

# Day 1

- [Brief information about Azure Machine Learning](#)

# Brief information about Azure Machine Learning

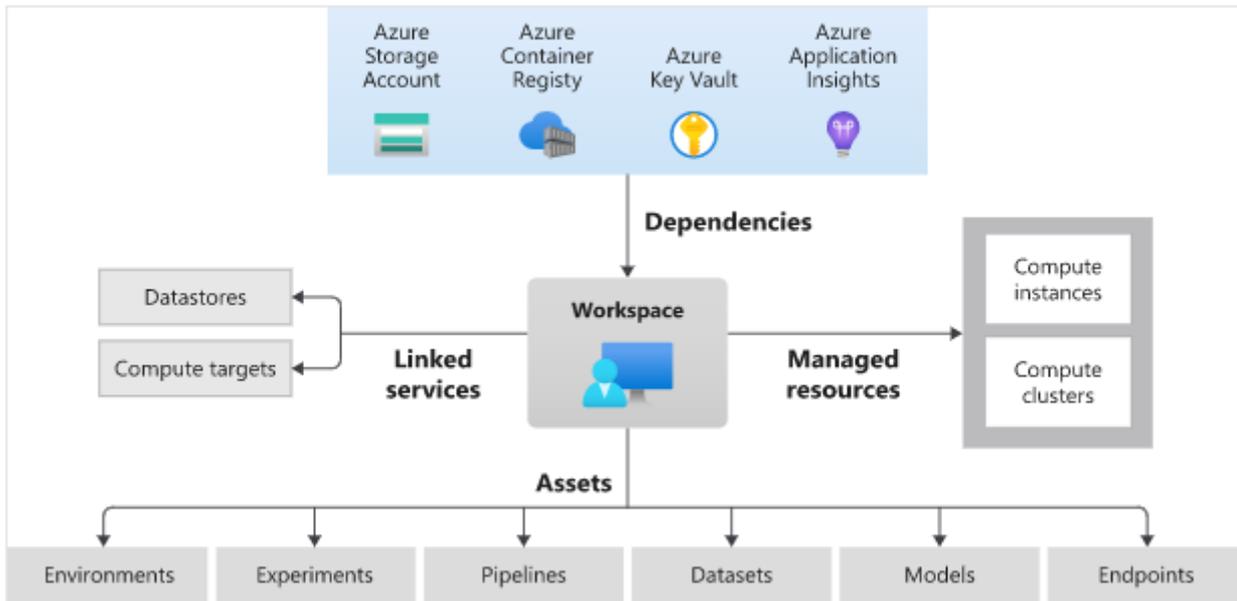
## What is Azure Machine Learning?

A cloud-based environment You can use to train, deploy, automate, manage and track machine learning models. There are 2 options for building a machine learning model:

- Use the graphical interface with low-code and no-code experience
- Implement by Python or R with the SDKs

## What is Azure Machine Learning studio?

A web portal in Azure Machine Learning that contains low-code and no-code options for project authoring and asset management



## Some components in the studio

### Notebooks:

Write and run your code in Jupyter Notebook servers that are directly integrated in the studio

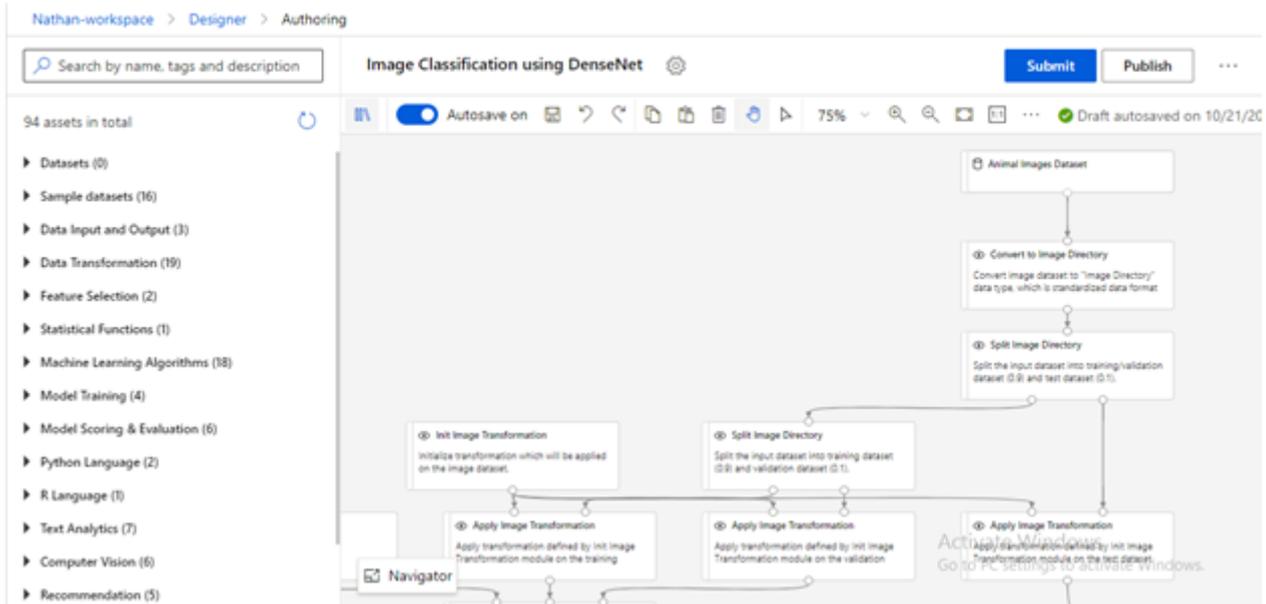
The screenshot shows the Azure Machine Learning studio interface. At the top, it displays "Nathan-workspace > Notebooks". Below this, there is a "Notebooks" section with a tab for "tutorial-1st-experim". A blue button says "Want to start editing?" and another says "Clone this notebook". The main content area shows a notebook titled "Load data and prepare for training". The notebook text reads: "For this tutorial, you use the diabetes data set, which uses features like age, gender, and BMI to predict diabetes disease progression. Load the data from the Azure Open Datasets class, and split it into training and test sets using `train_test_split()`. This function segregates the data so the model has unseen data to use for testing following training." Below the text is a code editor with the following Python code:

```
[ ] 1 from azureml.opendatasets import Diabetes
2 from sklearn.model_selection import train_test_split
3
4 x_df = Diabetes.get_tabular_dataset().to_pandas_dataframe().dropna()
5 y_df = x_df.pop("Y")
6
7 X_train, X_test, y_train, y_test = train_test_split(x_df, y_df, test_size=0.2, random_state=66)
```

At the bottom of the notebook, there is a "Train a model" button. In the bottom right corner, there is a watermark that says "Activate Windows Go to PC settings to activate Windows."

### Azure Machine Learning designer:

Provide a graphical interface. You can drag and drop datasets and modules to create machine learning pipelines



## Automated machine learning UI:

Help you choose the best model by iterating over many combinations of algorithms and hyper-parameters, based on a success metric

## Data labeling:

Used for creating, managing, monitoring labeling projects such as image classification (includes multi-label and multi-class), object identification with bounded boxes

## Data stores:

A reference to the data source location along with a copy of its metadata

## Datasets:

Used by Data stores to securely connect to Azure storage services.

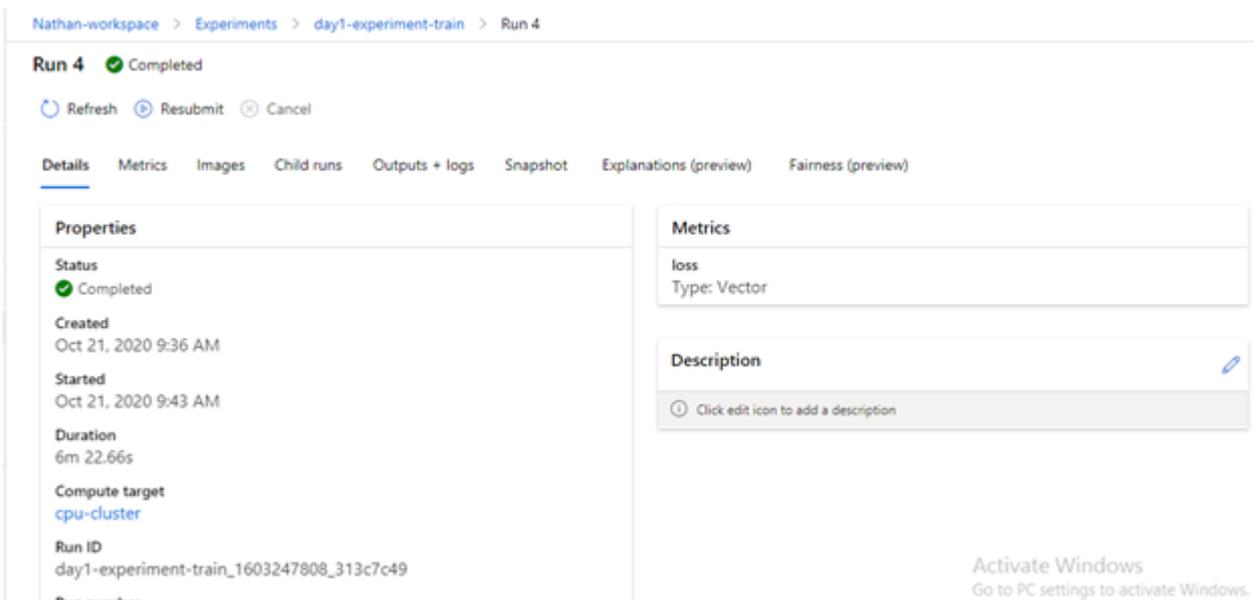
# Environments:

Encapsulate the environment where training or scoring of your machine learning model happens. It specifies the Python packages, environment variables and software settings.

# Runs:

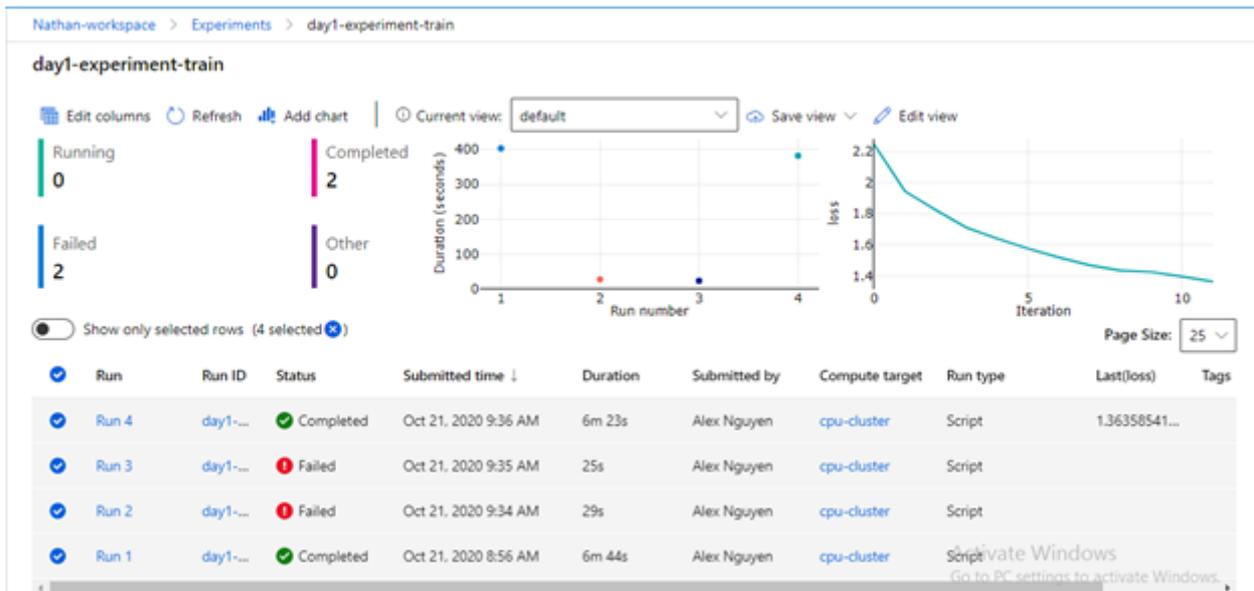
A run is a single execution of a training script. The following information will be stored:

- Metadata about the run: timestamp, duration
- Metrics that are logged by your script
- Output files that are auto collected by the experiment or explicitly uploaded by you
- A snapshot of the directory that contains your scripts, prior to the run



# Experiments:

A experiment is a grouping of many runs from a specified script

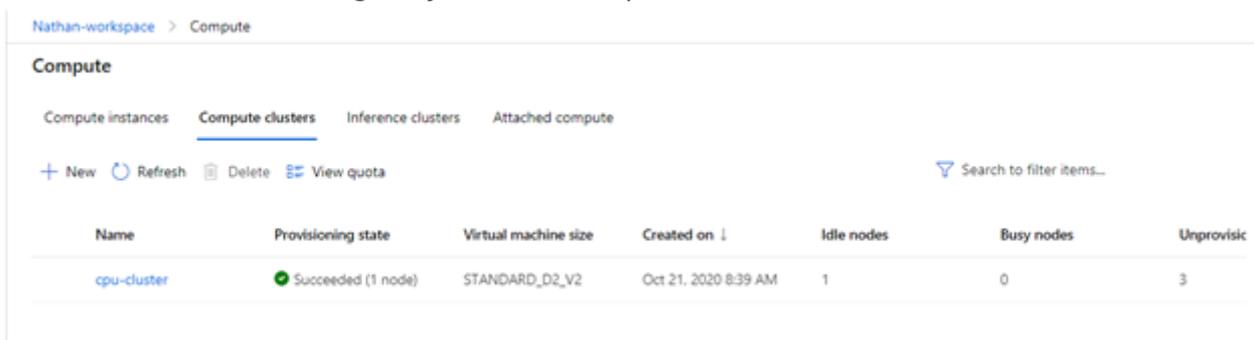


## Models:

Include machine learning models. A model is a piece of code that takes an input and produces output

## Compute resources:

A machine or set of machines you use to run your training script or host your service deployment. You can create and configure your own compute resources.



## Pipelines:

Help you to create and manage workflows that stitch together machine learning phases. A pipeline might include data preparation, model training, model deployment and inference/scoring phases