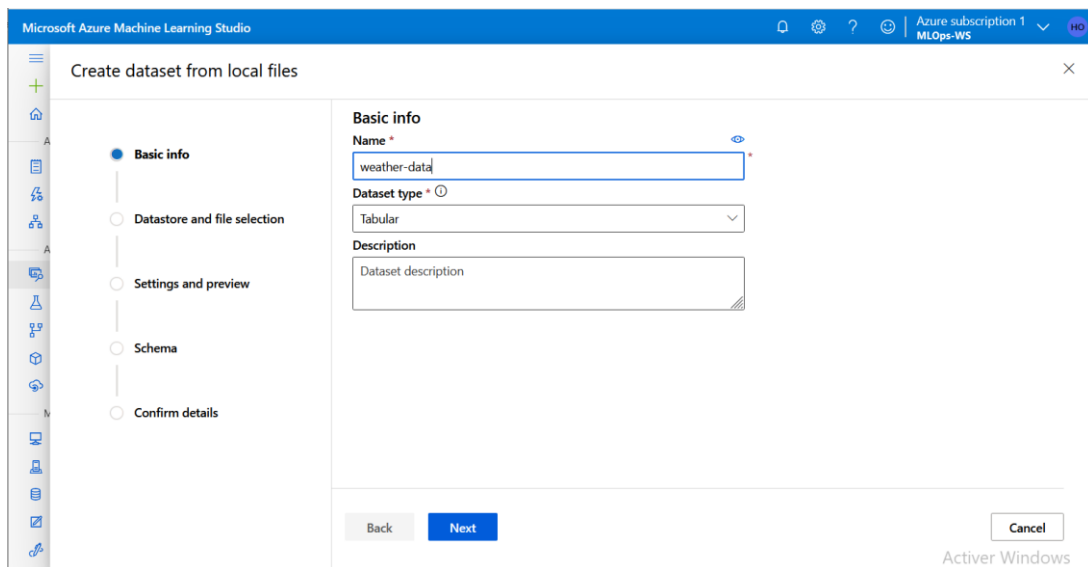


## Deploying a ML model as a service using Azure Auto ML

We will operate on our “weather\_data.csv” dataset to deploy an ML model using a machine learning automation service called Azure Automated ML. To get started, open “azure machine learning studio” and then go to “Datasets” and click “create dataset > from local file”.



Microsoft Azure Machine Learning Studio

Create dataset from local files

**Basic info**

Name \*  
weather-data

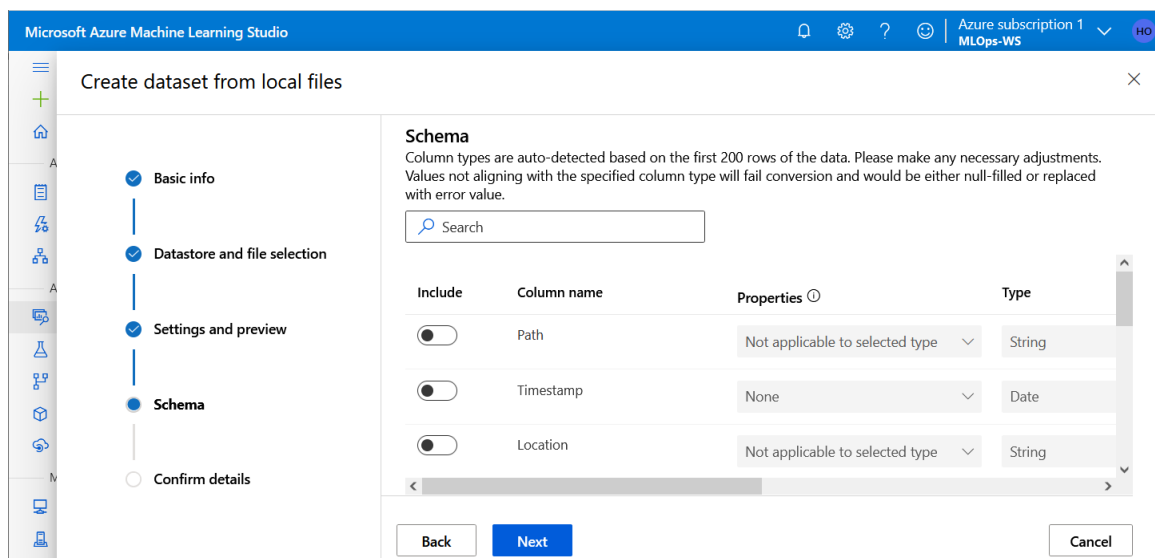
Dataset type \*  
Tabular

Description  
Dataset description

Back Next Cancel

Active Windows

Give your dataset a name and click “Next”. During the second step, click on “Upload > upload file” and choose the “weather\_dataset\_processed.csv” dataset that you will find in the Lab folder and then on “Next”.



Microsoft Azure Machine Learning Studio

Create dataset from local files

**Schema**

Column types are auto-detected based on the first 200 rows of the data. Please make any necessary adjustments. Values not aligning with the specified column type will fail conversion and would be either null-filled or replaced with error value.

Search

Include	Column name	Properties	Type
<input type="checkbox"/>	Path	Not applicable to selected type	String
<input type="checkbox"/>	Timestamp	None	Date
<input type="checkbox"/>	Location	Not applicable to selected type	String

Back Next Cancel

Then, in the Schema part, uncheck “Timestamp” and “Location” as shown in the figure above. Continue by clicking “Next” and “Create”.

In the next step we will train a set of models on the recently created dataset. To do this, click on “Automated ML” and then on “+ New Automated ML run”

1. Select the dataset and then “Next”
2. Check “create new” and give a name to your experiment
3. Choose the target column “Future\_weather\_condition”
4. Choose “Compute instance”
5. Given that your instance is created and started, choose it and then “Next”

Microsoft Azure Machine Learning Studio

Home > Automated ML > Start run

Create a new Automated ML run

☒ Select dataset

☒ Configure run

☐ Select task and settings

☐ [Optional] Validate and test

Configure run

☐ Select existing ☒ Create new

New experiment name

autoML-experiment

Target column \* ⓘ

Future\_weather\_condition (Integer)

Select compute type

Compute instance

Select Azure ML compute instance \*

MLOps-cp - Running

+ New Refresh computes

Back Next Cancel

6. Choose the classification and then “Next”
7. Finally, click on “Next” and “Finish”

Microsoft Azure Machine Learning Studio

Home > Automated ML > Weather-autoML > dynamic\_cloud\_dh6bjtff

dynamic\_cloud\_dh6bjtff

Refresh Cancel Delete

Details Data guardrails Models Outputs + logs Child runs Snapshot

Properties

Status

Running

Model training

Created

Dec 18, 2021 4:41 PM

Started

Dec 18, 2021 4:41 PM

Compute target

MLOps-cp

Best model summary

No data

Run summary

Task type

Classification View configuration settings

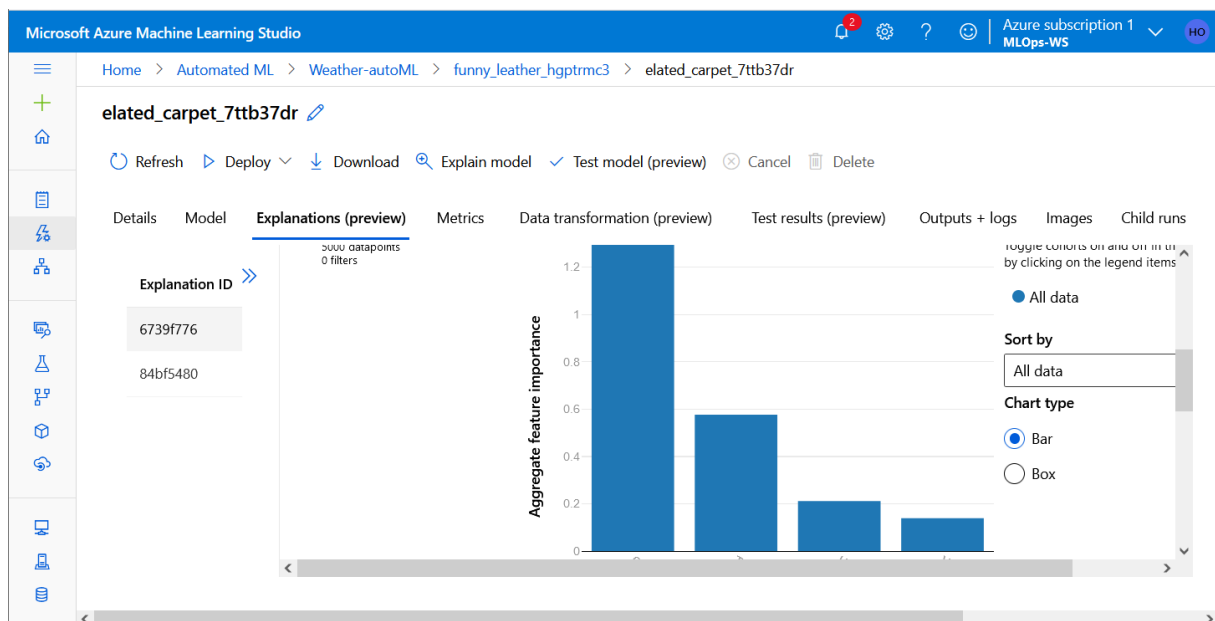
Featurization

Auto

Primary metric

AUC weighted

The “Azure Automated ML” tool trains a set of models with a set of preprocessing techniques, you can see the trained models by clicking on “models”. Once the training is completed, you will have all models with their performance. As you may notice, the best performance is given by the “voting” ensemble model. However, Azure ML provides the explanation for the model with the best performance, you can view this explanation by clicking on “View explanation”.

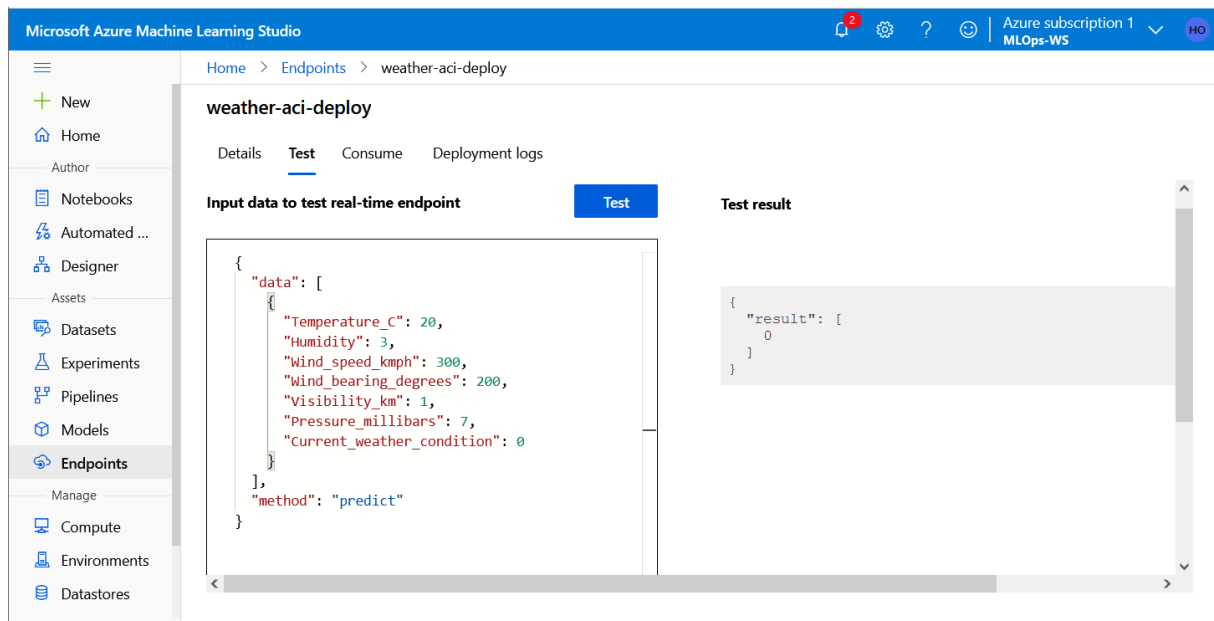


To deploy this model, you must choose it and then click on “Deploy > Deploy to web service”.

1. Give your deployment a name
2. Choose “Azure Container Instance” and then “Deploy”

Then go to “Endpoints” and click on your deployment and you will see that the status of your deployment is “transitioning” (which means that your service is being deployed).

Subsequently, the status of your deployment will change to “Healthy” and you will see the appearance of the rest type endpoint. Furthermore, you can test this service by clicking on “Test” and entering some values.



## Inference using the deployed model

In the Lab folder, open the “inference.py” file and try replacing the URL variable with your own endpoint.

This file contains the code to consume our model deployed as a REST type web service.

Run the file in question by launching the command “python inference.py”.

## Discovering Amazon Sagemaker Autopilot

In the “AWS Academy Machine Learning Foundations” course that you are invited to, visit the “Demo - Accelerate with Amazon Sagemaker Autopilot” section in Chapter 3.

### To Do:

1. Create a web application (i.e., form) allowing you to consume this service.
2. Using the prebuilt image used previously, deploy this application as a container.