KOENIG
step forward

KOENIG SOLUTIONS · COURSE OUTLINE

Tornado Python: Async APIs & WebSockets

Learn to build asynchronous web applications and APIs with Tornado, from routing and WebSockets to testing and deployment.

3 Days
DURATION

22
TOPICS

COURSE OVERVIEW

This course introduces the Tornado web framework, covering environment setup, asynchronous request handling, the IOLoop, template rendering and static file handling. It then examines core application components including forms, authentication, sessions, cookies, WebSocket support, RESTful APIs, testing and error handling. Finally, it addresses advanced topics such as security practices, CORS, performance optimisation, load testing, deployment options like Nginx and Docker, and database integration with MongoDB and MySQL.

WHO THIS COURSE IS FOR

- **Python Developers**
- **Backend Developers**
- **API Developers**
- **Web Application Developers**
- **DevOps Engineers**

LEARNING OBJECTIVES

- Explain asynchronous programming concepts and the Tornado IOLoop
- Configure a development environment and set up Tornado
- Implement request handlers, routing and template rendering
- Build forms, authentication, sessions and cookie handling
- Develop real-time features using Tornado WebSocket support
- Build RESTful APIs and apply error handling and logging
- Apply security practices including CORS handling
- Plan deployment and scaling using Nginx, Docker and databases

COURSE SYLLABUS

22 Topics

DAY 1 Introduction to Tornado and Asynchronous Programming

TOPICS

- Introduction to Tornado web framework
- Setting up a development environment (Python, virtual environment)
- Installing Tornado and creating a simple “Hello World” application
- Overview of asynchronous programming in Tornado
- Request handlers and basic routing in Tornado
- Asynchronous Request Handlers and the Tornado IOLoop
- Template rendering with Tornado
- Handling static files and media with Tornado

DAY 2 Tornado Web Application Components

TOPICS

- Working with Tornado’s template engine
- Forms and form handling in Tornado
- Tornado authentication and user sessions
- Handling cookies and secure sessions
- Tornado WebSocket support for real-time applications
- Building RESTful APIs with Tornado
- Testing Tornado applications (unit testing with Tornado Testing)
- Error handling and logging in Tornado

DAY 3 Advanced Tornado Topics and Deployment

TOPICS

- Tornado security best practices
- Handling Cross-Origin Resource Sharing (CORS) in Tornado
- Performance optimization and scaling strategies
- Load testing Tornado applications
- Tornado deployment options (Nginx, Docker, etc.)
- Integrating Tornado with databases (e.g., MongoDB, MySQL)

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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