# Note:

**The assignment should be submitted in the following format:**

* **Python code**
* **Code Modularization should be maintained**
* **Documentation of the model building (elaborating on steps mentioned above)**

**Problem Statement:-**

1. Here is the time series data [110,125,133,146,158,172,187,196,210].

Build RNN/LSTM model to predict the next 10 digits.

**ANSWER:-**

Attached Python code file.

2. Write down the multiple applications of RNN.

**ANSWER;-**

* Prediction problem
* Language modeling and generating text
* Machine translation – (word ordering, word choice)
* Speech recognition
* Generating image description
* Video tagging
* Text summarization
* Call center analysis
* Face detection, OCR application as image recognition
* Time series anomaly detection
* Handwriting recognition
* Grammar learning
* Human action recognition

3. How to do select the inputs for a LSTM/RNN models. Explain in the terms of timesteps, samples and feature.

**ANSWER;-**

The three dimensions of the input are:

* **SAMPLES:-** one sequence is one sample. A batch is comprised of one or more samples.
* **TIME STEPS:-** one time step is one point of observation in the sample.
* **FEATURES:-** one feature is one observation at a time step.

4. What are the disadvantages of MLP when dealing with sequence data.

**ANSWER:-**

* Requiring high computational time
* The training period may be slow
* Difficult to identify the number of neurons and layers
* Predict the ith word based on a fixed size context
* In all conventional language models, the memory requirements of the system grow exponentially with the window size n making it nearly impossible to model range word windows without running out of memory
* Fixed window of context.