Data Architecture Training

BILGINÇ IT Academy
info@bilginc.com
bilginc.com

Duration: **3 Day**

The **Data Architecture** course helps you understand the core principles of data architecture and design **scalable, efficient, and optimized data models** for real-world applications.

Throughout the course, you will gain in-depth knowledge of**data modeling, schema optimization, and modern data architectures**. You will also learn how to integrate structured, unstructured, and hybrid data solutions, design cloud-native systems, and build real-time processing architectures using tools like Kafka.

By the end of the course, you will be able to design**scalable AI/ML data architectures** and build end-to-end data solutions for business use cases.

Prerequisites

- Familiarity with database systems and SQL
- Working knowledge of at least one programming language (Python, Java, or Scala)
- Basic understanding of data engineering or data analysis workflows
- Awareness of ETL processes
- Familiarity or interest in cloud platforms (AWS, Azure, Google Cloud)
- Awareness of big data concepts (Hadoop, Spark, etc.)
- Basic understanding of data modeling techniques (e.g., star schema)
- Awareness of data governance and data security concepts

Who Should Attend

- Data Engineers
- Database Administrators
- Big Data Specialists
- Data Analysts and Data Scientists
- Cloud Architects

What You Will Learn

- Understand data architecture principles and responsibilities
- Design efficient data models and ERDs
- Solve real-world data modeling challenges
- Optimize schemas effectively
- Integrate structured, unstructured, and hybrid data solutions
- Design cloud-native and hybrid systems (including ETL/ELT pipelines)
- Build real-time processing systems using Kafka
- Apply best practices for data governance, quality, and security
- Design scalable architectures for AI/ML workflows
- Build end-to-end data architectures

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Training Outline

Data Architecture Fundamentals

- Introduction to data architecture
- Data modeling concepts
- Relational vs modern data warehouses

Data Storage

- NoSQL databases
- Data lakes and delta lakes

Data Design

- Data design principles
- OLTP vs OLAP

Modern Architectures

- Lambda and Kappa architectures
- ETL vs ELT

Data Pipelines

- Data pipelines for AI/ML

AI & Data Management

- AI and data governance
- Data security

Scalable Systems

- Scalable architectures for AI/ML
- Deployment and optimization

Data Quality & Security

- Data quality
- Security best practices