Global Horizon
TRAINING CENTER

Training Course:
Building APIs and Microservices with Python: A
Practical Training Program

18 - 22 August 2025
Trabzon (Turkey)

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Building APIs and Microservices with Python: A Practical Training Program

Training Course code: IT236129 From: 18 - 22 August 2025 Venue: Trabzon (Turkey) - Training Course Fees: 6000 ⬜ Euro

Introduction:

This comprehensive hands-on course, designed by Global Horizon Training Center, equips developers and IT professionals with practical skills to design, develop, and deploy efficient APIs and microservices using Python. The training will guide participants through core RESTful API principles, modern Python frameworks like Flask and FastAPI, microservice architecture, containerization with Docker, and deployment strategies. By the end of the course, participants will have built scalable, modular, and maintainable backend systems.

Objectives:

Participants will be able to:

- Understand REST principles and the structure of HTTP APIs

- Develop APIs using Flask and FastAPI

- Implement authentication, input validation, and error handling

- Design modular microservices using Python

- Use Docker to containerize APIs for microservice deployment

- Deploy services locally and in the cloud using best practices

Target Audience:

- Backend developers and Python programmers

- DevOps engineers and solution architects

- IT professionals interested in microservices architecture

- Software engineers building scalable distributed systems

Course Outline

Day 1: REST API Foundations and Flask Basics

- Introduction to APIs, REST architecture, and HTTP methods

- Understanding JSON, status codes, and RESTful conventions

- Setting up a Python virtual environment

- Introduction to Flask: routing, views, and responses

- Building a simple Flask-based API with GET/POST methods

- Hands-on: Create a basic note-taking or task API with Flask

Day 2: Advanced Flask and FastAPI Introduction

- Flask Blueprints for modular design

- Error handling and input validation using Flask-RESTful

- Introduction to FastAPI: async programming with Python

- FastAPI routing, Pydantic models, and documentation Swagger UI

- Comparing Flask and FastAPI performance, ease of use

- Hands-on: Build the same API in FastAPI and benchmark performance

Day 3: Microservices Design and Communication

- Understanding microservices architecture: benefits and challenges

- Structuring projects with multiple services e.g., User, Orders, Auth

- Synchronous communication using HTTP

- Asynchronous communication basics intro to message queues

- Service discovery, API gateways basic intro

- Hands-on: Split existing app into two services and enable interaction

Day 4: Authentication, Testing, and Dockerization

- JWT-based authentication and token management

- API security best practices CORS, rate limiting basics

- Writing tests for APIs using pytest

- Introduction to Docker: containers, images, Dockerfile

- Docker Compose for microservices

- Hands-on: Dockerize each service and run them together using Compose

Day 5: Deployment and Final Project

- Configuration management using environment variables

- Deployment options: Heroku, Render, AWS EC2 overview

- CI/CD basics GitHub Actions or GitLab CI overview

- Logging and monitoring fundamentals

- Final Project: Build and deploy a simple e-commerce microservice system

- Presentation, review, Q&A, and course wrap-up

Registration form on the Training Course:
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