



Fullstack Data Analytics

Course Outline



Course Modules

- ADVANCED EXCEL
- MICROSOFT POWER BI
- MYSQL
- DATA ANALYSIS WITH PYTHON
- GITHUB SETUP & USE
- CAPSTONE PROJECT & WRAP UP

ADVANCED EXCEL

- Getting Started/Introduction to Excel Spreadsheet
- Selecting cells or ranges
- Modifying spreadsheets
- Merge or split cells
- Sort and filter functionality
- conditional formatting
- Working with Formulas in Excel (if, sumif, average ,Vlookup & Hlookup, Sumifs, Countifs, upper, lower etc)
- Excel text to column, lists etc
- Excel charts, Pivot Tables and Pivot Charts
- Power Pivot
- Power Query
- Class Exercises & Capstone Project

MICROSOFT POWER BI

Module 1: Introduction to Power BI (Desktop & Online)

- Understanding BI tools. Power Bi vs Tableau vs Quicksight
- Setting up PowerBI Desktop.
- Connecting to data sources (Excel workbook, manual datasets, Azure, SQL)
- Understanding the visualization panes and layouts
- Understanding Power Query and Power Pivots
- Understanding data transformation

Module 2: Charting and Visualizations

- The visualization pane
- Chart types and Rules
- Matrixes, Tables and Charts
- Card, Guages and KPIs
- Slicers and filters
- PowerBI report with little or no DAX

Module 3: Purpose of Data Analysis Expressions (DAX)

- Scope of Usage with DAX.
- Usability Options
DAX Context: Row Context and Filter Context
- DAX Entities: Calculated Columns and Measures
- DAX Data Types: Numeric, Boolean, Variant, Currency
- Datetime Data Type with DAX.
- Comparison with Excel
- DAX Operators & Symbols. Usage. Operator Priority
Parenthesis, Comparison, Arithmetic, Text, Logic
- DAX Functions and Types: Table Valued Functions
Filter, Aggregation and Time Intelligence Functions
Information Functions, Logical, Parent-Child Functions
Statistical and Text Functions.
- Formulas and Queries
- YTD, QTD, MTD Calculations with DAX

MICROSOFT POWER BI

- DAX Calculations and Measures
- Using TOPN, RANKX, RANK.EQ
- Computations using STDEV & VAR
- SAMPLE Function, COUNTALL, ISERROR
- ISTEXT, DATEFORMAT, TIMEFORMAT Time Intelligence Functions with DAX
- KPIs with DAX. Vertipaq Queries in DAX
- IF..ELSEIF.. Conditions with DAX
- Slicing and Dicing Options with Columns, Measures

- **Module 4: Power Query & Real world Projects**
- In-Depth Power Query
- Power Query for Web Scraping (Static and continuous pagination)
- Applied Steps and Usage Options. Revert Options
- Combine Queries - Merge Join and Anti-Join Options
- Combine Queries - Union and Union All as New Dataset
- Power Pivot
- Other PowerQuery concepts
- A real word End to End Power BI Data Analytics project.

MySQL

Module 1: Introduction to SQL

- Basic SQL terminologies and definition of terms
- Setting up MySQL
- Creating and populating a MySQL DB using DDL, DML
- SQL best practice (Understanding ER diagrams and Schemas).
- Loading the database with external datasets
- Some Basic Queries

Module 2: SQL Select, Limit, where, operators & more

- SQL Select Statement
- SQL Where Statement
- SQL Limit Statement
- SQL Comparison Operators
- SQL Logical Operators
- SQL Like/in/Between
- SQL AND/OR
- SQL NOT
- SQL Order by

Module 3: SQL Sum, Avg, Group & more

- SQL Sum
- SQL Min/Max
- SQL Avg
- SQL Group by
- SQL Having
- SQL Distinct
- SQL Joins
- SQL Union

Module 4: SQL Sub queries, views & projects

- SQL Select Subquery
- SQL Where Subquery
- SQL From Subquery
- SQL Views
- SQL with other Data analytics tools
- Wrap up & Capstone Projects

Python for Data Analysis

Module 1: THE FUNDAMENTALS OF PYTHON FOR DATA

- First steps with Python and Jupyter notebooks
- A quick tour of variables and data types
- Branching with conditional statements and loops
- Errors and Exception handling
- Functions Working with the OS & Filesystem
- Solving basic real-world problems using variables, functions & arithmetic operations
- Reading documentations

Module 2: EXPLORATORY DATA ANALYSIS (BASICS - INTERMEDIATE)

- Introduction to Numpy
- Python lists vs Numpy arrays
- Working with multi-dimensional arrays
- Array operations, slicing, and broadcasting
- Other NumPy operations
- Introduction to Pandas and tabular data
- Understanding Pandas Dataframes
- Querying, filtering, and sorting data frames

Python for Data Analysis

- Querying, filtering, and sorting data frames
- Grouping and aggregation for data summarization
- Merging and joining data from multiple sources
- Data wrangling with Pandas and Numpy
- Introduction to Charting and Visualizations in python.
- Matplotlib vs Seaborn vs Plotly
- Basic visualizations with Matplotlib
- Advanced visualizations with Seaborn
- Advanced visualizations with Plotly

Module 3 : STATISTICS AND MACHINE LEARNING FOR DATA ANALYSIS (BASIC - INTERMEDIATE)

- Descriptive statistics for data analysis.
- Introduction to basic machine learning algorithms
- Scikitlearn for data analysis
- Supervised learning algorithms
- Linear regression
- basics Logistic regression basics



Python for Data Analysis

Module 4: APIs, WEB SCRAPING, DATA COLLECTION, SQL DATABASES, GIT & GITHUB.

- Intro to WebScraping
- Connecting to Databases
- Git and GitHub for Data Analysis
- Putting it all together

Module 5: END TO END CAPSTONE PROJECT

READY TO GET IN THE GAME?

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