**Foundation work:**

* Python Foundation for AI ML
  + Different Libraries such as NUMPY, SCIKIT-Learn, Pandas, TensorFlow, Keras, PyTorch, MatPlotLib etc
  + Developing Python Programs taking each Library
  + Developing Sample Python Models sample dataset from Kaggle and Google for various scenarios like Prediction, Linear Progression,
* Setting up ML Setup in Juniper Notebook / Google Collab, Anomaly detection, Clustering, Time Series like ARIMA,
* Developing Sample models from GITHUB (Open source)
* Taking sample Data set for Temperature data for Project #1, and Machine Vibration data for Project #2

**Project #1**

Temperature **Prediction based on Time series ML Algorithms**

* What is time series algorithm
* ARIMA, and other algorithms
* Compare the algorithms and provide the accuracy which is best among the algorithm
* Apply with Sample data and compare which is best
* Predict temperature after 1 hour, 4 hours, 8 hours.
* Early notification SMS / Email / Mobile Notifications - >

**Application :**

* Freezers storage for Vaccines
* We can avoid spoiling of Vaccines, Medicines
* Range 2 – 8, - 20, -10 -> Alert

**Project #2**

Anomaly detection of Machines requiring Maintenance based on Vibration Data. Asset Maintenance and Management

* How to detect machine is faulty - Based on what parameters
  + Vibration, Sound, Electricity
* What is Anomaly
* How to detect the Vibration is outside the range
* How to detect if vibration tending towards higher side
* Machine learning –
  + **Supervised Learning** – Training based on the data ( Labeling the data )
  + **Unsupervised Learning** - No prior training is done. Just give the data to Algorithm. Groups, Boundaries, Anomalies
  + **What are the Algorithms available for Anomaly detection**
  + **Find out which is best Algorithm to be used**
  + Sample data from Industrial Machines.