BLACKBIRD FOR TRAINING

API Design and Management using Postman and Swagger

7 – 11 March 2027
Cairo (Egypt)



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Introduction

In today's interconnected digital world, Application Programming Interfaces APIs form the backbone of modern software ecosystems. They enable seamless communication between systems, facilitate data exchange, and support agile development across platforms.

Effective API design and management ensure not only functional interoperability but also scalability, performance, and security.

The API Design and Management using Postman and Swagger course equips participants with the practical skills and technical insights needed to design, test, document, and manage APIs professionally.

Through real-world examples and hands-on practice, participants learn how to build efficient RESTful APIs, apply industry best practices, and use leading tools such as Postman and Swagger to streamline development and collaboration.

Course Objectives

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

- Understand the architecture and lifecycle of modern APIs.
- Design RESTful APIs that are scalable, efficient, and secure.
- Use Postman to test APIs and automate validation workflows.
- Document APIs accurately and interactively using Swagger OpenAPI.
- Apply authentication, authorization, and encryption methods.
- Manage API versioning, performance, and integration.
- Build collaboration between development and QA teams through API testing.
- Implement continuous improvement and monitoring practices for APIs.



Course Outlines

Day 1: Introduction to API Architecture and RESTful Design

- Understanding the role of APIs in digital ecosystems.
- REST principles and HTTP operations GET, POST, PUT, DELETE.
- Structuring endpoints and naming conventions.
- Data representation using JSON and XML.
- Status codes and error handling best practices.
- Practical exercise: Designing your first RESTful API.

Day 2: API Testing and Validation with Postman

- Overview of Postman and its user interface.
- Creating API requests and managing collections.
- Using environments and variables for testing.
- Automating tests using scripts in Postman.
- Analyzing responses and debugging errors.
- Hands-on session: Building automated API test suites.

Day 3: API Documentation with Swagger and OpenAPI

- Introduction to Swagger and OpenAPI standards.
- Creating interactive API documentation.
- Writing and structuring OpenAPI YAML/JSON files.
- Integrating Swagger UI for developer-friendly interfaces.
- Generating and sharing API documentation automatically.
- Workshop: Building and publishing live API documentation.

Day 4: API Security and Authentication

- Understanding key API security principles.
- Implementing OAuth 2.0, API keys, and token-based authentication.
- Managing encryption and secure data transmission.
- Preventing common vulnerabilities e.g., injection, replay attacks.
- Monitoring and auditing API activity.
- Exercise: Securing a RESTful API using authentication layers.



Day 5: API Lifecycle Management and Governance

- Managing the API development lifecycle from design to deployment.
- Versioning strategies and backward compatibility.
- Performance optimization and scalability techniques.
- Setting up API analytics and monitoring tools.
- Governance, documentation maintenance, and deprecation planning.
- Final project: Designing and managing a complete API workflow.

Why Attend this Course: Wins & Losses!

- Gain a comprehensive understanding of API design and lifecycle management.
- Develop hands-on experience with Postman and Swagger.
- Improve collaboration and communication within development teams.
- Learn to implement secure and reliable API authentication mechanisms.
- Automate testing and validation processes to reduce development time.
- Enhance the quality and consistency of API documentation.
- Strengthen integration capabilities across enterprise systems.
- Acquire practical skills highly demanded in the IT and software industry.

Conclusion

APIs are at the heart of digital transformation, enabling innovation, automation, and integration across diverse systems.

The API Design and Management using Postman and Swagger course empowers participants to master the complete API lifecycle — from design to testing, documentation, and governance.

Through structured learning and practical application, participants gain the skills to create robust, secure, and scalable APIs that drive organizational efficiency and technical excellence.

Mastering API management is no longer optional; it's essential for every modern IT professional striving to lead in a connected digital environment.

