THE DATALOGY

Empowering Minds With Future Tech

90 HOURS - 45 CLASSES - 16 WEEKS

DATA ANALYTICS BOOT CAMP

MS EXCEL

SQL

POWER BI

PYTHON

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MICROSOFT EXCEL

PROGRAM OUTLINE

18 HOURS – 9 CLASSES – 3 WEEKS

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PROGRAM OUTLINE

- Microsoft Excel Overview
- Basic Options, Ribbons and Toolbar
- Introduction to Basic Formulas and Functions (40+)
    - Arithmetic Functions
    - Logical Functions
    - Mathematical Functions
    - Statistical Functions
    - Lookup Functions
    - Information Functions
    - Text Functions
    - Date & Time Functions
    - Financial Functions

PROGRAM OUTLINE

- Data Consolidation vs IFs (SUMIF, COUNTIF & AVERAGEIF)
- Data Consolidation
- Static Report
- Dynamic Report
- Using Goal Seek to Find Out How to Get a Desired Result
- Hide Formulas

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PROGRAM OUTLINE

- Freeze Panes
- Format Painter
- Cell Comments
- Printing Options
- Paste Special with Tricks
- Dropdown list
- Sorting
- Auto Filter
- Advanced Filter

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PROGRAM OUTLINE

- Conditional Formatting Simple
- Conditional Formatting Advanced
- Conditional Formatting to Highlight Required Value Visualization with Conditional Formatting
- Subtotal
- Hyperlinks in Excel
- Protecting and Sharing Worksheets
- Using Multiple Formulas with Subtotal

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PROGRAM OUTLINE

- Understanding Pivot Tables & Pivot Chart
- Creating and Pivoting Pivot Tables & Pivot chart
- Using Lookup Functions
    - Hlookup
    - Vlookup
- Data Table
- Remove Duplicates

PROGRAM OUTLINE

- Create Form In Excel
- Difference between SUM, SUMIF, SUMIFS
- Index - Match
- Macros In Depth
    - Understanding what a Macro does
    - Recording a Macro
    - Run A Macro
    - Macro workbook

PROGRAM OUTLINE

- Working with Charts
  - Bar Chart
  - Area Chart
  - Scatter Chart
  - Bubble Chart
- Tips & Tricks

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SQL
PROGRAM OUTLINE
18 HOURS – 9 CLASSES – 3 WEEKS

PROGRAM OUTLINE

- **Introduction to SQL Server**
- **Overview of SQL Server**
- **What is SQL Server?**
- **Installation and Setup**
- **SQL Server Management Studio (SSMS) Interface**

BASICS OF SQL

- Introduction to SQL
- SQL Syntax and Structure
- Data Types
- Basic SQL Commands
- SELECT, FROM, WHERE
- INSERT, UPDATE, DELETE
- Filtering and Sorting Data
- WHERE Clause
- ORDER BY Clause

PROGRAM OUTLINE

Advanced SQL Queries

- Aggregate Functions
- COUNT, SUM, AVG, MIN, MAX
- Grouping Data
- GROUP BY Clause
- HAVING Clause
- Joining Tables
- INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL JOIN

DATA MANIPULATION AND TRANSFORMATION

- Subqueries and Nested Queries
- Common Table Expressions (CTEs)
- Window Functions
- ROW_NUMBER(), RANK(), DENSE_RANK(), NTILE()

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PROGRAM OUTLINE

DATA TRANSFORMATION TECHNIQUES

- working with complex data types
- Working with Dates and Times
- Date Functions
- String Functions
- CONCAT, SUBSTRING, CHARINDEX, REPLACE

SQL SERVER ADVANCED TOPICS

- Indexing and Performance Tuning
- Creating and Managing Indexes
- Query Optimization
- Stored Procedures and Functions
- Creating and Executing Stored Procedures
- User-Defined Functions

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PROGRAM OUTLINE

DATA ANALYSIS AND REPORTING

- Basic Data Analysis Techniques
- Descriptive Statistics
- Using SQL for Data Analysis
- Exploratory Data Analysis (EDA)
- Generating Reports
- Creating Simple Reports in SSMS
- Exporting Data to Excel

HANDS-ON PROJECTS AND CASE STUDIES

- Real-world Data Analysis Projects
- Case Studies

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MICROSOFT POWER BI

PROGRAM OUTLINE

36 HOURS – 18 CLASSES – 6 WEEKS

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PROGRAM OUTLINE

Learning Path 1: Get started with Microsoft data analytics

Module 1: Discover Data Analysis

- Introduction Overview of data analysis
- Roles in data
- Tasks of a data analyst

Module 2: Get started building with Power BI

- Introduction Use Power BI
- Building blocks of Power BI
- Tour and use the Power BI service

PROGRAM OUTLINE

Learning Path 2: Prepare data for analysis with Power BI

Module 3: Prepare data for analysis with Power BI.

- Introduction.
- Get data in Power BI.
- Get data from files.
- Get data from databases.
- Get data from relational data sources.
- Create dynamic reports with parameters.
- Get data from Online services.

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PROGRAM OUTLINE

Learning Path 2: Prepare data for analysis with Power BI

Module 4: Clean, Transform and load data in Power BI.

- Introduction to Power Query.
- Shape the initial data.
- Transform the data according to the need with Power Query.
- Simplify the data structure.
- Evaluate and change column data types.
- Combine multiple table into a single table.
- Profile data in Power BI.
- Use Advanced Editor to modify M code.

PROGRAM OUTLINE

Module 5: Describe Power BI Desktop Models

- Introduction.
- Star Schema Design.
- Configure report visuals.

Module 6: Choose a Power BI model framework

- Describe Power BI model fundamentals.
- Determine when to develop and import model.
- Choose a model framework.

PROGRAM OUTLINE

Learning Path 3: Model data with Power BI

Module 7: Design a semantic model in Power BI

- Introduction.
- Work with tables.
- Create a date table.
- Work with dimensions.
- Work with relationships and cardinality.
- Resolve modelling challenges.

Module 8: Write DAX formulas for Power BI Desktop models

- Introduction.
- Write DAX formulas.
- DAX data types.
- Work with DAX functions.
- Use DAX operators.

PROGRAM OUTLINE

Learning Path 3: Model data with Power BI

Module 9: Use DAX time intelligence functions in Power BI Desktop Models

- Use DAX time intelligence functions.
- Additional time intelligence calculations.

Module 10: Add Measures to Power BI Desktop Models

- Introduction.
- Create simple measures.
- Create compound measures.
- Create quick measures.
- Create calculated columns with measures.

PROGRAM OUTLINE

Learning Path 3: Model data with Power BI

Module 11: Add Calculated tables and columns to Power BI Desktop Models

- Introduction.
- Create calculated columns.
- Learn about row context.
- Choose a technique to add a column.

Module 12: Optimize a model for performance in Power BI

- Introduction to performance optimization.
- Review performance of measures, relationships and visuals.
- Reduce cardinality.
- Apply good modelling practices.

PROGRAM OUTLINE

Learning Path 4: Build Power BI visuals and reports

Module 13: Scope report design requirements

- Identify the audience.
- Determine report types.
- Define user interface requirements.
- Define user experience requirements.

Module 14: Design Power BI reports

- Design the analytical report design.
- Design visually appealing reports.
- Report objects.
- Select report visuals.
- Select report visuals to suit the report layout.
- Format & configure visualizations.
- Work with KPI (Key Performance integrators)

PROGRAM OUTLINE

Learning Path 4: Build Power BI visuals and reports

Module 15: Configure Power BI report filters

- Apply filters to the report structure.
- Apply filters with slicers.
- Visual level filters.
- Page and report level filters.
- Design report with advanced filtering techniques.
- Select report filter techniques.

Module 16: Enhance Power BI report designs for the user experience

- Design report to show details.
- Design report to highlight values.
- Design report that behave like Apps.
- work with bookmarks.
- design report for navigations.
- Work with visuals headers.
- Tune report performance.
- Optimize report for mobile use.

PROGRAM OUTLINE

Learning Path 4: Build Power BI visuals and reports

Module 15: Configure Power BI report filters

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Module 16: Enhance Power BI report designs for the user experience

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PROGRAM OUTLINE

Learning Path 5: Manage workspaces and datasets in Power BI

Module 17: Create and manage workspaces in Power BI Service

- Distribute a report to dashboard.
- Monitor usage and performance.
- Configure data protection.

Module 18: Manage semantic models in Power BI

- Use a Power BI gateway to connect to On - Premises data sources.
- Configure a semantic model schedule refresh.
- Configure incremental refresh settings.
- Manage and promote semantic models.
- Troubleshoot service connectivity.

PROGRAM OUTLINE

Learning Path 5: Manage workspaces and datasets in Power BI

Module 19: Create dashboards in Power BI Service

- Introduction to Power BI Service dashboards.
- Configure data alert.
- Explore data by asking questions.
- Review quick insights.
- Add a dashboard theme.
- Configure a real time dashboard.
- Set Mobile View.

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PYTHON
PROGRAM OUTLINE
18 HOURS – 9 CLASSES – 3 WEEKS

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PROGRAM OUTLINE

Course Welcome and Setup

- Course Overview
- Python Overview
- Anaconda Distribution Installation
- Jupyter Notebook 101
- Jupyter Notebook – Adding Comments in Cells

OBJECTS, VARIABLES & DATA TYPES

- Objects and Variables Overview
- Numbers
- Strings
- String Operations
- String Methods and Properties
- String Concatenation and Formatting
- Lists
- Dictionaries
- Tuples and Sets
- Booleans

PROGRAM OUTLINE

CONTROL, FLOW & LOOPS

- Python Operators
- Control Flow
- For Loops
- For Loops (continued)
- While Loops
- Break, Continue and Pass Statements
- List Comprehension
- IN and NOT IN

FUNCTIONS

- Built-In Functions
- User Defined Functions
- User Defined Functions – Examples
- Arguments and Keyword Arguments
- Map and Filter
- Lambda Functions
- Errors and Exception Handling

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PROGRAM OUTLINE

PANDAS (DATA ANALYSIS & MANIPULATION)

- Pandas Overview
- Introduction to Series
- Introduction to DataFrames
- Selecting Data
- Selecting Data 2
- Data Manipulation 1
- Data Manipulation 2
- Data Aggregation and Grouping
- Data Cleansing
- Combining DataFrames
- Windowing Operations

Working with Dates and Times

- Date and Time Data Types and Operations
- Resampling and Time Series Analysis
- Date Functionality in Pandas

PROGRAM OUTLINE

CONNECTING TO DATA SOURCES

- Excel and CSV
- HTML
- Databases
- Pandas Input and Output Methods

MATPLOTLIB (DATA VISUALIZATION)

- Matplotlib Overview
- Choosing the Right Chart Type
- Creating a Plot Area 1
- Creating a Plot Area 2
- Bar Plots
- Line Plots
- Scatter Plots
- Histograms
- Box Plots and Violin Plots
- Style and Presentation
- Additional Resources and Cheat Sheets

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PROGRAM OUTLINE

SEABORN (STATICAL DATA VISUALIZATION)

- Seaborn Overview
- Categorical Plots
- Relational Plots
- Distribution Plots
- Regression Plots
- Matrix Plots
- Multi Plot Grids
- Style and Presentation

AUTOMATING EXCEL OPERATIONS

- Working with Excel files using Pandas and OpenPyXL
- Creating Excel Charts and Pivot Tables Programmatically
- Automating Data Extraction and Formatting
- Using XlsxWriter for Advanced Formatting

PROGRAM OUTLINE

WEB SCRAPPING & DATA COLLECTION

- Basics of Web Scraping with BeautifulSoup
- Automating web Data Collection using Requests and Selenium
- Data Storage and Preprocessing after Scraping

Automating Data Import/Export

- Reading and writing CSV, Excel, JSON, and SQL files
- Automating connections to databases using SQLAlchemy
- Exporting Data to different Formats

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