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**COURSE CODE 23IT702**

# Computing Paradigms

- ▶ • Definition of Computing Paradigms
- ▶ • Evolution of Computing Models
- ▶ • Importance in Modern Computing

# Evolution of Computing

- ▶ • Mainframe Computing
- ▶ • Personal Computing
- ▶ • Distributed Computing
- ▶ • Cloud Computing

# Types of Computing Paradigms

- ▶ • Centralized Computing
- ▶ • Distributed Computing
- ▶ • Parallel Computing
- ▶ • Grid Computing

# Cluster Computing

- ▶ • Definition
- ▶ • Architecture
- ▶ • Advantages and Applications

# Grid Computing

- ▶ • Concept of Grid Computing
- ▶ • Features
- ▶ • Real-world Applications

# Utility Computing

- ▶ • Pay-per-use Model
- ▶ • Resource Sharing
- ▶ • Benefits

# Introduction to Cloud Computing



- ▶ • Definition
- ▶ • Characteristics
- ▶ • Need for Cloud Computing

# Cloud Computing Fundamentals

- ▶ • On-demand Self-service
- ▶ • Broad Network Access
- ▶ • Resource Pooling

# Essential Characteristics of Cloud



- ▶ • Rapid Elasticity
- ▶ • Measured Service
- ▶ • Scalability

# Cloud Service Models



- ▶ • IaaS (Infrastructure as a Service)
- ▶ • PaaS (Platform as a Service)
- ▶ • SaaS (Software as a Service)

# Cloud Deployment Models

- ▶ • Public Cloud
- ▶ • Private Cloud
- ▶ • Hybrid Cloud
- ▶ • Community Cloud

# Cloud Computing Architecture

- ▶ • Front-end Platform
- ▶ • Back-end Platform
- ▶ • Network Infrastructure

# Front-End Architecture



- ▶ • User Interface
- ▶ • Client Devices
- ▶ • Access Mechanisms

# Back-End Architecture

- ▶ • Servers
- ▶ • Storage Systems
- ▶ • Virtualization

# Virtualization in Cloud Computing



- ▶ • Hypervisors
- ▶ • Virtual Machines
- ▶ • Containerization

# Cloud Management

- ▶ • Resource Allocation
- ▶ • Monitoring and Control
- ▶ • Service Provisioning

# Cloud Security Management

- ▶ • Data Security
- ▶ • Identity and Access Management
- ▶ • Compliance

# Cloud Performance Management



- ▶ • Load Balancing
- ▶ • Auto-scaling
- ▶ • Fault Tolerance

# Advantages and Challenges

- ▶ • Cost Efficiency
- ▶ • Flexibility
- ▶ • Security Concerns
- ▶ • Vendor Lock-in

# Future Trends in Cloud Computin



- ▶ • Edge Computing
- ▶ • Serverless Computing
- ▶ • AI Integration in Cloud