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Introduction to System Design Basics

Master the fundamentals of effective system design.

DEFINITION

> System design is the process of defining the architecture, components, and interfaces of a system. It aims to create a blueprint that meets specific requirements and solves problems efficiently.

KEY CONCEPTS

Scalability

Scalability refers to a system's ability to handle increased load by adding resources.

Reliability

Reliability is the assurance that a system will perform consistently and without failure.

Maintainability

Maintainability is the ease with which a system can be updated or repaired.

Performance

Performance measures how quickly a system responds to requests and processes data.

Security

Security involves protecting a system from unauthorized access and ensuring data integrity.

EXAMPLES

→ Designing a web application to support 10,000 concurrent users.

→ Creating a database schema for an e-commerce platform.

→ Implementing load balancers to distribute traffic effectively.

MEMORY TIPS

★ Remember 'SRMPS' for Scalability, Reliability, Maintainability, Performance, Security.

★ Visualize a building blueprint to associate design with structure.

★ Think of a car: it needs speed (performance), reliability, and regular maintenance.

COMMON MISTAKES

✗ Neglecting to consider scalability during initial design.

✗ Overcomplicating the design with unnecessary features.

✗ Ignoring security measures until after deployment.

QUICK RECAP

System design is crucial for creating effective and efficient systems. Focus on key concepts like scalability, reliability, and performance to build robust solutions.