COURSE 1 - Programming With Python

Course Duration

The minimum time to be dedicated for learning is 10-15 Hrs of videos, reading material, and self-paced practice exercises.

Course Description

Python is an easy-to-learn, powerful programming language. You can use Python when your data analysis tasks need to be integrated with web apps or if statistics code needs to be incorporated into a production database. Being a full-fledged programming language, it's a great tool to implement algorithms for production use.

While the infancy of Python packages for data analysis was an issue in the past, this has improved significantly over the years. In this course, you will learn about NumPy (Links to an external site.)Links to an external site. (Links to an external site.)Links to an external site. / Pandas (data manipulation) for data analysis and matplotlib (Links to an external site.)Links to an external site.(to make graphics). You will also learn about scikit-learn (Links to an external site.)Links to an external site. for machine learning in future courses.

Course Objectives

After completing this course, you will be able to:

- Perform basic operations related to data analysis
- Learn how to read, explore and visualize data
- Work with data frames and different relevant libraries for data analysis

Pedagogy

The objectives envisaged in this course will be met through Online Content, Quizzes, Case Studies, and Projects.

Course Content

Week-1: Basic Python

- Installation of Python
- Python basics:- variables, data types, operators
- Python packages overview
- Jupyter shortcuts

Week-2: Basic Python-2

- Data structures in Python - List, Tuples, Dictionaries, Sets,
- Conditional statements
- Loops
- Functions

Week-3: Numpy & Pandas

- NumPy Intro
- Numpy Accessing Entries
- Saving and loading numpy arrays in local system
- Pandas - Introduction
- Pandas - Series and Dataframes
- Pandas - Accessing and modifying
- Pandas - Combining Dataframes
- Pandas - Functions
- Pandas - Saving and Loading data-frames

Week -4: Data Visualization using Python

- Python Visualization - Introduction
- Python Visualization - Plots and graphs(Continuous)
- Python Visualization - How to Plot Categorically?

Week-5: EDA with Python

- Data Types
- Dispersion & Skewness
- Uni & multi Variate Analysis
- Data imputation
- Identifying and normalizing Outliers

Tools

Jupyter Notebook.