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Course Name

Data Architecture & Data Modeling Fundamentals

Sector Name

Information Technology

Document Type

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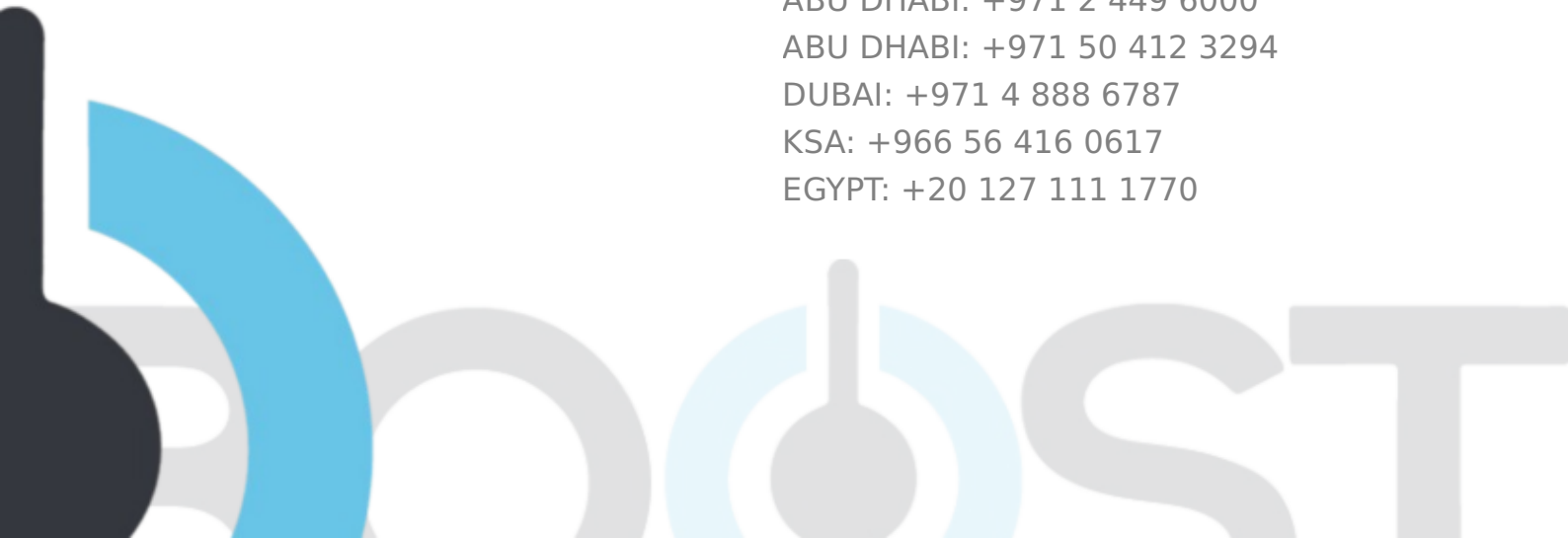
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Data Architecture & Data Modeling Fundamentals

Course Introduction

This **5-day** program provides a comprehensive foundation in **Data Architecture and Data Modeling**, covering data architecture principles, data requirements, conceptual/logical/physical modeling, relational and dimensional modeling, data integration, governance, and modern data architecture concepts.

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Data Architecture & Data Modeling Fundamentals

Target Audience

- ✓ Data Architects
- ✓ Data Analysts
- ✓ Data Engineers
- ✓ Business Analysts
- ✓ Database Developers
- ✓ BI Developers
- ✓ Database Administrators
- ✓ IT Professionals
- ✓ Data & Analytics Managers

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Learning Objectives

- ✓ Understand key Data Architecture concepts and principles.
- ✓ Understand the role of data architecture within an organization.
- ✓ Identify data requirements and business data domains.
- ✓ Develop conceptual, logical, and physical data models.
- ✓ Apply relationships, keys, normalization, and data integrity principles.
- ✓ Design dimensional models using Star and Snowflake schemas.
- ✓ Understand data integration and data flow concepts.
- ✓ Apply basic data governance and data quality principles.
- ✓ Evaluate data architecture and modeling decisions for business needs.

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Course Outline

✓ DAY 1

Data Architecture Fundamentals

- ✓ Introduction to Data Architecture
- ✓ Data Architecture Principles & Components
- ✓ Data Domains and Data Assets
- ✓ Business, Application and Data Layers
- ✓ Data Architecture Frameworks
- ✓ Data Flows and Data Lifecycle
- ✓ Operational vs. Analytical Data
- ✓ **Practical Exercise:** Developing a basic data architecture

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Course Outline

✓ DAY 2

Data Modeling Fundamentals

- ✓ Introduction to Data Modeling
- ✓ Business & Data Requirements
- ✓ Entities, Attributes and Relationships
- ✓ Business Rules and Cardinality
- ✓ Conceptual Data Modeling
- ✓ Logical Data Modeling
- ✓ Entity Relationship Diagrams (ERDs)
- ✓ **Practical Exercise:** Creating a conceptual and logical data model

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Course Outline

✓ DAY 3

Relational & Physical Data Modeling

- ✓ Relational Data Model Concepts
- ✓ Tables, Columns and Data Types
- ✓ Primary, Foreign and Composite Keys
- ✓ Referential Integrity
- ✓ Data Normalization – 1NF, 2NF, 3NF
- ✓ Physical Data Modeling
- ✓ Constraints and Indexing
- ✓ **Practical Exercise:** Developing a physical database model

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Course Outline

✓ DAY 4

Dimensional Modeling & Data Integration

- ✓ OLTP vs. OLAP
- ✓ Dimensional Data Modeling
- ✓ Fact and Dimension Tables
- ✓ Star and Snowflake Schemas
- ✓ Measures and Data Grain
- ✓ Slowly Changing Dimensions – Introduction
- ✓ Data Integration Concepts
- ✓ ETL/ELT and Data Pipelines
- ✓ **Practical Exercise:** Designing a dimensional model and basic data flow

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Course Outline

✓ DAY 5

Modern Data Architecture, Governance & Case Study

- ✓ Data Warehouse Architecture
- ✓ Data Lake and Lakehouse Concepts
- ✓ Modern Data Architecture Patterns
- ✓ Data Governance Fundamentals
- ✓ Data Quality and Metadata
- ✓ Data Security and Access Considerations
- ✓ Data Architecture Best Practices
- ✓ **Final Case Study:** Designing an end-to-end Data Architecture and Data Model
- ✓ Review, Discussion and Assessment

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Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
Oct. 19, 2026	Oct. 23, 2026	5 days	4250.00 \$	UAE , Dubai

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