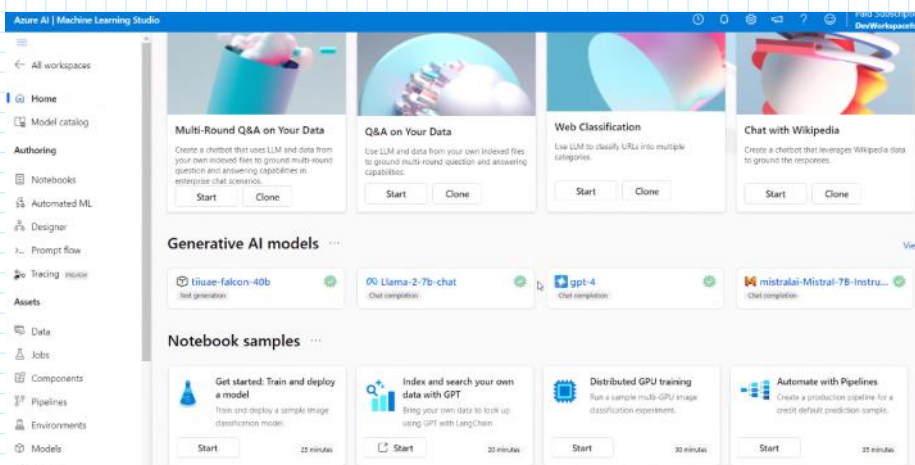
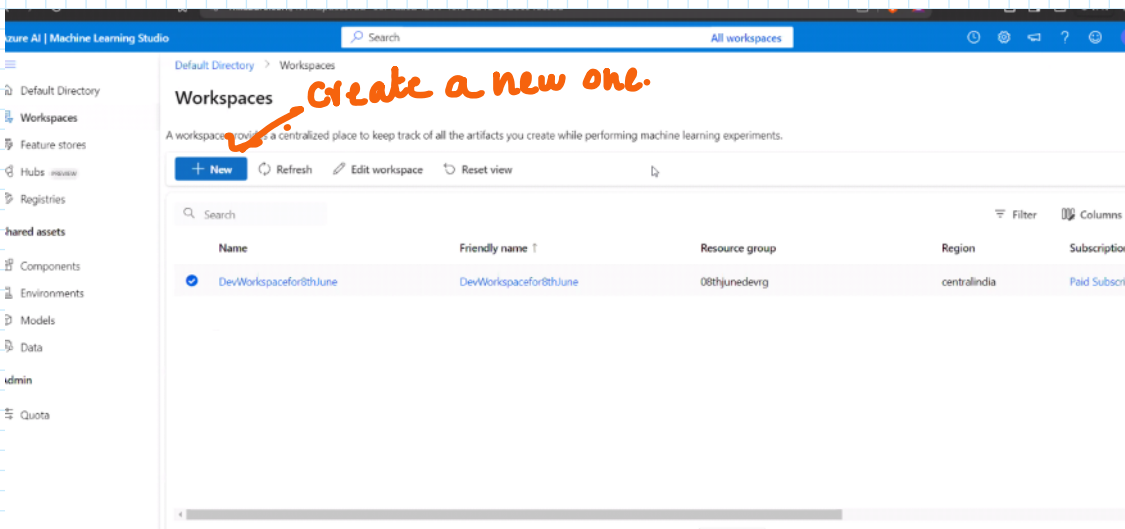
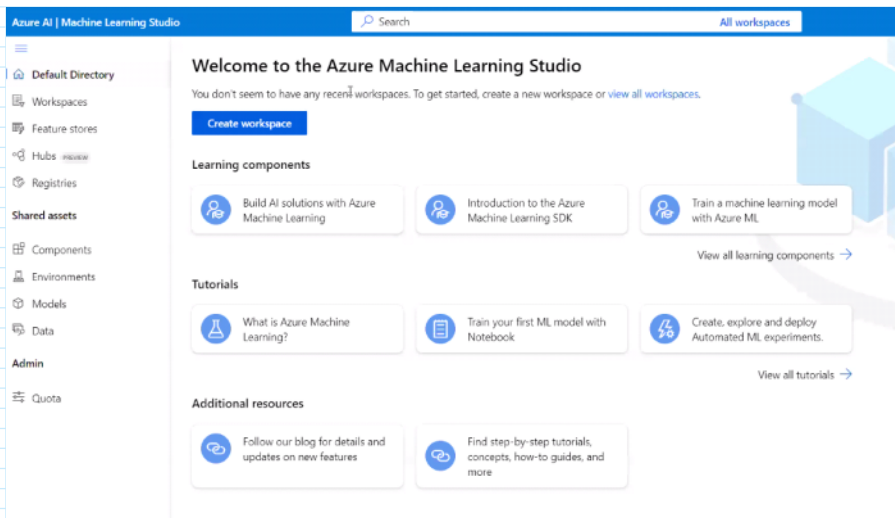
MiFlow tracking URI

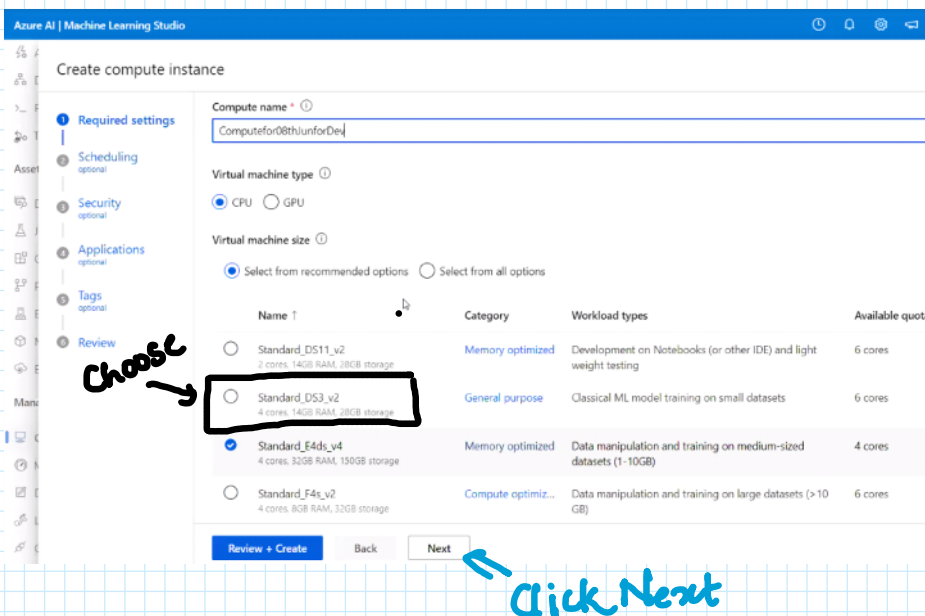
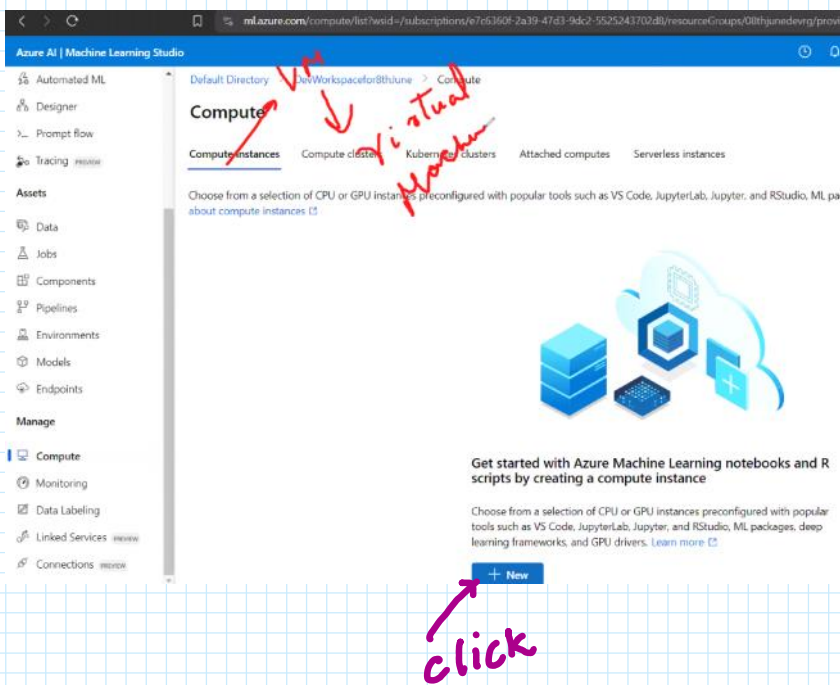
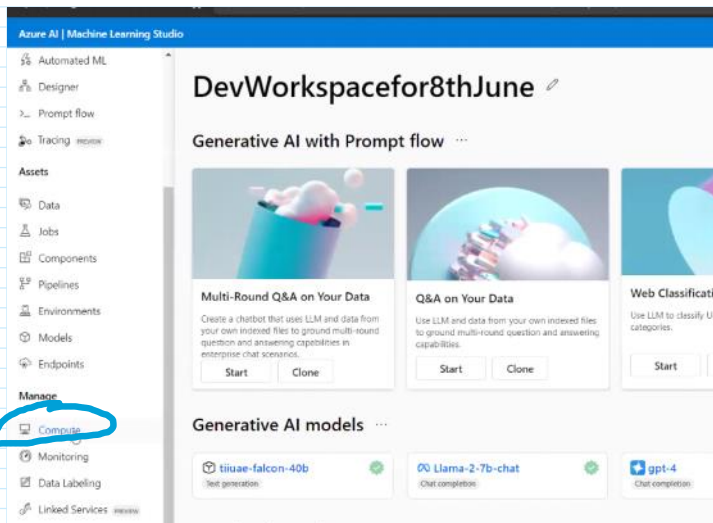
azureml://centralindia.api.azureml.ms/miFlow/v1.0/subscriptions/e...

JSON View

Work with your models in Azure Machine Learning Studio

Click on Launch Studio





Azure AI | Machine Learning Studio

### Create compute instance

Required settings

Scheduling

Security

Applications

Tags

Review

Scheduling

Schedule the compute to start or stop on a recurring basis

Auto shut down

☒ Enable idle shutdown ⓘ

Shutdown after   of inactivity.

Customized schedules ⓘ

Review + Create

Back

Next

Mention time to shutdown

click

### Create compute instance

Required settings

Scheduling

Security

Applications

Tags

Review

Review

Review or make changes to your job before submission. [Download a template for automation.](#)

Required settings

Review

Compute name  
Computefor08thJunforDev

Virtual machine  
Standard\_DS3\_v2  
4 cores, 14GB RAM, 28GB storage

Virtual machine type  
CPU

Scheduling

Review

ⓘ Auto shutdown enabled by default

Auto shutdown  
After 90 minutes of inactivity

Start up and shutdown schedule  
--

Security

Review

Enable SSH  
no

Enable managed identity  
no

Create

Back

click  
Takes time



ml.azure.com/compute/list?wsid=/subscriptions/e7c6360f-2a39-47d3-9dc2-5525243702d8/resourceGroups/08thJuneDev

Azure AI | Machine Learning Studio

Default Directory > DevWorkspacefor8thJune > Compute

### Compute

Compute instances    Compute clusters    Kubernetes clusters    Attached computes    Serverless instances

Choose from a selection of CPU or GPU instances preconfigured with popular tools such as VS Code, JupyterLab, Jupyter, and RStudio [about compute instances](#)

**+ New**    Refresh    Start    Stop    Restart    Schedule and idle shutdown    Delete

Search

Name	☆	State	Idle shutdown ⓘ	Applications ⓘ
Computefor08thJuneforDev		Creating	--	

Link to Dataset

<https://drive.google.com/file/d/1EwKS2QJaemAadIVHRCeyglPIkU7IYMYA/view>

ml.azure.com/compute/list?wsid=/subscriptions/e7c6360f-2a39-47d3-9dc2-5525243702d8/resourceGroups/08thJuneDev/providers/Micr...

Azure AI | Machine Learning Studio

Default Directory > DevWorkspacefor8thJune > Compute

### Compute

Compute instances    Compute clusters    Kubernetes clusters    Attached computes    Serverless instances

Choose from a selection of CPU or GPU instances preconfigured with popular tools such as VS Code, JupyterLab, Jupyter, and RStudio, ML packages, deep learning [about compute instances](#)

**+ New**    Refresh    Start    Stop    Restart    Schedule and idle shutdown    Delete    Reset view

Search

Name	☆	State	Idle shutdown ⓘ	Applications ⓘ
Computefor08thJuneforDev		Creating	--	

ml.azure.com/data?wsid=/subscriptions/e7c6360f-2a39-47d3-9dc2-5525243702d8/resourceGroups/08thJuneDev/providers/Micr...

Azure AI | Machine Learning Studio

Default Directory > DevWorkspacefor8thJune > Data

### Data

Data assets    Datastores    Dataset monitors    Data import    Data connections

**+ Create**    Refresh    Archive    Reset view    Show latest version

Search

Name	☆	Source	Version	Created on	Modified on
------	---	--------	---------	------------	-------------

Give a name



Create data asset

1 Data type

2 Data source

Set the name and type for your data asset

Name \*

DataForMLOPSDV1

Description

We are working on a weather data from Australia

Type \*

Tabular

Back

Next

Create data asset

1 Data type

2 Data source

Choose a source for your data asset

Choose the data source you want to create your asset from. A data source can be from a local storage location on your computer, from an attached datastore, from Azure publicly available web location.

From Azure storage

From local files

From SQL databases

From web files

From Azure Open Datasets

Back

Create

Choose

Many available datasets

Create data asset

1 Data type

2 Data source

3 Destination storage type

4 File or folder selection

5 Settings

6 Schema

7 Review

Select a datastore

Choose a storage type and a datastore to upload your data to in the next step. You can also create a new datastore for your data first.

Datastore type \*

Azure Blob Storage

Create new datastore

Search datastore

Name	Storage name	Created on
workspaceblobstore	devworkspacefo2849081517	Jun 8, 2024 8:38 PM
workspaceartifactstore	devworkspacefo2849081517	Jun 8, 2024 8:38 PM

<< < Page 1 of 1 > >> 25/Page

Back

Next

New Section 1 Page 9

Create data asset

Data type

Data source

Destination storage type

File or folder selection

Settings

Schema

Review

Choose a file or folder

Choose files or folders to upload from your local drive. If you upload multiple folders or files, they will be stored in a containing folder.

Upload path

azureml://subscriptions/e7c6360f-2a39-47d3-9dc2-5525243702d8/resourcegroups/08thjunedevrg/w...

Upload files or folder

Upload files

Upload folder

Upload list

File Types supported are delimited (i.e. csv, tsv), Parquet, JSON Lines, and plain text.

Back

Next

Click on next

Create data asset

Data type

Data source

Destination storage type

File or folder selection

Settings

Schema

Review

Settings

These settings determine how the data is parsed. The initial settings are automatically detected; you can change them as needed to reparse the data.

File format

Delimited

Delimiter

Comma

Example

Field1.Field2.Field3

Encoding

UTF-8

Column headers

All files have same headers

Skip rows

None

Dataset contains multi-line data

Note: Processing tabular files with multi-line data is slower because multiple CPU cores cannot be used to ingest the data in parallel. Checking this option may result in slower processing times.

Data preview

Date	Location	MinTemp	MaxTe...	Rainfall	Evapor...	Sunshine	WindG...	WindG...	WindDi...	WindDi...	WindS...	WindS...	Humidi...	Hu...
2008-12...	Albury	13.4	22.9	0.6	NA	NA	W	44	W	WNW	20	24	71	22
2008-12...	Albury	7.4	25.1	0	NA	NA	WNW	44	NNW	WSW	4	22	44	25
2008-12...	Albury	12.9	25.7	0	NA	NA	WSW	46	W	WSW	19	26	38	30
2008-12...	Albury	9.2	28	0	NA	NA	NE	24	SE	E	11	9	45	16
2008-12...	Albury	17.5	32.3	1	NA	NA	W	41	ENE	NW	7	20	82	33

Back

Next

Review

Cancel

Rain Tomorrow ← target

Create data asset

Data type

Data source

Destination storage type

File or folder selection

Settings

Schema

Review

Review

Review the settings for your data asset and make any changes as needed.

Data type

Name

DataForMLOPSDY1

Description

We are working on a weather data from Australia.

Type

tabular

Data source

Type

Local

File selection

Upload path

azureml://subscriptions/e7c6360f-2a39-47d3-9dc2-5525243702d8/resourcegroups/08thjunedevrg/workspaces/DevWorksp  
acefor08thjune/datastores/workspaceblobstore/paths/UV/2024-06-08\_152913\_UTC/weatherAUS.csv

File not selected

Schema

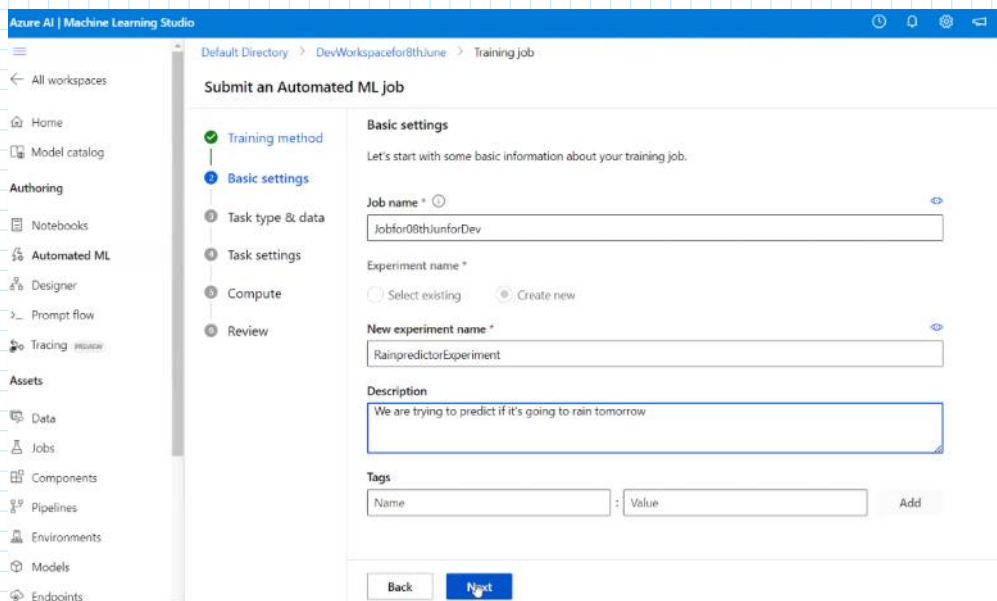
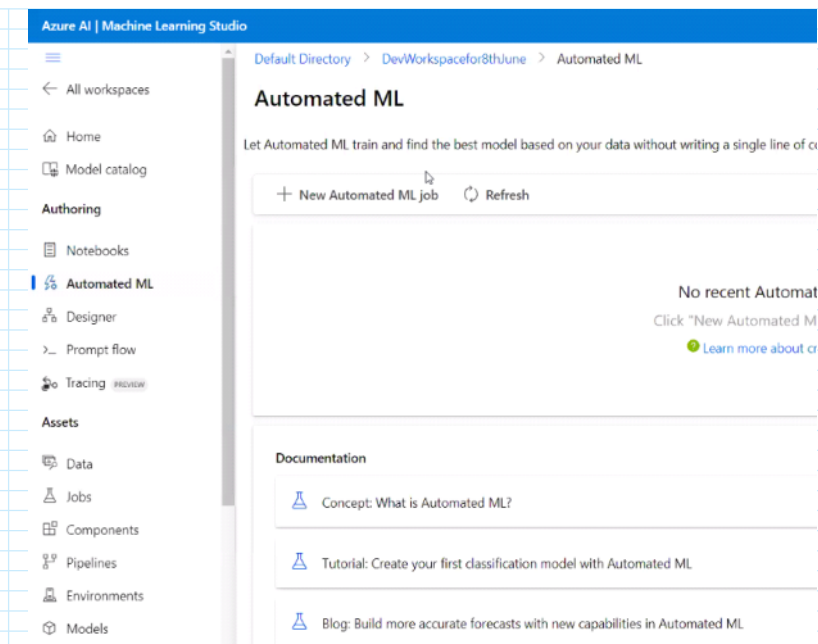
Date	Date
Location	String
MinTemp	Decimal
MaxTemp	Decimal
Rainfall	String

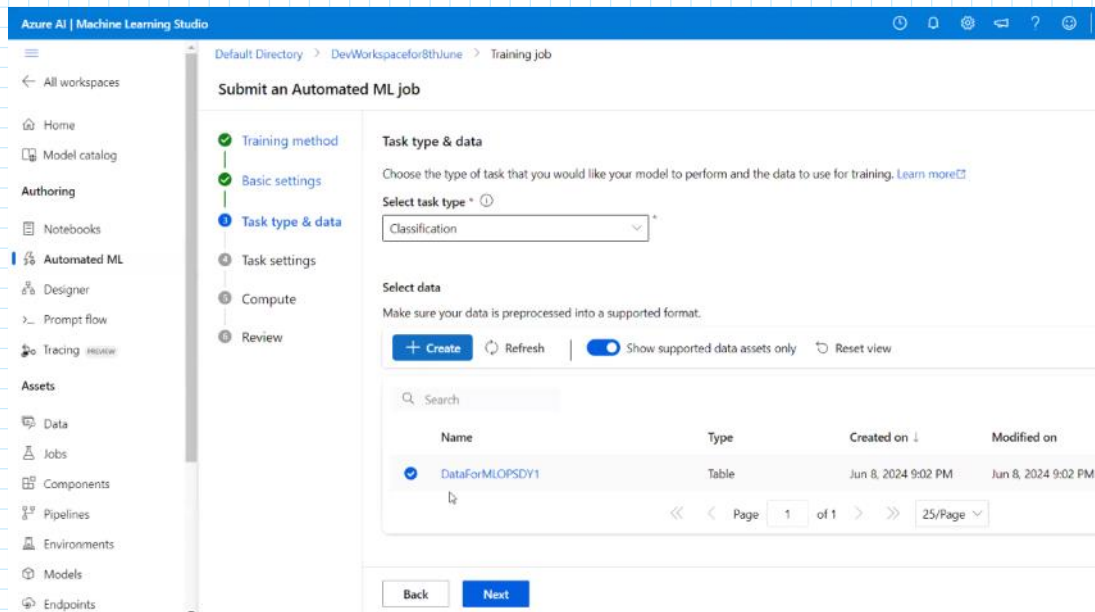
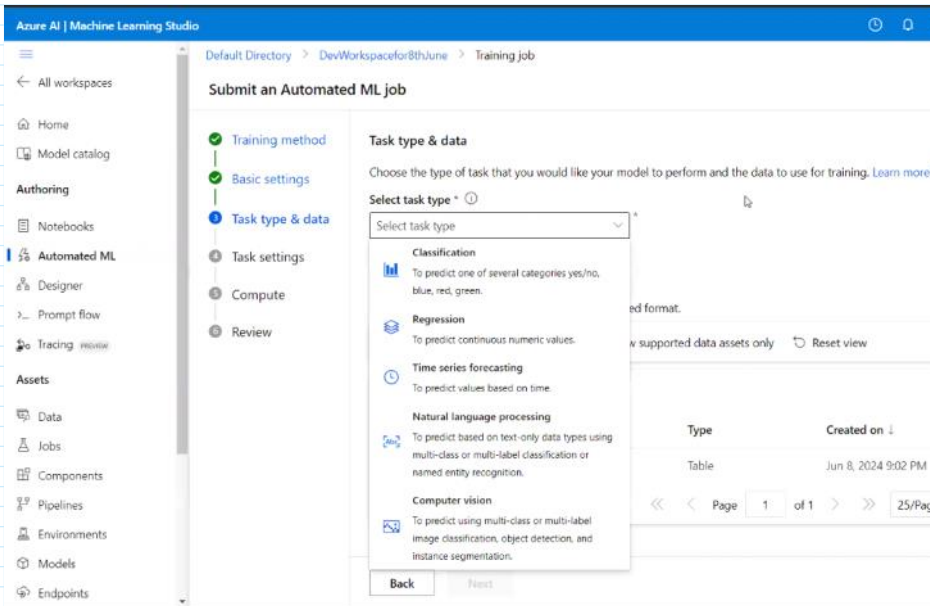
(showing 5 of 24 columns)

Back

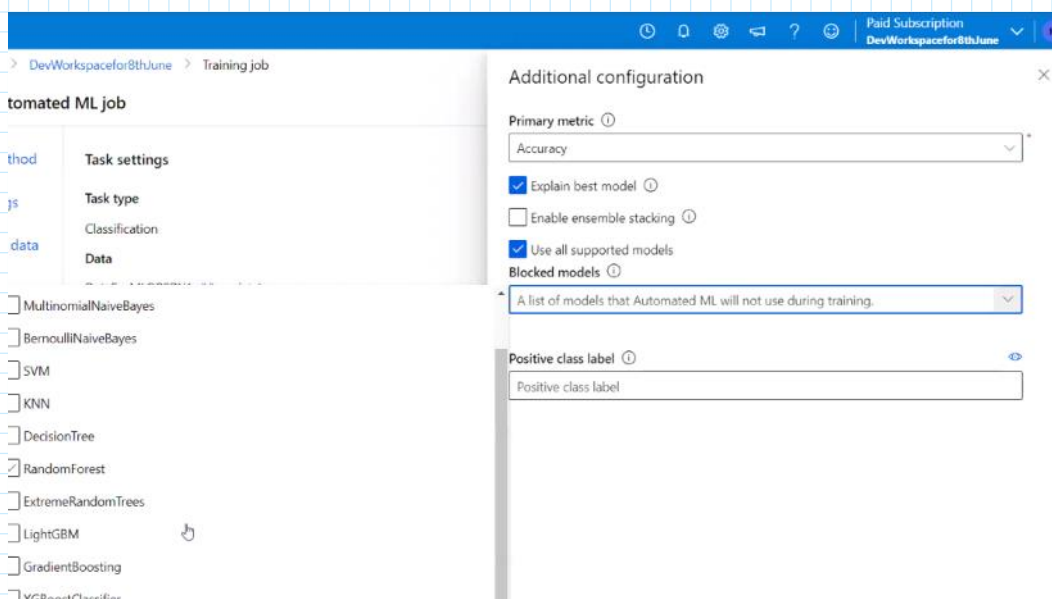
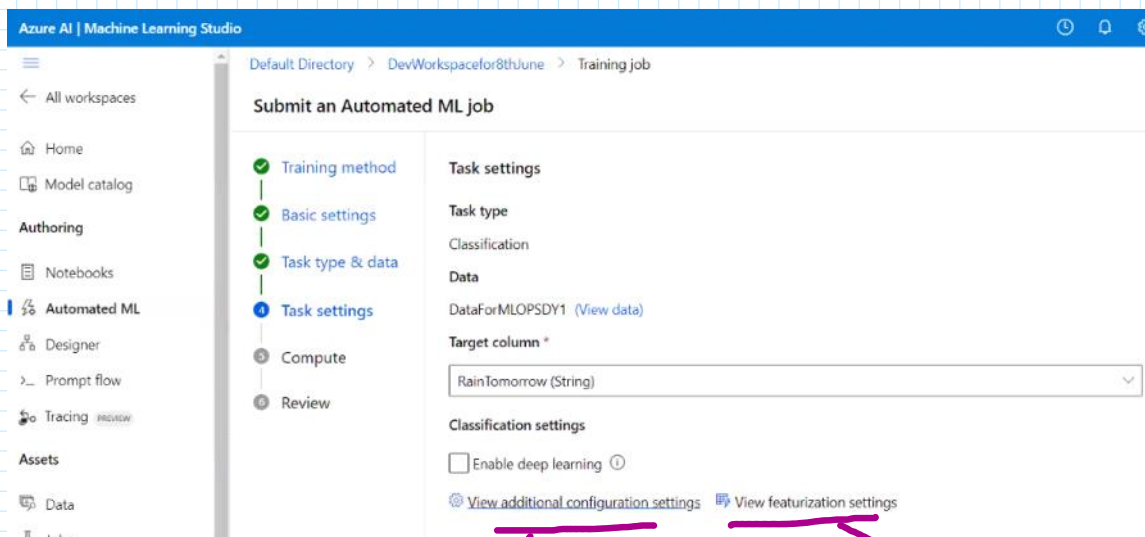
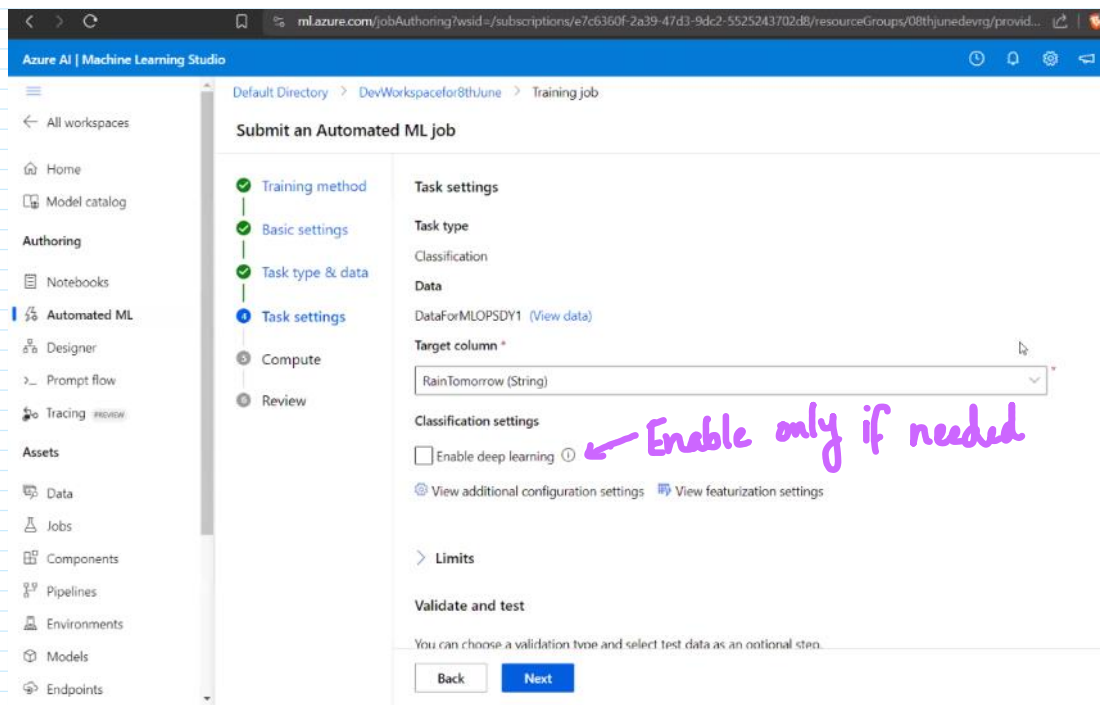
Creating data asset...

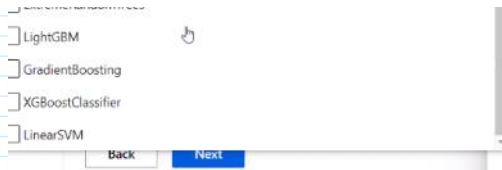
New Section 1 Page 10





click





↑  
Lot of models.

Save

Close

↑  
click

### Featurization

Featurization selection identifies the actions performed on the data to prepare the data for training. This will not impact the input data needed for inferencing i.e., if columns are excluded from training, the excluded columns will still be required as input for inferencing on the model. [Learn more about Automated ML's featurization.](#)

☒ Enable featurization ⓘ

Search

Column name	Feature type	Impute with	Data example
Date	Auto	Auto	2008-12-01 00:00:00, 2008-12-02 00:00:00, 2008-
Location	Auto	Auto	Albury, Albury, Albury
MinTemp	Auto	Auto	13.4, 7.4, 12.9
MaxTemp	Auto	Auto	22.9, 25.1, 25.7
Rainfall	Auto	Auto	0.6, 0.0
Evaporation	Auto	Auto	NA, NA, NA

< Prev   Next >

Save

Cancel

ml.azure.com/jobAuthoring?wsid=/subscriptions/e7c6360f-2a39-47d3-9dc2-5525243702d8/resourceGr...

Azure AI | Machine Learning Studio

Default Directory > DevWorkspacefor8thJune > Training job

### Submit an Automated ML job

Training method

Basic settings

Task type & data

Task settings

Compute

Review

Target column \*

RainTomorrow (String)

Classification settings

☐ Enable deep learning ⓘ

☒ View additional configuration settings   ☒ View featurization settings

Automatic

k-fold cross validation

Monte Carlo cross validation

Train-validation split

User validation data

Automatic

Test data ⓘ

None

Back   Next

← Choose k fold

Azure AI | Machine Learning Studio

All workspaces

Home

Model catalog

Authoring

Notebooks

**Automated ML**

Designer

Prompt flow

Tracing PREVIEW

Assets

Data

Jobs

Components

Pipelines

Environments

Models

Endpoints

Default Directory > DevWorkspacefor8thJune > Training job

Submit an Automated ML job

Training method

Basic settings

Task type & data

**Task settings**

Compute

Review

Limits

Validate and test

You can choose a validation type and select test data as an optional step.

Validation type ⓘ  
k-fold cross validation

Number of cross validations \* ⓘ  
2

Test data ⓘ  
Train-test split

Percentage test of data \* ⓘ  
10

Automated ML recommends that between 10 and 30 percent of data is held out for test

Back

Next

Azure AI | Machine Learning Studio

All workspaces

Home

Model catalog

Authoring

Notebooks

**Automated ML**

Designer

Prompt flow

Tracing PREVIEW

Assets

Data

Jobs

Components

Pipelines

Environments

Models

Endpoints

Default Directory > DevWorkspacefor8thJune > Training job

Submit an Automated ML job

Training method

Basic settings

Task type & data

Task settings

**Compute**

Review

Compute

Select and configure the compute resource for executing your training job.

Select compute type  
Compute instance

Select Azure ML compute instance \*  
Computefor08thJunforDev - Running

+ New

Back

Next

New Section 1 Page 15



Azure AI | Machine Learning Studio

Default Directory > DevWorkspacefor8thJune > Training job

### Submit an Automated ML job

**Training method**

**Basic settings**

**Task type & data**

**Task settings**

**Compute**

**Review**

Review or make changes to your job before submission.

Jobfor08thJunforDev

**Experiment name**  
RainpredictorExperiment

**Description**  
We are trying to predict if it's going to rain tomorrow

**Timeout (hours)**  
--

**Tags**  
--

**Classification**

**Data**  
DataForMLOPSDY1

**RainTomorrow**

**Enable deep learning**  
No

**Validate type**  
k-fold cross validation

**Number of cross validations**  
2

**Cross validations step size**  
--

**Test data**  
Train-test split

**Percentage test of data**  
25

[Back](#) [Submit training job](#) [Cancel](#)

Click

Azure AI | Machine Learning Studio

Default Directory > DevWorkspacefor8thJune > Automated ML > RainpredictorExperiment > Jobfor08thJunforDev

### Jobfor08thJunforDev

**Overview** Data guardrails Models + child jobs Outputs + logs Child jobs

[Refresh](#) [Edit and submit \(preview\)](#) [+ Register model](#) [Cancel](#) [Delete](#) [Compare \(preview\)](#)

**Properties**

**Status**  
Running

**Created on**  
Jun 8, 2024 9:19 PM

**Start time**  
Jun 8, 2024 9:19 PM

**Compute target**  
ComputeFor08thJunforDev

**Name**  
jobfor08thjunfordev

**Script name**  
--

**Created by**  
MLOPS

**Job type**  
Automated ML

**Experiment**  
RainpredictorExperiment

**Arguments**  
None

**See all properties**  
[Raw JSON](#)

**See YAML job definition**  
[Job YAML](#)

**Inputs**

**Input name:** training\_data  
**Data asset:** DataForMLOPSDY1:1  
**Asset URL:** azureml:DataForMLOPSDY1:1

**Best model summary**  
No data

**Run summary**

**Task type**  
Classification [View configuration settings](#)

**Featurization**  
Enabled [View featurization settings](#)

**Primary metric**  
Accuracy