

API Design and Management

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Course Introduction

- Overview of API Design and Management
- Role and Importance of APIs in Microservices and Distributed Systems

Understanding APIs

API Design Principles

- Fundamentals of Good API Design
- Designing for Scalability and Performance
- API Versioning Strategies

RESTful API Design

- RESTful Architecture Principles
- Designing RESTful Services (Endpoints, HTTP Methods, Status Codes)
- Best Practices in RESTful API

Advanced API Protocols

- Introduction to GraphQL and Its Advantages
- Implementing gRPC for Microservices
- Comparison of Different API Styles

API Documentation and Specification

- Importance of Comprehensive API Documentation
- Tools for API Documentation (Swagger, OpenAPI Specification)
- Maintaining and Versioning API Documentation

API Security

- Authentication and Authorization Mechanisms (OAuth, JWT)
- Securing API Endpoints
- Handling Sensitive Data and Privacy Concerns

API Testing and Quality Assurance

- Writing Effective API Tests
- Tools and Frameworks for API Testing
- Performance Testing and Load Testing for APIs

API Management and Lifecycle

- The Lifecycle of API Development
- API Deployment Strategies
- Monitoring and Analytics for APIs

Conclusion

- Recap of Key Learnings
- Emerging Trends in API Development