



## Week 4: Basic Challenge

**Agenda:** Learn Functions and libraries for ML

**Topics Covered:** Functions, Using libraries: Numpy, Matplotlib, Pandas, OpenCV

### Problem Statement

Develop a Google Colab notebook with well documented code for the following topics. Each topic must be shown in a separate section using “text” cells in the colab.

1. Define functions and using inbuilt functions like map, split, lambda etc
2. Perform basic operations on Numpy arrays
  - a. Creation of arrays
  - b. Array Operations like indexing, slicing, manipulation etc
  - c. Saving & Loading numpy arrays
3. Perform basic operations using Pandas lib
  - a. Reading & writing .csv files
  - b. Understanding pandas series and dataframes
  - c. Accessing elements and manipulating rows/columns
  - d. *It would be great if you could work on data clean up (refer to Titanic dataset on Kaggle and contact me if you're interested in working on it)***
4. Show insights about some data (you can create your own dummy dataset or load something using Pandas) using Matplotlib
5. Perform basic Operations using OpenCV
  - a. Loading & Displaying Images
  - b. Editing and Saving Images
  - c. Drawing, Reshaping, Cropping using Numpy
  - d. Loading & Playing videos
  - e. Using webcam for live feed

### Resource Reference

1. [Python Programming Tutorials](#) - Video Lectures
2. <https://github.com/shubham99bisht/python-tutorials> - Reading notes and code snippets

**\*\* For OpenCV assignments, you'll have to develop .py files on your laptop/system**