Assignment 3 Project Proposal

Aim

To build web service based on the model for data of all buildings using the Microsoft Azure Machine Learning Studio.

We have the following prediction models:

- **Regression models (Linear, Random Forest, KNN, Neural Network)**
- **Classification models (KNN, Random forest, Neural Network)**
- **Clustering models (Logistical, K-means, Hierarchical)**

Summary

Azure Machine Learning is a fully managed service that we can use to create, test, operate, and manage predictive analytic solutions in the cloud.

Being a Web Application we can upload data, and immediately start machine learning experiments.

Drag-and-drop predictive modeling, and a library of starting templates, a large pallet of modules will make machine learning tasks simple and quick.

With the Azure Machine Learning Web service, an external application communicates with a Machine Learning workflow scoring model in real time. A Machine Learning Web service call returns prediction results to an external application.

The Machine Learning Web service is based on REST and Azure Machine Learning has two types of services:

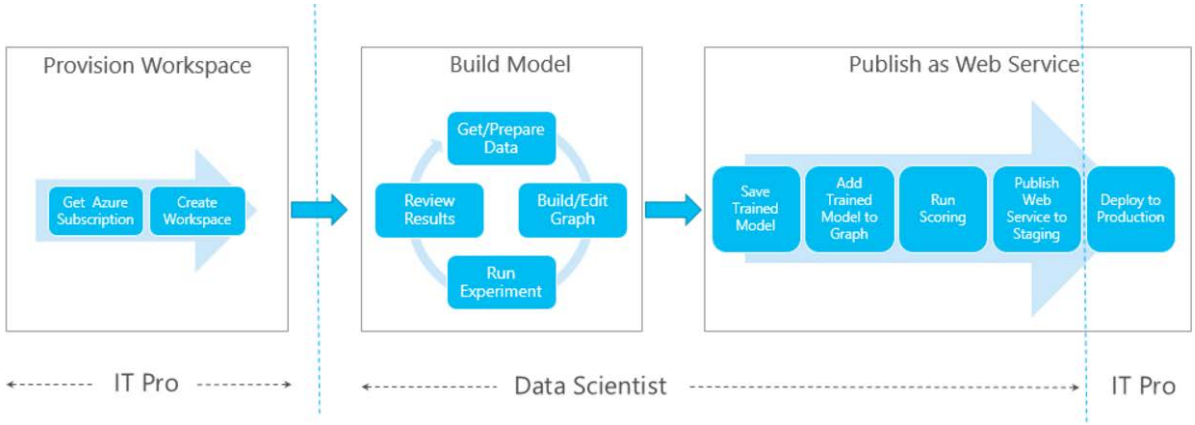
- Request-Response Service (RRS) – A low latency, highly scalable service that provides an interface to the stateless models created and deployed from the Machine Learning Studio.
- Batch Execution Service (BES) – An asynchronous service that scores a batch for data records.

Steps to publish an Azure Machine Learning Web Service:

1. Merge the data collected from the Buildings from Finland Masked.csv and the weather data from the website.
2. Clean it using various modules for loading and manipulating data.
3. Split the data as training and test.

4. Using ML algorithms mentioned above train the data and save it. It can be reusable for scoring purpose.
5. Scoring can be done by generating predictions using the trained model and sample data.
6. After this the modules used in training can be removed and we can define the input/output points of the data can be defined via the predicting model.
7. After setting the ports we can deploy the Web Service.

The below mentioned shows the steps at a high level in two parts: first building a model, and second publishing it as a Web Service.



How to call the web service once created?

1. Services can be called with any programming language and from any device that satisfies three criteria:
    a. Has a network connection
    b. Has SSL capabilities to perform HTTPS requests
    c. Can parse JSON (by hand or support libraries)