€TRAINING

High Level and Low Level System Design

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Introduction:

This training program provides participants with essential knowledge and skills in System Design, covering both High-Level and Low-Level design approaches. It empowers them to understand the principles, methodologies, and practical applications of designing systems at different abstraction levels.

Program Objectives:

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

- Understand the concepts and principles of High-Level and Low-Level System Design.

- Apply structured approaches to translate requirements into system architecture.

- Implement best practices in designing scalable, reliable, and efficient systems.

- Evaluate and optimize system designs based on performance, security, and maintainability criteria.

Targeted Audience:

- System Architects.

- Software Engineers involved in system design.

- Technical Leads and Project Managers.

- IT Professionals aspiring to enhance their system design skills.

Program Outline:

Unit 1:

Introduction to System Design:

- Overview of System Design principles.

- Importance of system architecture in software development.

- Differences between High-Level and Low-Level design.

- Design considerations: scalability, reliability, performance.

- Integration of system design with development lifecycle.

Unit 2:

High-Level System Design:

- Requirements gathering and analysis.

- Architectural patterns and design paradigms.

- Designing system components and interactions.

- Designing for modularity and reusability.

- Case studies on scalable system architectures.

Unit 3:

Low-Level System Design:

- Detailed design of system components.

- Class and sequence diagrams.

- Data modeling and database design considerations.

- API design and integration points.

- Designing for security and data privacy.

Unit 4:

Performance and Optimization in System Design:

- Performance metrics and benchmarks.

- Techniques for optimizing system performance.

- Load balancing and scalability strategies.

- Caching mechanisms and database performance tuning.

- Continuous improvement and optimization frameworks.

Unit 5:

Evaluating and Documenting System Designs:

- Design review processes and methodologies.

- Documentation standards for High-Level and Low-Level designs.

- Tools for documenting system architectures UML tools.

- Communicating designs to stakeholders and development teams.

- Best practices for maintaining design documentation.