# Session 11- Class Exercise

Problem Statement:

Detecting anomalies in timeseries data

Step 1: Build a timeseries data with x axis being the timestamp and y axis being the sin(x). with length of x = 500

Step 2: Add a normally distributed noise with to the values from step 1 with a magnitude that has a left skewed distribution (e.g. Beta 2,8). The purpose of this is to create unusual events of anomalies.

Step 3: Let's assume the data generated as Y axis is in fact, dimension of a part produced in a manufacturing line
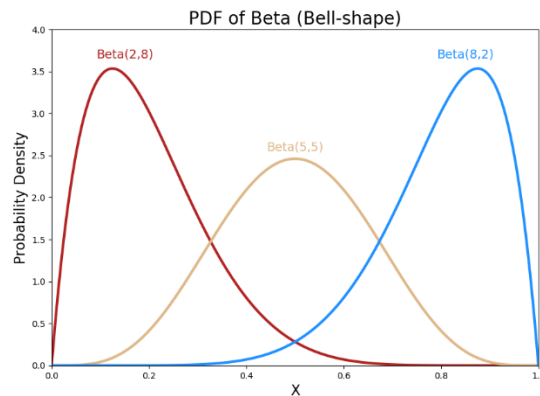
Step 4: Break the data into timestamp windows of 50. How many windows do we have?

Step 5: Each window represents a 50sec time window that our model can potentially be trained on. Create an auto-encoder that receives each window as an input and the same window as an output

Step 6: Train the model

Step 7: Calculate the MSE between input and output for all windows and plot the error distribution.

Step 8: Set a threshold for detecting anomalies