BLACKBIRD FOR TRAINING

Professional API Design & Standards

23 – 27 May 2027
Cairo (Egypt)



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Introduction

In today's interconnected digital landscape, application programming interfaces APIs are essential for enabling seamless communication between systems, applications, and services. As organizations continue advancing their digital transformation, the focus has shifted from simply building functional APIs to designing interfaces that are clear, consistent, secure, and aligned with industry standards.

This course delivers a structured and practical approach to API design and development, combining foundational knowledge with real-world application. It covers key concepts such as RESTful API design, standardized resource structuring, and widely adopted specifications like OpenAPI Swagger. Participants will gain the skills needed to design scalable, reliable, and developer-friendly APIs that meet modern development demands.

Course Objectives

By the end of this course, participants will be able to:

- Understand the core concepts of APIs and their role in modern systems
- Apply RESTful API design principles in real-world scenarios
- Use best practices for resource naming and API structuring
- Work effectively with HTTP methods and status codes
- Design clear API requests and responses using JSON
- Apply essential API security practices
- Create and interpret API documentation using OpenAPI Swagger
- Identify and avoid common API design mistakes
- Build simple, functional, and well-structured APIs

Course Outlines

Day 1: Introduction to APIs and Communication Principles

- Key concepts: API, endpoint, request, response
- Role of APIs in system integration and communication
- Overview of API types: REST, SOAP, and GraphQL
- Fundamentals of REST architecture
- Understanding resources and endpoints
- Real-world examples in web and mobile applications



Day 2: API Design Fundamentals and Standards

- Best practices for resource naming and structure
- Designing clean and consistent URLs
- Working with HTTP methods: GET, POST, PUT, DELETE
- Understanding HTTP status codes
- Structuring requests and responses using JSON
- Implementing pagination and filtering
- Avoiding common API design mistakes

Day 3: Building APIs and Basic Security

- Overview of the API development lifecycle
- Step-by-step API creation process
- Input validation and structured error handling
- Introduction to API security concepts
- Authentication methods: API keys and token-based approaches
- Protecting APIs using rate-limiting techniques

Day 4: API Documentation and Testing

- Importance of professional API documentation
- Introduction to OpenAPI Specification Swagger
- Writing clear and structured API documentation
- Using tools such as Postman for API testing
- Understanding request and response testing processes
- Enhancing usability through effective documentation

Day 5: Evaluating API Effectiveness and Quality

- Principles of high-quality API design
- Measuring performance and reliability
- Analyzing API responses and behavior
- Monitoring API usage and identifying issues
- Applying continuous improvement practices
- Review of key concepts and best practices

Why Attend this Course: Wins & Losses!

- Build a strong foundation in professional API design aligned with global standards
- Develop the ability to create clear, consistent, and scalable APIs
- Improve system integration and reduce technical complexity
- Enhance your profile with in-demand API development skills
- Gain practical experience in API documentation, testing, and security



Conclusion

This course provides a solid and practical foundation for mastering API design and development according to modern standards and industry expectations. It empowers you to go beyond basic functionality and focus on building APIs that are efficient, scalable, secure, and easy to maintain.

By applying these principles and best practices, you will be able to design APIs that improve system performance, simplify integration, and support the delivery of reliable and high-quality digital solutions in today's evolving technology landscape.

