€TRAINING

System Design - High Level and Low Level

System Design - High Level and Low Level

Introduction:

In this 5-day training course, we will cover the fundamentals of System Design, both high-level and low-level. System design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. The course is designed to help participants understand the basics of system design and develop the skills to design and build robust systems.

Course Objectives:

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

- Understand the fundamentals of system design.
- Learn the difference between high-level and low-level design.
- Develop the skills to design and build scalable and reliable systems.
- Learn how to identify and solve design problems.
- Understand the role of architecture and design patterns in system design.

Targeted Audience:

This course is designed for software engineers, software architects, technical leads, and anyone interested in developing their system design skills.

Course Outlines:

Unit 1: Introduction to System Design

- Understanding the System Design Process
- Types of System Design
- Importance of System Design
- The role of Architecture in System Design
- Identifying and Analyzing Design Requirements

Unit 2: High-Level System Design

- Understanding High-Level Design
- System Architecture and Components
- Design Patterns and Principles
- Scalability and Performance Considerations
- Security and Privacy in System Design

Unit 3: Low-Level System Design

- Understanding Low-Level Design
- Data Structures and Algorithms
- Designing for Concurrency and Parallelism
- Tradeoffs in System Design

- Optimization Techniques

Unit 4: System Design Tools and Techniques

- Introduction to UML
- Modeling and Design Tools
- Testing and Debugging
- Code Reviews and Refactoring
- Continuous Integration and Deployment

Unit 5: Real-World System Design Scenarios

- Case Studies in System Design
- Designing for Mobile and Web Applications
- Designing for Distributed Systems
- Designing for Cloud-Based Systems
- Designing for Machine Learning and AI Systems