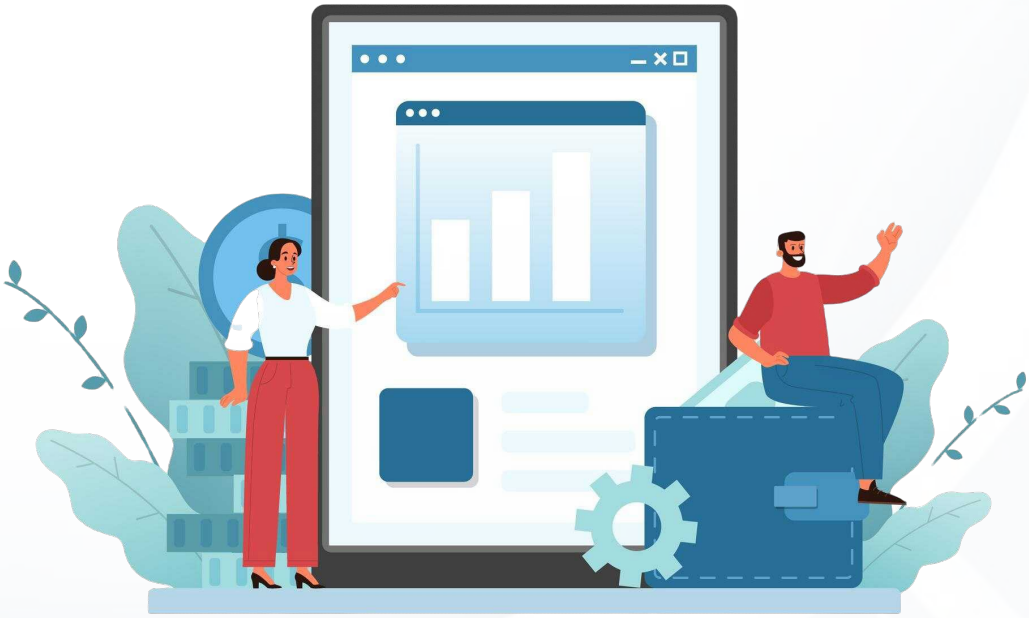
TECHPATH
Research and Development Ltd.

FULL STACK BUSINESS ANALYTICS



Syllabus PDF

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Part 1: Advance Excel

Module 1: Excel Basics

- Chapter 1: Introduction to Excel and its interface
- Chapter 2: Basic Functions of Excel
- Chapter 3: Borders and Tables in Excel
- Chapter 4: Basic Formulas in Excel
- Chapter 5: Precedence order of operations
- Chapter 6: Date and Time Function in Excel

Module 2: Formatting in Excel

- Chapter 1: Introduction to Conditional Formatting
- Chapter 2: Sorting Data in Excel
- Chapter 3: Filtering Data in Excel
- Chapter 4: Text Functions in Excel
- Chapter 5: COUNTIF, COUNTIFS, SUMIF, SUMIFS - Functions in Excel
- Chapter 6: Data Validation in Excel

Module 3: Advance Calculation in Excel

- Chapter 1: VLOOKUP in Excel
- Chapter 2: Hlookup in Excel
- Chapter 3: Lookup in Excel
- Chapter 4: Xlookup in Excel
- Chapter 5: Index Match in Excel
- Chapter 6: Macros in Excel

Module 4: Introduction to Graphs and Charts in Excel

- Chapter 1: Summarizing Data with Pivot Table
- Chapter 2: Working with Slicers
- Chapter 3: Power Query in Excel
- Chapter 4: Power Pivot in Excel
- Chapter 5: Visualizing Data with Charts
- Chapter 6: End to End Dashboard with Excel

Project 1: Analyse Retail Sales Data to gain insights that will boost the performance and enhance the profit of the Coffee Shop

Project 2: Building an End to End Excel Dashboard to analyse the performance of the students

Part 2: Python

Module 1: Fundamentals of Python

- Chapter 1: Introduction to Python Programming Language (What & Why)
- Chapter 2: Installation of Software – Anaconda
- Chapter 3: Understanding Jupyter Notebook
- Chapter 4: Python Basics – Syntax and Semantics
- Chapter 5: Basic Data Types in Python
- Chapter 6: Variables & Operators in Python
- Chapter 7: String Operations

Module 2: Data Structures in Python

- Chapter 1: Tuples
- Chapter 2: Lists
- Chapter 3: Dictionary
- Chapter 4: Sets
- Chapter 5: Real world examples of List and Dictionary
- Chapter 6: Merging multiple list and dictionary using zip function

Module 3: Conditions and Control Flow

- Chapter 1: Conditional Statements (if, elif, and else)
- Chapter 2: Loops in Python (For and While)
- Chapter 3: Break, Continue and Pass Statements
- Chapter 4: Nested For Loop
- Chapter 5: Coding Exercise

Module 4: Functions in Python

- Chapter 1: Introduction to User Defined Function
- Chapter 2: Difference between In-Built Function and User-Defined Function
- Chapter 3: Creating user-defined function
- Chapter 4: Lambda Function
- Chapter 5: Map, Filter and Reduce
- Chapter 6: Coding Exercise and Practice Question

Module 5: Advance Python

- Chapter 1: List Comprehension
- Chapter 2: Dictionary Comprehension
- Chapter 3: Import Modules and Packages
- Chapter 4: Exception Handling with try, except, else and finally blocks
- Chapter 5: Coding Exercise and Practice Questions

Project : Build an End to End Quiz Application with Python

Module 6: Statistics for Data Analysis

- Chapter 1: Define Random Variable - Different types of Random Variables
- Chapter 2: Introduction to Statistics
- Chapter 3: Descriptive vs. Inferential Statistics
- Chapter 4: Measure of Central Tendency (Mean, Median and Mode)
- Chapter 5: Measure of Variations (Range, Variance and Standard Deviation)
- Chapter 6: Empirical Formula to detect an outlier
- Chapter 7: Quantiles

Module 7: Introduction to NumPy

- Chapter 1: Creating a NumPy Array
- Chapter 2: In-Built functions of Numpy
- Chapter 3: Broadcasting
- Chapter 4: Arithmetic Operations & Statistical Functions
- Chapter 5: Practice Questions

Module 8: Data Manipulation & Analysis with Pandas

- Chapter 1: Creation of Series and Data Frame
- Chapter 2: Indexing and Slicing
- Chapter 3: Reading Data from Various sources using Pandas
- Chapter 4: Operations on Data Frames
- Chapter 5: Grouping and Pivoting
- Chapter 6: Merge and append
- Chapter 7: Practice Questions

Module 9: Data Visualization with Python

- Chapter 1: Creating Charts with Matplotlib and Seaborn
- Chapter 2: Line Chart, Histogram and Bar Graph
- Chapter 3: Scatter Plot and Pie Chart
- Chapter 4: Distribution Plot and Box Plot
- Chapter 5: Heatmaps
- Chapter 6: Plotly
- Chapter 7: Summary of a case study data

Module 10: Exploratory Data Analysis

- Chapter 1: Introduction to EDA
- Chapter 2: Data Sourcing using Web Scraping
- Chapter 3: Scrap E-commerce data using beautiful soup
- Chapter 4: Data Cleaning Processes – Fixing Rows & Columns and Impute/Handle Missing Values
- Chapter 5: Feature Scaling
- Chapter 6: Fixing invalid Data Types
- Chapter 7: Filtering Data: Duplicate Values, Fixing Rows & Columns and Aggregate Data
- Chapter 8: Univariate and Bi-variate Analysis

Case Study 1: Analysing Real-World E-commerce Sales Data
Case Study 2: Understanding of Risk Analytics in Banking and Financial Services using EDA
Project 1: Scrap YouTube Data using API often for Analysis and Visualisation with Python or Analysing IMDB Movie Dataset

Part 3: SQL

Module 1: Introduction to MySQL

- Chapter 1: Understand SQL (Structured Query Language) – What & Why?
- Chapter 2: Installation of PostgreSQL Database and PgAdmin Tool
- Chapter 3: RDBMS – Relational Database Management System
- Chapter 4: DDL (Data Definition Language) Statements
- Chapter 5: DML (Data Manipulation Language) Statements

Module 2: Basic SQL Commands and Operators

- Chapter 1: Create a simple table
- Chapter 2: Load and read the data
- Chapter 3: Understanding different data types
- Chapter 4: Constraints in SQL
- Chapter 5: Remove, Modify, Group and Arrange data using SQL commands
- Chapter 6: Aggregate Functions, String Functions and Date-Time Functions
- Chapter 7: Practice Questions

Module 3: Advance SQL Commands

- Chapter 1: Regular Expressions
- Chapter 2: Syntax to SQL code with LIKE operator
- Chapter 3: Nested Query
- Chapter 4: Views & Indexes
- Chapter 5: Exercise Questions using advanced SQL commands

Module 4: Join and Set Operations

- Chapter 1: Inner and Outer Joins
- Chapter 2: Left and Right Joins
- Chapter 3: Cross Join
- Chapter 4: Queries Involving Views and Joins
- Chapter 5: Union, Intersect and Minus
- Chapter 6: Practice Questions

Module 5: Window Function in SQL

- Chapter 1: Syntax to write SQL query using Window Function
- Chapter 2: Rank Function
- Chapter 3: Dense Rank Function
- Chapter 4: Difference between Rank and Dense Rank
- Chapter 5: Lead and Lag Function in SQL
- Chapter 6: Exercise Question on Window Function

Case Study 1: Analysing Customer Behaviour using SQL – A Real Life Data Analyst Case Study
Case Study 2: Analysing Bank Customer Relationship for forecast and plan for their future developments
Interview Questions Practices for Business Analyst Role (Google, Amazon and Microsoft etc.)
Project: Analyse the RSVP movie dataset and draw meaningful insights to valuable recommendations to the company for the production of the new films

Part 4: Power BI

Module 1: Introduction to Power BI

- Chapter 1: Scope of Power BI
- Chapter 2: Download and Install Power BI Desktop Application
- Chapter 3: User Interface of Power BI Desktop
- Chapter 4: Fetching and Reading Data from Different Sources (Excel, CSV, and SQL etc.)

Module 2: Introduction to Power Query

- Chapter 1: Understanding Power Query Editor
- Chapter 2: Number, Text and Date Functions in Power Query Editor
- Chapter 3: Data Cleaning in Power Query Editor
- Chapter 4: Append, Merge and Conditional Columns in Power Query Editor
- Chapter 5: Working with Filter, Parameters and Sorting in Power BI Power Query Editor
- Chapter 6: Introduction to Custom Function to Clean & Combine Files

Module 3: Data Visualization with Charts in Power BI

- Chapter 1: Creating different Column Charts in Power BI
- Chapter 2: Pie Chart, Donut Chart and Funnel Chart in Power BI
- Chapter 3: Line Chart, Ribbon Chart and Scatter Plot in Power BI
- Chapter 4: Creating Maps in Power BI
- Chapter 5: Creating Tables in Power BI
- Chapter 6: Number Cards, Text Cards and Gauge Charts in Power BI

Module 4: Enhancing Charts for Advance Analysis

- Chapter 1: Include & Exclude in Power BI
- Chapter 2: Filters & Slicers in Power BI
- Chapter 3: Basic & Conditional Formatting
- Chapter 4: Using Drill Through in Power BI
- Chapter 5: Using Elements & Actions in Power BI
- Chapter 6: Formatting of Pages & Report

Module 5: DAX (Data Analysis Expressions)

- Chapter 1: Introduction to Data Modelling
- Chapter 2: Basic Date Functions – Extracting Date, Month, Day Name and Time

- Chapter 3: Text Functions & Logical Functions
- Chapter 4: Creating New Measures & Columns
- Chapter 5: Calculate Time Intelligence Functions
- Chapter 6: MTD, QTD and YTD using Quick Measures
- Chapter 7: Filter Function, Top N Function and Summarize Function in Power BI

Module 6: Final Report and Dashboard in Power BI

- Chapter 1: Introduction to Power BI services
- Chapter 2: Create an account on Power BI service
- Chapter 3: Publish Report to Power BI Service
- Chapter 4: Export Power BI Report in PPT, PDF & PBIX Format
- Chapter 5: Creating a Final Dashboard in Power BI Service

Project 1: Create a dynamic sales performance analysis dashboard using Power BI to effectively visualize and analyse online sales data in real-time.
Project 2: Analysing Multiple Stocks at a same time using Power BI Dashboard (Finance Domain)
Project 3: Credit Card Default Analysis to minimize the risk of loss with Power BI (Banking Domain)

Part 5: REST API & Cloud Computing

Module 1: Introduction to Flask and Streamlit

- Chapter 1: Download and Install PyCharm
- Chapter 2: Understanding Simple Flask App Skeleton
- Chapter 3: Integrating HTML with Flask Web App
- Chapter 4: Working with HTTP verbs Get and Post
- Chapter 5: Building Web App using Streamlit
- Chapter 6: Example of Data Analysis Model with Streamlit Web App

Module 2: GIT for beginners

- Chapter 1: Introduction to GIT
- Chapter 2: Installation and Basic Commands
- Chapter 3: Git Merge, Push, Checkout and Log with commands
- Chapter 4: Resolving GIT branch merge conflict

Module 3: Introduction to Cloud and AWS

- Chapter 1: Introduction to Cloud Computing
- Chapter 2: Introduction to AWS
- Chapter 3: Create an AWS account
- Chapter4: Billing Cost Management & Cost Explorer
- Chapter 5: Introduction to EC2(Elastic Cloud Computing)
- Chapter 6: Creating EC2 and Project Pipeline
- Chapter 7: End to End Data Analysis Project Deployment using AWS

INTERVIEW PREPARATION

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PROFILE OPTIMIZATION

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