Python Basic Introduction

- Installation and editor introduction (VS Code)
- Data types & Operators
- Functions and Methods
- Decision Making Statement
- Loops
- Date and Time
- File handling and output formatting

Python Advance Concept

- **Introduction and usage of Libraries:**
  - Numpy
  - Pandas
- **Python OOPS Concepts**
  - Classes
  - Objects
  - Inheritance
  - Encapsulation
- **Exception Handling**
  - Handling of exceptions
  - Custom Exception Handling using classes by creating new classes that inherit from Built-in exception classes
- **Concurrency control**
  - Techniques for managing concurrency issues, such as race conditions and deadlocks
  - Use of locks and semaphores
  - Thread Synchronization
- **Memory Management**

API with FastAPI

Module 1: Introduction & FastAPI Installation

- Overview of APIs
- Introduction to the FastAPI framework
- Installation of FastAPI in a virtual environment

Module 2: Path & Query Parameters

- Understanding path and query parameters
- Utilizing path and query parameters to shape request bodies
- Programming APIs to respond dynamically based on path and query parameters
- Simultaneous use of both parameters in a single API route

Module 3: Models & Request Body

- Introduction to data models for request and response data
- Creating Pydantic models for structured data handling
- Creating Pydantic models for unstructured data(Couch DB/MongoDB/Cassandra)
- Integrating Pydantic models within API routes for enhanced data validation

Module 4: Database Connection

- Leveraging SQLAlchemy as an object-relational mapper (ORM)
- Creating SQLAlchemy models to represent tables and data
- Handling NoSQL database (Couch DB/MongoDB/Cassandra) using FastAPI