5-Day Python Introduction Bootcamp

Syllabus

General Information

Instructor: Mariam Arzumanyan

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Office: Zoom Link

Meeting: July 24 – 28

Hours: 3 pm – 5 pm

Description

The 5-Day Python Introduction Bootcamp is designed to provide participants with a comprehensive understanding of the Python programming language and its applications. Whether you are a beginner or have some prior programming experience, this Bootcamp will give you the essential skills to start your journey in Python development.

By the end of this 5-day Bootcamp, you will have a solid understanding of Python programming and its various applications. You will be equipped with the skills to solve real-world problems, analyze data, and develop a solid understanding of Python. Throughout the Bootcamp, you will work on practical exercises and real-world examples to reinforce your understanding of data analysis and visualization concepts. By the end of it, you will have the skills to handle and clean data effectively, perform basic data analysis tasks, and create visually appealing plots to convey your insights. This Bootcamp will kickstart your journey into Python development and empower you to pursue further advanced topics in Python programming.

Expectations and Goals

Collaboration and interactive learning activities will be integral to the Bootcamp experience. You will have the opportunity to collaborate with peers, participate in discussions, and receive instructor guidance. We encourage active engagement and curiosity throughout the Bootcamp. By the end of the Bootcamp, our expectation is that you will have a solid understanding of Python programming fundamentals and be able to write efficient and effective code.

Course Schedule

Day 1: Introduction to Python Basics

- Introduction to Python and its applications
- Installing Python and setting up the environments
- Python syntax and basic data types (strings, numbers, lists)
- Variables, operators, and expressions
- Control flow statements (if-else, loops)
- Functions and modules
- Hands-on exercises and coding practice

Day 2: Introduction to Data Analysis and Visualization

- Introduction to data analysis with Python
- Working with data using libraries like Pandas and Numpy
- Basic data importing, cleaning, filtering, and manipulation
- Introduction to data visualization with Matplotlib
- Hands-on exercises and coding practice

Day 3: Data Manipulation and File Handling

- Advanced data types (tuples, dictionaries)
- File handling and I/O operations
- Exception handling and error handling
- List comprehensions
- Hands-on exercises and coding practice

Day 4: Data Cleaning and Handling

- Importance of data cleaning in data analysis
- Common data quality issues and challenges
- Dealing with Inconsistent Data
- Data Validation and Error Handling
- Visualizing data distributions, outliers, and correlations
- Hands-on exercises and coding practice

Day 5: Introduction to Object-Oriented Programming

- Understanding the basics of object-oriented programming (OOP)
- Classes, objects, and attributes
- Methods and inheritance
- Introduction to libraries for OOP in Python (e.g., NumPy, Pandas)
- Hands-on exercises and coding practice