


## What is Data?

Data refers to raw facts, figures, and statistics collected from various sources

## What is Data Analysis?

Data Analysis is an art to understand the data, identify hidden trends of data. This involves Data Presentation, Data Classification and Detailed understanding of data.

Data Analysis is the process of inspecting, cleaning, transforming, and modelling data to discover useful insights, draw conclusions, and support decision-making. It helps organizations identify trends, patterns, and actionable insights for better business strategies.

## What we learn in this course?

**Module 1: MSSQL & TSQL Queries, Tuning**
**Module 2: Power BI For Data Analytics**
**Module 3: Python For Data Analytics**
**Module 4: Advanced Excel & Analytics**
**Module 5: AI Enabled Data Analytics with CoPilot**
**Module 6: Real-Time Projects & Resume**

## Course Details:

- **Total Duration: 3 Months**
- **Training Modes**: **LIVE Online / Self-Paced Videos**

## Why SQL School?

- ✓ 100% Practical Training
- ✓ Real-Time Projects
- ✓ Daily Assignments & Weekly Feedback
- ✓ Resume & Interview Support
- ✓ Certification Guidance

## Who can Join?

- ✓ Freshers & Starters
- ✓ Career Gap Professionals
- ✓ IT & Non-IT Experienced Individuals




## 🔥 Data Analyst With AI: Detailed Course Content 🔥

### Module 1: MSSQL & TSQL

### Ch 1: SQL Database Job Roles

- ✓ **Database Intro**
- ✓ **OLTP, DWH, OLAP**
- ✓ **DBMS Basics**
- ✓ **Data Analyst Job Roles**

## Ch 2: Database Intro & Installations

- ✓ SQL Server Installations
- ✓ Instance & Collations
- ✓ SSMS Tool Installation
- ✓ Connections, Authentications

## Ch 3: SQL Basics V1 (Commands)

- ✓ SQL Basics (DDL, DML, etc..)
- ✓ Creating Databases, Tables
- ✓ Data Inserts (GUI, SQL)
- ✓ Basic SELECT Queries

## Ch 4: SQL Basics V2 (Commands, Operators)

- ✓ DDL: Create, Alter, Drop
- ✓ DML: Insert, Update, Delete
- ✓ DQL: Select, Fetch
- ✓ Add, Truncate Statements
- ✓ SQL Operators

## Ch 5: Data Types & Variables

- ✓ Integer Data Types
- ✓ Character, MAX Data Types
- ✓ Decimal & Boolean Data Types
- ✓ Date and Time Data Types
- ✓ SQL_Variant Type

## Ch 6: Data Imports

- ✓ Data Imports with Excel
- ✓ Data Imports with CSV
- ✓ Data Types Detection
- ✓ OLE-DB Connections
- ✓ ORDER BY, TOP, OFFSET

## Ch 7: Schemas & Batches

- ✓ Schemas & Table Grouping
- ✓ Real-world Banking Database
- ✓ 2 Part, 3 Part & 4 Part Naming
- ✓ Batch Concept & “Go” Command

## Ch 8: Constraints, Keys & RDBMS

- ✓ Null, Not Null Constraints
- ✓ Unique Key & Check
- ✓ Primary Key Constraint
- ✓ Foreign Keys, Default
- ✓ DB Diagrams & ER Models

## Ch 9: Normal Forms & RDBMS

- ✓ Normal Forms: 1 NF, 2 NF
- ✓ 3 NF, BCNF and 4 NF
- ✓ 1:1, 1:M, M:1 Cardinality
- ✓ Cascading Keys, Self Referencing Keys

## Ch 10: Joins & Queries

- ✓ Joins: Table Comparisons
- ✓ Inner Joins & Matching Data
- ✓ Outer Joins: LEFT, RIGHT
- ✓ Full Outer Joins & Aliases
- ✓ Self Joins & Aliases

## Ch 11: Sub Queries

- ✓ Basic Sub Queries
- ✓ Aggregations
- ✓ Combining Queries
- ✓ Correlated Sub Queries
- ✓ UNION, UNION ALL

## Ch 12: Group By Queries

- ✓ Group By, Distinct
- ✓ GROUP BY, HAVING
- ✓ Cube( ) and Rollup( )
- ✓ Sub Totals & Grand Totals
- ✓ Grouping( ) & Usage
- ✓ ISNULL, COALESCE

## Ch 13: Joins with Group By, Sub Queries

- ✓ 3 Table, 4 Table Joins
- ✓ Join Queries & WHERE
- ✓ Join & Group By, Sub Queries
- ✓ IIF(), CASE Statement
- ✓ EXISTS, NOT EXISTS
- ✓ Query Execution Order

## Ch 14: Views & RLS

- ✓ Views: Realtime Usage
- ✓ DML, SELECT with Views
- ✓ WITH CHECK OPTION
- ✓ Row Level Security (RLS)
- ✓ Important System Views

## Ch 15: Functions & Queries

- ✓ User Defined Functions
- ✓ Scalar, Table Value Functions
- ✓ Variables & Parameters
- ✓ Date & Time Functions

- ✓ String Functions
- ✓ Aggregated Functions
- ✓ Data Conversion Functions

## Ch 16: Advanced SQL & Window Functions

- ✓ Window Functions (Rank)
- ✓ Row_Number, DenseRank
- ✓ Partition By & Order By
- ✓ Lag & Lead Functions
- ✓ Pivot, UnPivot
- ✓ Running Totals
- ✓ Moving Average

## Ch 17: Stored Procedures - 1

- ✓ Stored Procedures: Realtime Use
- ✓ Parameters Concept with SPs
- ✓ Procedures with SELECT
- ✓ System Stored Procedures
- ✓ Stored Procedures, Tuning

## Ch 18: Stored Procedures - 2

- ✓ Merge Statement (Upsert)
- ✓ Merge with OLTP & DWH
- ✓ Matched and Not Matched
- ✓ Merge & SP Recompilations

## Ch 19: Triggers & Automations

- ✓ Need for Triggers in Real-world
- ✓ DDL & DML Triggers
- ✓ For / After Triggers
- ✓ Instead Of Triggers
- ✓ Disabling DMLs Triggers

## Ch 20: Transactions & ACID

- ✓ Auto Commit Transaction
- ✓ Explicit Transactions
- ✓ COMMIT, ROLLBACK
- ✓ Checkpoint & Query Blocking
- ✓ READPAST, LOCKHINT
- ✓ TRY...CATCH & Error Handling

## Ch 21: SQL Query Performance & Indexing

- ✓ Clustered vs Nonclustered Indexes
- ✓ Index Seek vs Scan
- ✓ Execution Plans
- ✓ SARGable Queries
- ✓ Tuning Queries

- ✓ Avoiding SELECT *
- ✓ Indexing JOIN/WHERE columns
- ✓ Statistics Basics
- ✓ Query Optimization Examples

### Ch 22: CTEs & Tuning

- ✓ Common Table Expression
- ✓ CTEs for Data Retrieval
- ✓ CTEs for DML Operations
- ✓ Data Cleansing Techniques
- ✓ Duplicate Detection/Removal

### Ch 23: Temp Tables & Query Techniques

- ✓ Local & Global Temp Tables
- ✓ SELECT..INTO Statement
- ✓ Cursor Basics – When to Use & Avoid
- ✓ NULLIF
- ✓ Basic Execution-Plan Reading

### Ch 24: Bonus / Advanced Module: SQL Server Internals

- ✓ Database Engine Components
- ✓ Parser, Compiler & Optimizer
- ✓ Parsing and Compilation
- ✓ Memory Manager & IO Managers

## Module 2: Power BI

### Ch 1: Power BI Intro, Installation

- ✓ Power BI & Data Analysis
- ✓ Power BI Eco System
- ✓ Power BI Design Tools
- ✓ Power BI Installation

### Ch 2: Report Design Concepts

- ✓ Basic Report Design (PBIX)
- ✓ Data Points, Spotlight
- ✓ Visual Interactions & Edits
- ✓ Focus Mode, PDF Exports

### Ch 3: Grouping, Hierarchies

- ✓ Creating Groups: Lists
- ✓ Creating Groups: Bins
- ✓ Hierarchies & Drill-Downs
- ✓ Drill Up, Conditional DrillDown

### Ch 4: Slicer & Visual Sync

- ✓ Slicer Visual in Power BI
- ✓ Slicer: Format Options
- ✓ Single Select, Multi Select
- ✓ Slicer: Select All On / Off
- ✓ Visual Sync with Slicers

## Ch 5: Filters & Drill Thru

- ✓ Power BI Filters
- ✓ Basic, Top & Advanced
- ✓ Visual Filters, Page Filters
- ✓ Report Level Filters, Clear Filter
- ✓ Drill Thru Filters & Usage

## Ch 6: Bookmarks, Buttons

- ✓ Power BI Bookmarks
- ✓ Images: Actions, Bookmarks
- ✓ Buttons: Actions, Bookmarks
- ✓ Page to Page Navigations
- ✓ Score Cards, Master Pages

## Ch 7: SQL DB Access & Big Data

- ✓ SQL DB Access, Queries
- ✓ Storage Modes: Direct Query
- ✓ Formatting & Date Time
- ✓ Storage Modes in Power BI
- ✓ Data Modeling & Formatting

## Ch 8: Power BI Visualizations

- ✓ Charts, Bars, Lines, Area
- ✓ Tree Maps & Axis Items
- ✓ Funnel, Card, Mult-Row Card
- ✓ Pie Charts & Waterfall
- ✓ Scatter Chart, Play Axis
- ✓ Infographics, Classifications

## Ch 9: Power Query Transformations - 1

- ✓ Power Query (Mashup)
- ✓ ETL Transformations in PBI
- ✓ Table Combine Options
- ✓ Merge, Union All Options
- ✓ Missing Values, Duplicate Records
- ✓ Wrong Data Types, Outliers
- ✓ Close, Apply & Visualize

## Ch 10: Power Query Transformations - 2

- ✓ Group By Transformation
- ✓ Aggregate, Pivot Operation
- ✓ Reverse Rows, Count Rows
- ✓ Data Cleaning, Null Handling
- ✓ Data Type Detection, Change
- ✓ Rename, Replace, Move
- ✓ Fill Up, Fil Down

## Ch 11: Power Query Transformations - 3

- ✓ String / Text Transformations
- ✓ Split, Merge, Extract, Format
- ✓ Numeric and Date Time
- ✓ Add Column & Expressions
- ✓ Column From Examples

## Ch 12: Power Query Transformations - 4

- ✓ Parameters in Power Query
- ✓ Static Parameters, Defaults
- ✓ Dynamic Dropdowns, Lists
- ✓ Linking with Table Queries
- ✓ Step Edits, Type Conversions

## Ch 13: Power BI Cloud & Fabric

- ✓ Power BI Cloud, Microsoft Fabric
- ✓ Microsoft Fabric Concepts
- ✓ Fabric One Lake (DWH, LH, etc.)
- ✓ Microsoft Fabric Workspace
- ✓ Power BI Desktop Connections
- ✓ Report Uploads (PBIX)
- ✓ Report Edits, Semantic Models

## Ch 14: Power BI Cloud Dashboards

- ✓ Power BI Dashboards
- ✓ Dashboard Creation, Usage
- ✓ Pin Visuals, Pin LIVE Pages
- ✓ Add Image, Video Tiles
- ✓ Q&A & Pin Tiles

## Ch 15: Power BI Cloud Operations

- ✓ Report Shares, Alerts
- ✓ Subscriptions, Exploration
- ✓ Downloads & Edits
- ✓ Report Cloning in Cloud

- ✓ QR Codes, Web Publish
- ✓ Lineage & Metrics

## Ch 16: Power BI Cloud Gateways

- ✓ Data Gateways, Data Refresh
- ✓ Install, Configure Gateways
- ✓ Data Refresh & Scheduling
- ✓ Gateway Optimizations
- ✓ Incremental Refresh
- ✓ Large Dataset Optimization

## Ch 17: Power BI Cloud Apps

- ✓ Power BI Apps: Creation
- ✓ App Sections & Content
- ✓ Audience & App Security
- ✓ App Updates, Favorites
- ✓ App URL, End User Access

## Ch 18: Power BI Report Server, RDL

- ✓ Power BI Report Server
- ✓ RS Config Tool Options
- ✓ Report Database, TempDB
- ✓ Web Service & Server URL
- ✓ Report Builder Tool
- ✓ Paginated Report (RDL)
- ✓ RDL Report Publish

## Ch 19: DAX Concepts & Calculations

- ✓ DAX Concepts: Intro & Realtime Need
- ✓ DAX Columns: Creation, Use
- ✓ DAX Measures: Creation, Use
- ✓ DAX Functions: IIF, ISBLANK
- ✓ SUM, CALCULATE Functions

## Ch 20: DAX Quick Measures

- ✓ Quick Measures in Power BI
- ✓ Running Totals
- ✓ Star Rating Calculations
- ✓ DAX Measures in Data View
- ✓ DAX in Cloud Reports

## Ch 21: Data Modelling

- ✓ Dimensions Tables
- ✓ Fact Tables & DAX Measures

- ✓ Data Models & DDAX Joins
- ✓ Star & Snowflake Schemas
- ✓ Many-to-Many Relationships
- ✓ Calculation Groups

## Ch 22: DAX Joins, Variables

- ✓ CALCULATEX & Variables
- ✓ COUNT, COUNTA, etc..
- ✓ SUM, SUMX, etc..
- ✓ SELECTED MEMEBER
- ✓ Filter Context, RETURN

## Ch 23: DAX Models & Calculations

- ✓ VAR, SWITCH, SUMMARIZE
- ✓ TREATAS, USERELATIONSHIP
- ✓ CROSSFILTER, GENERATE
- ✓ RANKX, TOPN, WINDOW
- ✓ OFFSET, INDEX

## Ch 24: DAX Time Intelligence

- ✓ Need for Time Intelligence
- ✓ Date Table Generation
- ✓ Time Intelligence with DAX
- ✓ PARALLELPERIOD, DATE
- ✓ CALENDAR, Total Functions
- ✓ YTD, QTD, MTD with DAX

## Ch 25: DAX - Row Level Security

- ✓ RLS: Row Level Security
- ✓ Data Modelling & Roles
- ✓ Add Cloud Users & KPIs
- ✓ CoPilot with DAX

## Ch 26: DAX – Analytical Reports

- ✓ DAX with Excel, AI
- ✓ Analytical Reports, CoPilot
- ✓ CoPilot Concepts & AI Analytics
- ✓ Cross Filters, AI Extensions

## Ch 27: PL 300 Exam Guidance

- ✓ PL 300 Exam Guidance
- ✓ Exam Samples
- ✓ Exam Scenarios

## Module 3: Python (For Data Analysts)

### Ch 1: Python Introduction

- ✓ Python Introduction
- ✓ Python Versions
- ✓ Python for Data Analysts
- ✓ Python Architecture

### Ch 2: Python Installations

- ✓ Python Installations
- ✓ Anaconda Installation
- ✓ Python IDE & Usage
- ✓ Jupyter Notebooks

### Ch 3: Python Print Statement

- ✓ Python Print Statement
- ✓ print(), print()
- ✓ Testing Case Sensitivity
- ✓ Single Line, Multi Line prints
- ✓ print() with single quotations
- ✓ Debug with AI (AI Assistants)

### Ch 4: Python Variables

- ✓ Python Variables
- ✓ Assigning values
- ✓ Variable Value Reads
- ✓ Multiple Variables & Print()

### Ch 5: Python Operators

- ✓ Athematic Operators
- ✓ Python String Literals
- ✓ Single, Double Quotes
- ✓ Format Strings (f string)
- ✓ Comparison, Indexing Operators

### Ch 6: Python Data Types

- ✓ Python Data Types
- ✓ Integer, Float, String Data Types
- ✓ Type Casting
- ✓ Type Identification
- ✓ Multi Value Assignments

### Ch 7: Python Lists

- ✓ Creating Python Lists
- ✓ Printing List Items
- ✓ Print List Slices
- ✓ Empty Lists, Append

- ✓ Loops, List Updates

## Ch 8: Python Dictionaries

- ✓ Python Dictionary
- ✓ Indexing Dictionaries
- ✓ Edit Key Values
- ✓ Lists inside Dictionaries
- ✓ Delete & Clear

## Ch 9: Python Tuples

- ✓ Python Tuples
- ✓ Defining, Indexing
- ✓ Length(), Type()
- ✓ Mixed Values in Tuples
- ✓ Overwriting Tuples

## Ch 10: Python IF..ELSE Condition

- ✓ If..Else conditions
- ✓ if..elif..else & Shorthand if
- ✓ composite conditions
- ✓ in & negation operators
- ✓ range conditions

## Ch 11: Python Loops

- ✓ Python For Loop
- ✓ For Loop @ Range
- ✓ For Loop @ Sequence Values
- ✓ While Loop, Exit Conditions
- ✓ Break, Continue, Paas

## Ch 12: Python Dataframes

- ✓ Dataframes: Creation
- ✓ Pandas Dataframes
- ✓ Dataframes From Single List
- ✓ Dataframes from Dictionary
- ✓ Display Dataframes, List Items
- ✓ Identify, Replace Nulls, NumPy

## Ch 13: Python SQL DB Access

- ✓ SQL DB Access with Python
- ✓ pyodbc module, sql functions
- ✓ SQL Query Executions: DDL, DML
- ✓ Filters, Aggregations with SQL
- ✓ Dataframe Usage with SQL

## Ch 14: Dataframe Transformations - 1

- ✓ Dataframe Transformations
- ✓ Concat & Append
- ✓ Merge Function
- ✓ Join with Multiple Dataframes
- ✓ Data Type Checks, Conversions
- ✓ Loops with Dataframes

### Ch 15: Dataframe Transformations - 2

- ✓ Pandas - Cleaning Data
- ✓ Replace, Transform Columns
- ✓ Data Discovery & Column Fill
- ✓ Identify & Remove Duplicates
- ✓ dropna(), fillna() Functions

### Ch 16: Dataframe Transformations - 3

- ✓ Python Functions for date, time
- ✓ Now() Function in Python
- ✓ date, time Functions
- ✓ Calendar Data Generation

### Ch 17: Python Functions & Lambda

- ✓ Python Functions & Usage
- ✓ Function Parameters
- ✓ Default & List Parameters
- ✓ Python Lambda Functions
- ✓ Return & Print @ Lamdba

## Module 4: Excel Analytics (Basic to Advanced)

### Ch 1: Excel Concepts, Basic Functions

- ✓ Excel Basics & Concepts
- ✓ Excel Functions
- ✓ Excel Operations

### Ch 2: Formatting and Proofing

- ✓ Currency Format
- ✓ Custom and Special Formats
- ✓ Formatting Cells
- ✓ Absolute, Mixed
- ✓ Relative Referencing

### Ch 3: Functions

- ✓ Sumif, Sumifs, Countif
- ✓ Countifs, Averageif
- ✓ Averageifs, Nested If
- ✓ IfError Statement
- ✓ And, Or, Not

## Ch 4: Protecting Excel

- ✓ File Level Protection
- ✓ Workbook
- ✓ Worksheet Protection
- ✓ Security Concepts
- ✓ Realtime Issues, Solutions

## Ch 5: Text Functions

- ✓ Upper, Lower, Proper
- ✓ Left, Mid, Right
- ✓ Trim, Len, Exact
- ✓ Concatenate
- ✓ Find, Substitute

## Ch 6: Date & Time Functions

- ✓ Today, Now
- ✓ Day, Month, Year
- ✓ Date, Date if, Date Add
- ✓ EOMONTH
- ✓ Weekday Functions

## Ch 7: Advanced Techniques

- ✓ Paste Formulas
- ✓ Paste Formats
- ✓ Paste Validations
- ✓ Transpose Tables

## Ch 8: New in Excel & 365

- ✓ Charts – Tree map & Waterfall
- ✓ Sunburst, Box and whisker Charts
- ✓ Combo Charts – Secondary Axis
- ✓ Adding Slicers Tool in Pivot & Tables
- ✓ Using Power Map and Power View
- ✓ Forecast Sheet, park lines

## Ch 9: New in Excel & 365

- ✓ Using 3-D Map
- ✓ Pivot Tables, Time Lines
- ✓ Auto complete a data range
- ✓ Quick Analysis Tool
- ✓ Smart Lookup

## Ch 10: Printing Workbooks

- ✓ Setting Up Print Area
- ✓ Customizing Headers
- ✓ Templates

- ✓ Print Titles –Repeat Rows

## Ch 11: Sorting and Filtering

- ✓ Filtering on Text
- ✓ Numbers & Colors
- ✓ Sorting Options
- ✓ Advanced Filters
- ✓ Filter Criteria

## Ch 12: What If Analysis

- ✓ Goal Seek
- ✓ Scenario Analysis
- ✓ Data Tables (PMT Function)
- ✓ Solver Tool

## Ch 13: Logical Functions

- ✓ If Function
- ✓ How to Fix Errors – if error
- ✓ Nested If
- ✓ Complex if and or functions

## Ch 14: Data Validation

- ✓ Number, Date & Time
- ✓ Text and List Validation
- ✓ Custom validations formulas
- ✓ Dynamic Dropdowns

## Ch 15: Lookup Functions

- ✓ V lookup
- ✓ Xlookup
- ✓ Reverse Lookup
- ✓ Index and Match
- ✓ Worksheet linking

## Ch 16: Pivot Tables - 1

- ✓ Creating Simple Pivot Tables
- ✓ Filtering PivotTables
- ✓ Modifying PivotTable Data
- ✓ Grouping, Calculated Fields

## Ch 17: Pivot Tables - 2

- ✓ Array with IF, LEN
- ✓ MID function formulas.
- ✓ SLICERS, Filter data
- ✓ Manage Primary Axis
- ✓ Manage Secondary Axis

## Ch 18: Excel Dashboard

- ✓ Planning a Dashboard
- ✓ Tables and Charts to Dashboard
- ✓ Dynamic Contents to Dashboard

## Ch 19: VBA Macro – Level 1

- ✓ Using Outlook Namespace
- ✓ Send automated mail
- ✓ Outlook Configurations, MAPI
- ✓ Worksheet Operations
- ✓ Workbook Operations

## Ch 20: VBA Macro – Level 2

- ✓ Merge Worksheets using Macro
- ✓ Merge multiple excel files into one sheet
- ✓ Split worksheets using VBA
- ✓ Worksheet copiers

## Ch 21: Statistics For Data Analysis - 1

- ✓ Mean, Median
- ✓ Mode, Variance
- ✓ Standard Deviation
- ✓ Correlation

## Ch 22: Statistics For Data Analysis - 2

- ✓ Probability & Hypothesis Testing
- ✓ AI Analytics & CoPilot Concepts
- ✓ Confidence Interval & CoPilot
- ✓ Outliers, Normal Distribution

# Module 5: AI & Copilot for Data Analytics

## Ch 1: Introduction to AI & Generative AI

- ✓ Artificial Intelligence fundamentals
- ✓ Generative AI and Large Language Models (LLMs)
- ✓ AI applications in Data Analytics
- ✓ Introduction to ChatGPT and Microsoft Copilot
- ✓ Traditional Analytics vs AI-Powered Analytics

## Ch 2: Prompt Engineering for Data Analysts

- ✓ Fundamentals of Prompt Engineering
- ✓ Zero-Shot and Few-Shot Prompting
- ✓ Role-Based and Context-Based Prompting
- ✓ Writing effective prompts for Data Analysis
- ✓ Generating Business Insights using AI
- ✓ Validating AI-generated responses

## Ch 3: AI for SQL & Database Analytics

- ✓ Generating SQL Queries using AI
- ✓ Complex SQL Queries and Subqueries
- ✓ SQL Query Optimization using AI
- ✓ Identifying and Resolving SQL Errors
- ✓ Automated SQL Documentation
- ✓ Business Requirements to SQL Queries

## Ch 4: Microsoft Copilot for Power BI

- ✓ Introduction to Copilot in Power BI
- ✓ Generating Reports using Natural Language
- ✓ Creating and Explaining DAX Expressions
- ✓ AI-Assisted Data Visualization
- ✓ Automated Report Summaries
- ✓ Generating Business Insights
- ✓ AI-Powered Data Storytelling

## Ch 5: Microsoft Copilot for Excel

- ✓ AI-Assisted Data Cleaning
- ✓ Generating Excel Formulas
- ✓ Data Summarization and Analysis
- ✓ Identifying Trends and Patterns
- ✓ Creating Charts and Visualizations
- ✓ Business Forecasting using AI-Assisted Analysis

## Ch 6: AI for Python Analytics

- ✓ Generating Python Scripts using AI
- ✓ AI-Assisted Pandas and NumPy Programming
- ✓ Automated Exploratory Data Analysis (EDA)
- ✓ Data Cleaning and Transformation
- ✓ Generating Data Visualizations
- ✓ Python Code Debugging and Optimization
- ✓ Introduction to GitHub Copilot

## Ch 7: AI Agents for Data Analytics

- ✓ Introduction to Agentic AI
- ✓ AI Agents vs Traditional AI Chatbots
- ✓ Natural Language to SQL (Text-to-SQL)
- ✓ AI-Powered Business Assistants
- ✓ Automating Repetitive Analytics Tasks
- ✓ Introduction to Retrieval-Augmented Generation (RAG)

## Ch 8: Responsible AI & Data Security

- ✓ Data Privacy and Confidentiality

- ✓ **AI Hallucinations and Accuracy**
- ✓ **Validating AI-Generated Code and Insights**
- ✓ **Responsible AI Practices**
- ✓ **Enterprise Data Security**
- ✓ **Human-in-the-Loop Validation**

## Ch 9: Practical Business Use Cases

- ✓ **AI-Powered Sales Analytics**
- ✓ **Customer Behaviour Analysis**
- ✓ **Financial and Revenue Analysis**
- ✓ **Automated KPI Reporting**
- ✓ **Management Report Summarization**
- ✓ **End-to-End AI-Assisted Business Analytics**

## Module 6: Real-Time Projects – Data Analytics with AI

### Project 1: Retail Sales & Customer Analytics using AI

**Project Objective:** Analyze retail sales, customer purchasing behaviour, product performance and profitability using SQL, Python, Power BI, Advanced Excel and AI tools to support business decision-making.

**Project Implementation:**

- Understanding Business Requirements and KPIs
- Importing Sales, Customer and Product Datasets
- Data Extraction using MSSQL and T-SQL
- Data Cleaning and Transformation using Python
- Exploratory Data Analysis (EDA)
- Customer Segmentation and RFM Analysis
- Regional and Product-wise Sales Analysis
- Revenue, Profit and Growth Analysis
- Sales Forecasting using Python
- Advanced Excel Reports and Pivot Tables
- Power BI Data Modeling and DAX Calculations
- Interactive Sales and Customer Analytics Dashboards
- AI-Assisted SQL, Python and DAX Development
- Business Insights using Microsoft Copilot
- Automated Management Report Summarization
- Project Documentation and Presentation

**Business Deliverables:** Executive Sales Dashboard, Customer Segmentation Report, Profitability Analysis, Sales Forecast and AI-Assisted Business Recommendations.

**Technologies:** MSSQL, T-SQL, Python, Pandas, Advanced Excel, Power BI, ChatGPT and Microsoft Copilot.

## Project 2: Banking & Financial Risk Analytics using AI

**Project Objective:** Analyze banking transactions, customer profiles, loan portfolios and financial risks using advanced analytics and AI-assisted techniques to support financial decision-making.

**Project Implementation:**

- Understanding Banking Business Requirements
- Importing Customer, Loan and Transaction Datasets
- Database Design and Data Extraction using SQL
- Data Cleaning and Validation using Python
- Customer Demographic and Financial Analysis
- Loan Approval and Rejection Analysis
- Credit Risk and Loan Default Analysis
- Transaction Pattern Analysis
- Suspicious Transaction and Anomaly Detection
- Customer Churn Analysis
- Financial KPI Calculations using DAX
- Advanced Excel Financial Reports
- Interactive Banking and Risk Analytics Dashboards
- AI-Assisted Data Analysis and Code Generation
- Financial Report Summarization using Copilot
- Business Recommendations and Risk Assessment
- Project Documentation and Presentation

**Business Deliverables:** Banking Analytics Dashboard, Credit Risk Report, Customer Churn Report, Suspicious Transaction Analysis and AI-Assisted Financial Insights.

**Technologies:** MSSQL, T-SQL, Python, Pandas, NumPy, Advanced Excel, Power BI, ChatGPT and Microsoft Copilot.

### Common Project Highlights

- ✓ End-to-End Industry-Oriented Project Implementation
- ✓ Realistic Business Scenarios and Datasets
- ✓ Business Requirements and KPI Analysis
- ✓ SQL, Python, Excel and Power BI Integration
- ✓ Generative AI and Prompt Engineering
- ✓ AI-Assisted Analytics and Reporting
- ✓ Project Documentation and Presentation
- ✓ Resume Preparation and Project-Based Interview Guidance

## Learning Outcomes

**After completing this project, you can confidently showcase experience in:**

- Big Data Reporting
- Data Analytics
- AI Dashboards & CoPilot Usage
- Performance Optimization with Azure, On-Premises, Data Sources
- End-to-End Data Analytics Implementation in Cloud

## Career Guidance

- ✓ **Resume Optimization**
- ✓ **LinkedIn Optimization**
- ✓ **ATS-Friendly Resume**
- ✓ **Interview Strategy**

**BUILD REAL SKILLS. WORK ON REAL PROJECTS. BECOME JOB READY.**




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