Data Architecture

Duration: 3 Days Course Code: GK840040 Delivery Method: Company Event

Overview:

Master the principles of data architecture and design scalable, efficient data models for real-world applications.
Data Architecture is designed to provide you with a in-depth understanding of the principles and responsibilities of data architecture. Throughout this course, you'll learn how to design efficient data models, solve real-world data modeling challenges, and optimize schemas. We'll explore the integration of structured, unstructured, and hybrid data solutions, and you'll gain hands-on experience in architecting cloud-native and hybrid systems. Additionally, we'll cover building real-time processing systems with tools like Kafka, and you'll learn best practices in data governance, quality, and security. By the end, you'll be equipped to design scalable architectures for AI/ML workflows and create end-to-end data architectures for various business use cases.
This course is perfect for anyone looking to deepen their understanding of data architecture and stay ahead in the ever-evolving field of data management. Join us and take the next step in your data architecture journey.

Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

Target Audience:

This course is ideal for Data Engineers, Database Administrators, Big Data Specialists, Data Analysts and Scientists, and Cloud Architects who are looking to enhance their skills in data architecture and management.

Objectives:

- Understand the principles and responsibilities of Data Architecture.
- Design efficient data models and Entity-Relationship Diagrams (ERDs).
- Solve real-world data modeling challenges and optimize schemas.
- Compare and integrate structured, unstructured, and hybrid data solutions.
- Architect cloud-native and hybrid systems, integrating ETL/ELT pipelines.
- Build real-time processing systems with tools like Kafka.
- Apply best practices in data governance, quality, and security.
- Design scalable architectures for AI/ML workflows.
- Create end-to-end data architectures for business use cases.

Prerequisites:

- Familiarity with database systems, SQL, and basic data management concepts.
- Working knowledge of at least one programming language (e.g., Python, Java, or Scala).
- Basic understanding of data engineering or data analysis workflows.
- Awareness of ETL processes and data integration principles.
- Familiarity with cloud platforms (e.g., AWS, Azure, or Google Cloud) or interest in transitioning to cloud-based systems.
- Awareness of big data concepts and tools (e.g., Hadoop, Spark) but no hands-on experience required.
- Understanding of basic data modeling techniques (e.g., star

schema, snowflake schema).
- Awareness of data governance and security concepts.
- Familiarity with modern data architectures, such as data lakes or warehouses.

Follow-on-Courses:

- GK821567 - Data Analysis Deep Dive

Content:

Data Architecture Fundamentals

- Introduction to Data Architecture
- Data Modeling Concepts
- Relational vs Modern Data Warehouses
- NoSQL Databases
- Data Lakes and Delta Lakes

Data Design Concepts

- Cloud Data Architectures
- OLTP vs. OLAP
- Lambda and Kappa Architectures
- ETL vs. ELT
- Data Pipelines for AI/ML

AI, Data Governance, Security, and Management

- Scalable Data Architectures for AI/ML
- Deployment and Optimization of AI/ML Systems
- Data Governance and Quality
- Data Security Best Practices

Further Information:

For More information, or to book your course, please call us on 0800/84.009

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www.globalknowledge.com/en-be/