Zensar Training Program

Module 1: RDBMS and SQL → 10 Days

Module 2: Data Warehouse and Dimensional Modelling → 5 Days

Module 3 → Power BI → 4 Days

Total Duration → 19 days

Day wise Course Contents

Day 1:

1. Initialization of the Class
    a. Introduction of Trainer & Students
    b. Setting the training protocol and expectations from students
    c. Introducing Lab Setup

Module 1: RDBMS and SQL

2. Introduction to Database
    a. History of Data base
    b. Data base fundamentals
    c. DBMS and RDBMS
    d. Data Modeling Terms and Concepts
    e. Data Integrity Rules
3. Codd's Rules
4. Relational Data Modelling
    a. Keys and Referential Integrity
    b. Relational Algebra
    c. Relational Calculus

Day 2:

5. Relational Database Design
    a. Informal Design Guidelines
    b. Normalization
    c. Normal Forms
    d. Steps for Normalization
6. Data Models
    a. Data model role in Business
    b. Types of Data Model
    c. ER Modeling
    d. Entities and Attributes
    e. Entity Relationships
    f. Degree of Relationships
    g. Relationship Constraints
    h. Weak Entity

Case Study Questions based on the Day 2 topics

Day 3:

7. Introduction to SQL Server as a RDBMS
    a. Versions overview
    b. Installation and Configuration overview
    c. Getting acquainted with SSMS
8. Introduction to SQL
    a. What is SQL?
    b. Types of SQL – ANSI and Proprietary
    c. Types of SQL Commands
    d. SQL Data Types
9. Exploring Select Statement
    a. Column List
    b. Where Clause
    c. Derived Columns
    d. Order By clause
    e. Exploring SQL Functions such as
        i. Conditional function
        ii. Null Handling Functions
        iii. Type Conversion functions
        iv. Date Functions
    f. Special SQL operators such as Like, between, In, Is Null

Lab Assignments based on the Day 3 topics

Day 4:

10. Exploring Select Statement continued
    a. Distinct Clause
    b. Aggregate Functions
    c. Group by Clause
    d. Having Clause
    e. Execution of all 6 clauses of Select statement
11. DDL & DML
    a. Creating tables
    b. Constraints
    c. Identity Property, Computed Columns
    d. Insert, Update & Delete Commands
    e. Select Into Clause

Lab Assignments based on the Day 4 topics

Day 5:

12. Set Operators
    a. Union

b. Union All
c. Intersect
d. Except

13. Sub Query
    a. Scalar or Self-Contained Sub queries
    b. Multi row Sub Queries
    c. Exists Operators with Sub Queries

Lab Assignments based on the Day 5 topics

Day 6:

14. Correlated Sub Queries
15. Correlated Sub Queries with Exists Operators
16. Joins
    a. Inner Join or Equi-Join
    b. Non Equi Join
    c. Outer Joins – Left, Right and Full
    d. Cross Joins
    e. Self Joins

Lab Assignments based on the Day 6 topics

Day 7:

17. Derived Tables
18. Common Table Expressions
19. Windowing Functions or Analytical Functions
20. Temporary Tables

Lab Assignments based on the Day 7 topics

Day 8:

21. Views
22. Introducing Programming in Databases
    a. Batch program in SQL Server Database
    b. Variables
    c. Conditional Statements
    d. GoTo Statement
    e. Loops in SQL Server
23. Exception Handling

Lab Assignments based on the Day 8 topics

Day 9:

24. Cursors
25. Stored procedures

26. User Defined Functions

Lab Assignments based on the Day 9 topics

Day 10:

27. Triggers
28. Database Management
    a. Creating Database
    b. Overview of Backup & Restoring Database
    c. Creating Indexes
    d. Indexed View

Lab Assignments based on the Day 10 topics

Day 11

Module 2: Data Warehouse and Dimensional Modelling

1. Data Warehouse – Introduction
    a. Evolution of Data Warehousing
    b. Data marts Vs Data Warehouses
    c. Operational Data Stores
    d. Warehouse components
    e. Concept of ETL
    f. Warehouse Architecture
    g. Data Staging

2. Data Warehouse - Dimensional Modeling
    a. Overview of Dimensional Modeling
    b. DWH Architecture
    c. Dimensional Tables
    d. Attributes
    e. Hierarchy
    f. Fact Table
    g. Facts
    h. Granularity

Day 12

3. Data Warehouse –Continues
    a. Star & Snowflake Schemas
    b. Data Aggregation
    c. Data Explosion
    d. Dimensional modeling Steps

e. Types of Dimensions
f. Additive behavior of Facts
g. Transactions and Snapshot Schemas
h. Role playing dimensions
i. Views of Bill Inmon and Ralph Kimbal

4. Data Warehouse –Design factors
    a. Meta Data
    b. Accessing Data Warehouse
    c. OLAP
    d. OLTP vs. OLAP
    e. Types of OLAP
    f. DW Modeling techniques
    g. Modelling tool selection

Day 13

5. ETL Process
    a. ETL – Definition
    b. Framework of ETL
    c. Data Extraction Methods
    d. Data Transformation Activities
    e. Aggregation Techniques
    f. Data Loading - Overview
    g. Types of Load
    h. Change Data Capture
6. SQL Server Integration Services (SSIS) as an ETL tool
    a. Introduction to SSIS
    b. Architecture of SSIS
    c. Environment of SSIS (SSDT)
    d. Basic ETL done in SSIS

Day 14

7. Transformations in SSIS
8. Control Flow Tasks in SSIS
9. Error Handling in SSIS

Lab Assignments based on the Day 14 topics

Day 15

10. CDC in SSIS
11. Logging in SSIS

12. Configuring and Deploying SSIS Packages

Lab Assignments based on the Day 15 topics

Day 16

Module 3: Power BI

1. Introduction to Power BI
    a. Introduction of Data Visualization
    b. Evolution of Power BI through the Excel Add-ins such as Power Pivot, Power Query, Power View and Power Map.
    c. Power BI Products
        i. Power BI Desktop
        ii. Power BI Services
        iii. Power BI Mobile Apps
    d. Overview of Power BI Architecture
    e. Understanding Data – Dimensions & Measures in Power BI
2. Installation and Configuration details of Power BI
    a. Installing Power BI Desktop
    b. Configuring Power BI Service
3. Getting connected to various Data Sources
    a. Text files
    b. Excel Files
    c. RDBMS such as SQL Server
4. Data Transformations
    a. Formatting exiting columns (trimming, extracting part of text, etc.)
    b. Merging Queries
    c. Appending Queries
    d. Removing rows
    e. Special functionalities like Transpose & Pivot
    f. Creating new columns using expressions

Lab Assignments based on the Day 16 topics

Day 17

5. Data Modelling: Relationships
    a. Relating two tables or sources
    b. Relating more than 2 tables or sources
    c. Handling many to many relationships
    d. Cross Filter directions
    e. Active – Inactive relationships
6. DAX
    a. Introduction to DAX

b. Relational functions
c. Conditional functions
d. Aggregate functions
e. Date & Time functions
f. Logical functions
g. Text functions

7. Data Visualization in Power BI
    a. Understanding the power of charts in Power BI
    b. Pie Chart
    c. Clustered Column Chart
    d. Line & Stacked Column Chart
    e. Funnel Chart

Lab Assignments based on the Day 17 topics

Day 18

Data Visualization in Power BI Continues…

f. Line Chart
g. Map
h. Waterfall Chart
i. Scatter Chart
j. Gauge chart
k. Slicer
l. Card
m. Multi-row Card
n. Matrix
o. Creating Bookmarks
p. Creating Hierarchies
q. Creating Groups

8. Import vs Direct Query
    a. Pros and cons of both
    b. Demonstrating Direct Query connecting to SQL Server
9. Publishing Power BI Report
    c. Introduction to Dashboards
    d. Advantages of Dashboards
    e. Understanding Dashboards versus Reports
    f. Pinning selective visuals in a Dashboard
    g. Pinning a Live Page in a Dashboard
    h. Pin a tile to another Dashboard

Lab Assignments based on the Day 18 topics

Day 19

Publishing Power BI Report Continues…

i. Creating Quick Insights on a Dashboard
j. Use a Q&A in a Dashboard
k. Privileges required for creating a Dashboard, i.e. who can create the Dashboard.
l. Securing the Dashboards

10. Row Level Security in Power BI
    m. Creating roles
    n. Assigning roles to users
    o. Securing the Dashboards
11. Workspace
    a. Advantages of user defined workspace
    b. Providing user access to workspaces
12. Creating Reports from Data Sets
    c. Introducing Self-Serviced BI
    d. Creating report in Power BI Service by importing table formatted Excel file
    e. Creating report in Power BI Service from already published Datasets
    f. Creating Report in Power BI Desktop from already published Datasets

Lab Assignments based on the Day 19 topics
