# Setting up the Service

* Go to portal.azure.com and sign in
* Press “Create a resource” and search for Machine Learning. Click on the Machine Learning result and press create
* Enter information to create service and Enterprise for the Workspace edition
* When deployment is complete goto the resource
* Under overview click on “Launch the New Azure Machine Learning Studio”
* Log into the machine learning studio portal with the same id you use to log into Azure

# Set up Compute Resource

Compute resources are the resources used to train and create our models. Due to the time it takes it may be worth using more powerful resources

* On the left-hand side select “Compute” and then select the “Training Clusters” tab.
* Press the new button and in the popup window enter a name for this resource and select a virtual machine size. When complete, press the “Create” button.

# Import a dataset

* On the left click on the “Datasets” section and press “Create Dataset” and chose “From Local Files”
* Browse out and select the “DowHistory.csv” file from the collateral directory and press open. Leave the dataset type at Tabular and press “Next”
* The file format should come up with “delimited” with a comma delimiter. Press next.
* Import the year column as a string and leave the Path column behind. Press next.
* Make sure everything is entered correctly and press “Create”

# Create a Linear Regression Model

* On the left click on “Automated ML” and click on “New automated ML run”
* Under select dataset select the dataset we just entered and press “Next”
* Give the experiment a unique name and select “Average Closing Price” as the Target Column

The target column specifies what column it will try and predict. When trained this model will be able to take a year like 2030 and return the average closing price for the year

* For the training compute target select the compute resource we set up earlier and press “Next”
* The Task type we want is regression. This will calculate the slope of the line for the data points and from that be able to make predictions for future years.
* When complete press “Finish”.

This queues up our experiment to create several different models based on different possible mathematical ways of doing a linear regression. It will then score the models so we know which is the most accurate method of prediction.

# View Our Results

* On the left click on “Experiments” and select our newly created experiment.
* We will see the status of our training runs. To start with we will likely have 2 runs in the “Other” status. It will take quite a while, but they eventually will go to “Running” and then “Completed”
* When the runs are completed click on the run that took the longest, likely run 1. This contains all the different models for the different methods of creating a linear regression it tried.
* Open the “Models” tab to view all the different training methods that were tried.
* If you click on the spearmen\_correlation column we can sort by the predicted accuracy of the models. For me the most accurate method was “MinMaxScaler, RandomForest”

# Deploy our model

* Click on the “Details” tab and then select “Deploy Best Model”
* Enter a name for the deployment, I chose “production”
* For the compute type select ACI

ACI deploys our model in a single container, AKS deploys our model in a Kubernetes cluster that we would need to setup.

* Press “Deploy” and wait for our model to be deployed

In the version I have been using there is an error with the deployment process that stopped the model from deploying correctly. Because of this, we will not be trying to consume our model via a REST service. If this did deploy successfully for you, you may want to try tying in the service to the Lab7 project. Otherwise in Machine Learning Studio try creating a custom model using the “Designer”