ENTERPRISE PROGRAM BRIEF

# SQL and Data Engineering Foundations

Create a small analytical dataset with repeatable ingestion and quality checks.

VNode ITeS | F05

| DURATION | LEVEL | FORMAT |
|---|---|---|
| 40 hours | Foundation | Private cohort |

AUDIENCE PROFILE

## Built for these roles

Data professionals, Technical analysts

OVERVIEW

## Executive overview

Create a small analytical dataset with repeatable ingestion and quality checks. Proposed instructor-led duration; delivery subject to environment and lab validation.

READINESS

## Prerequisites

- Basic data literacy

PROGRAM OUTCOMES

## Capabilities your teams will gain

- Produce analytical tables at the agreed business grain
- Reconcile joins, totals, increments and rerun results
- Handle malformed and rejected data with explicit ownership
- Deliver source contracts, reference queries and recovery notes

ENTERPRISE CUSTOMIZATION

## Enterprise customization

Tailor this program to your organization's priorities: Create a small analytical dataset with repeatable ingestion and quality checks.

- Private cohort scheduling
- Equivalent-experience entry review

CURRICULUM

# Curriculum roadmap

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MODULE 1 · 8 HOURS

## Querying relational data

Query a fictional service-operations dataset and verify totals.

- SELECT and filters
- NULL handling
- Aggregates
- Data types

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MODULE 2 · 8 HOURS

## Combining and shaping data

Create analytical transformations and explain grain and join cardinality.

- Joins
- CTEs
- Window functions
- Deduplication

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MODULE 3 · 8 HOURS

## Data modelling and contracts

Design a model and source-to-target contract for operational reporting.

- Keys
- Fact and dimension concepts
- History
- Schema and ownership

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MODULE 4 · 8 HOURS

## Reliable data movement

Implement a repeatable load with duplicate, late and invalid records.

- Batch and streaming concepts
- Incremental loads
- Idempotency
- Quality and reconciliation

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MODULE 5 · 8 HOURS

## Data product project

Deliver an analytical dataset and demonstrate rerun behaviour and data-quality exceptions.

- Orchestration concepts
- Monitoring
- Access requirements
- Acceptance tests

PREPARATION

## Environment prerequisites

SQL execution environment with the supplied relational sample database Synthetic raw files and a documented load mechanism Read/write permissions limited to the training database Delivery depends on environment and lab validation. This outline does not include step-by-step lab instructions.

CAPSTONE

## Capstone

Deliver an analytical dataset and demonstrate rerun behaviour and data-quality exceptions. Assessed data engineering project Evidence of relevant access, quality and risk controls Demonstration and limitations record

ASSESSMENT

## Assessment

Scenario-based practical assessment Produce analytical tables at the agreed business grain 30% Reconcile joins, totals, increments and rerun results 25% Handle malformed and rejected data with explicit ownership 25% Deliver source contracts, reference queries and recovery notes 20% Proposed VNode outline-level assessment; no vendor accreditation or completed lab validation implied.

DELIVERABLES

## Participant deliverables

- Assessed data engineering project
- Evidence of relevant access, quality and risk controls
- Demonstration and limitations record

SCOPE

## Scope boundaries

Step-by-step lab instructions; Runnable solution code; Packaged source datasets; Executed environment validation

DELIVERY

## Delivery options

Count teaching hours, not calendar days. Exclude breaks. Split into 4-hour or 8-hour teaching sessions; schedule complex project work in contiguous blocks. Proposed hours exclude breaks and are subject to pilot validation.

PRIVATE DELIVERY

### Plan a private cohort for your team

Scope delivery format, role mix, and rollout timeline with our solutions team.

Plan Private Delivery

Book advisory call