

## Week 2: Basic Challenge

**Agenda:** Developing Python Skills

**Topics Covered:** Python 3

### 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. Code Basic Algorithms (from scratch):
  - a. Any 4 Sorting algorithms (Eg. Bubble, Selection, Insertion, Merge, Heap)
  - b. Binary Search algorithm on list
  - c. Develop a function which takes an unsorted list as a parameter and returns the sorted list using all the above algorithms along with the time taken for each algorithm
    - \* Generate a very large ( $\sim 10^5$ ) random list and test the performance of different sorting algorithms.
2. Solve at least 10 Codechef questions from the beginner's section.  
Link: <https://www.codechef.com/problems/school>

### Resource Reference

1. [Python Programming Tutorials](#) - Video Lectures