

# Python Full Stack Development

## Month 1: Introduction to Python and Front-End Development

Week 1: Introduction to Programming and Python

- Overview of programming concepts
- Installing Python and an IDE
- First Python program

Week 2-3: Python Basics

- Variables, data types, and operators
- Control flow (if statements, loops)
- Functions and basic input/output

Week 4-5: Front-End Development with HTML, CSS, and JavaScript

- HTML5 and CSS3 basics
- Introduction to JavaScript and the Document Object Model (DOM)
- Basic front-end project

Week 6: Introduction to Front-End Frameworks

- Overview of front-end frameworks (e.g., React, Angular, Vue)
- Setting up a simple project with a front-end framework

## Month 2: Back-End Development with Python and Flask

Week 1-2: Introduction to Back-End Development

- Basics of server-side programming
- Setting up a Python project for back-end development

Week 3-4: Introduction to Flask

- Overview of the Flask framework
- Building a basic RESTful API with Flask
- Integrating Flask with a front-end framework

Week 5-6: Database Connectivity and Persistence

- Introduction to databases (e.g., SQLite, MySQL)
- Connecting a Flask application to a database
- Implementing CRUD operations with SQLAlchemy

## **Month 3: Full Stack Development with Python**

Week 1-2: Connecting Front-End and Back-End

- Integrating the front-end framework with the Flask back-end
- Handling data exchange between the client and server

Week 3-4: User Authentication and Authorization

- Implementing user authentication and authorization in Flask
- Security best practices

Week 5-6: RESTful API Design Best Practices

- Advanced topics in RESTful API design
- Documenting APIs and using Swagger

## **Month 4: Advanced Topics and Final Project**

Week 1-2: Advanced Python Features

- Asynchronous programming in Python
- Handling exceptions and error responses

Week 3-4: Deployment and Containerization

- Deployment strategies for Python applications
- Containerization with Docker

Week 5-6: Final Project and Project Presentations

- Guided work on a full-stack project
- Final project presentations and feedback