Data Analytics (No + Low Code)(DANLC)

Index

1. No code data visualization
    a. Advanced Excel
    b. Power BI
2. Python Programming
3. MySQL Database
4. Communicative Eng
5. Business Communication
6. Project with Mentoring by Industry Professionals

Course Overview: Data Analytics (No + Low Code) (DANLC)

The Data Analytics (No + Low Code) course is designed to equip participants with the skills and knowledge necessary to conduct effective data analysis using tools that require minimal or no coding. In a rapidly evolving technological landscape, the course focuses on empowering individuals with the ability to leverage no-code and low-code platforms for robust data analytics.

Module	**Total Duration (Hours)**	**Self Learning (Hours)**	**ILT (Hours)**
No code data visualization(data_vis)	30	14	16
Python Module(python_prog)	120	20	100
SQL Module(sql_mdl)	24	4	20
Communicative Eng(com10wk_n)	60	20	40
Business Communication(busi_com)	62	32	30
Project with Mentoring by Industry Professionals(pro_mon_inds)	24	0	24
Total Hours	**320**	**90**	**230**

Curriculum

Excel Table of Contents

1. **VLOOKUP and HLOOKUP Mastery**
   - Overview of VLOOKUP and HLOOKUP
   - Nested VLOOKUP and HLOOKUP
   - Using INDEX and MATCH as alternatives
   - Advanced lookup scenarios
2. **IF Statements and Logical Functions**
   - Advanced IF statements
   - Nested IF functions
   - Logical functions (AND, OR, NOT)
3. **Array Formulas**
   - SUMPRODUCT and SUMIFS ,SUMIFS,COUNTIF,COUNTIFS
4. **PivotTables and PivotCharts**
   - Introduction to PivotTables
   - Creating PivotTables and PivotCharts
   - Advanced PivotTable techniques
   - Slicers and Timelines
5. **Data Validation and Validation Rules**
   - Setting up data validation
   - Custom validation rules
   - Using data validation for dynamic dropdowns
6. **Data Consolidation**
   - Consolidating data from multiple sheets
   - Consolidating data from different workbooks
7. **Exporting and Importing Data**
   - Importing data from external sources (SQL, Web, etc.)
   - Exporting data to different formats (CSV, PDF, etc.)
   - Refreshing external data connections

Power BI Table of Contents

1. **Introduction to Power BI**
   - Overview of Power BI

- Installing Power BI Desktop
- Getting Started with Power BI Service

2. **Creating Visualizations**
   - Loading Data into Power BI
   - Building Simple Visualizations
   - Customizing Visuals
3. **Power BI Desktop Essentials**
   - Power BI Desktop Interface
   - Basic Data Transformation
   - Simple Data Modelling
4. **Sharing and Collaboration**
   - Publishing Reports to Power BI Service
   - Creating Dashboards
   - Sharing and Collaborating with Others
5. **Data Connectivity**
   - Connecting to Data Sources
   - Basic Data Import and Transformations
   - Basic Data Relationships
6. **Real-world Application**
   - Applying Power BI to Simple Business Scenarios
   - Building Basic Executive Dashboards
   - Hands-on Practice with Basic Use Cases
7. **Conclusion**
   - Review of Key Concepts
   - Q&A Session
   - Practical Tips and Best Practices

Python Table of Contents

1. **Introduction to Programming**
   - Why Should You Learn to Write Programs?
   - Understanding Computer Programs
   - User vs. Programmer
   - Computer Hardware Architecture

- Programmer and Computer Hardware Relationship
- Skills Required for Programming

2. **Getting Started with Python**
   - Installing Python Software
   - Python Different Editors and IDEs
   - Machine Language Overview
   - Interpreter vs. Compiler
   - What is a Program?
   - Building Blocks of a Program
3. **Fundamentals of Python**
   - Variables and Constants
   - Operators and Their Precedence
   - Introduction to Programming Statements
   - User Input in Python
   - Comments in a Program
4. **Conditional Constructs**
   - If Statement
   - Ladder If Else
   - Nested Conditions
5. **Functions in Python**
   - Basic Concepts
   - Built-in Functions
   - Type Conversion Functions
   - Mathematical Functions
6. **Looping Structures**
   - While Statement
   - Infinite Loops
   - Break
   - Continue
   - Definite Loops Using for
   - Loop Patterns
7. **Working with Strings**
   - Defining Strings
   - Accessing a String
   - Special String Operators
   - Traversing a String
   - Built-in String Methods
   - String Comparison
   - Format Operator
8. **Working with Lists and Dictionaries**
   - Lists: Traversing, Operations, Slices, Methods, Functions

- Dictionaries: Characteristics, Creating, Methods, The in Operator
- List vs. Dictionary

9 . **Understanding Tuples and Sets**
- Tuples: Features, Creating, Operations, Functions
- Sets: Features, Creating, Operations

10. **Data Persistence**
- Opening Files
- Reading Files
- Searching Data in a File
- Writing to a File

11 .**Introduction to Object-Oriented Programming (OOP) in Python**
- Inheritance
- Handling Exceptions

12. **Introduction to NumPy**
- NumPy Data Types
- Creating Arrays
- Array Indexing
- Array Slicing
- Array Copy vs. View
- Array Shape and Reshaping

13. **NumPy Functions and Operations**
- Important NumPy Functions
- Searching, Splitting, Sorting, Joining, and Filtering
- Random Functions, Where Function, Transpose, Mean
- Statistical Functions and NumPy IO

14. **Mathematical Calculations and Logical Operations in NumPy**
- Mathematical Calculations
- Logical Operations

15. **Review and Interaction**
- Review of Topics Covered
- Q&A Discussion
- Multiple Choice Questions (MCQ)
- Interaction with Dean

16. **Data Visualization with Python**
- Introduction to Data Visualization
- Libraries for Data Visualization (Seaborn, Matplotlib)
- Line Plot, Bar Plot, Histogram
- Pie Plot, Scatter Plot, Subplot, Formatting Plots

17. **Working with Pandas**
- Introduction to Pandas Library

- Pandas vs. NumPy
- Series in Pandas
- DataFrames: Creating, Updating, Deleting, Inserting Values

18. **Reading and Cleaning Data with Pandas**
    - Reading CSV Files using Pandas
    - Saving Data to CSV Files
    - Cleaning Data
    - Handling Missing Values (dropna(), fillna())
    - Removing Duplicate Values
    - Objectives and Recap
19. **Pandas Data Analysis**
    - Exploratory Data Analysis with Pandas
    - Objectives and Recap
20. **Pandas Pivot Table**
    - Understanding Pivot Tables in Pandas
    - Objectives and Recap
21. **Review and Interaction**
    - Review of Topics Covered
    - Q&A Discussion
    - Multiple Choice Questions (MCQ)
    - Interaction with Dean
22. **Introduction to SciPy**
    - What is SciPy
    - SciPy Installation
    - Objectives and Recap
23. **SciPy Sub-Packages**
    - SciPy Cluster
    - SciPy Constant
    - Objectives and Recap
24. **Advanced SciPy Concepts**
    - Fast Fourier Transform
    - SciPy Interpolation
    - SciPy Input and Output
    - Objectives and Recap
25. **Linear Algebra and Ndimage in SciPy**
    - Linear Algebra in SciPy
    - Ndimage in SciPy
    - Objectives and Recap
26. **Sparse Matrix and Stats in SciPy**
    - Sparse Matrix in SciPy
    - Stats in SciPy

- Objectives and Recap

27. **Review and Interaction**
    - Review of Topics Covered
    - Q&A Discussion
    - Multiple Choice Questions (MCQ)
28. **Project Work**
    - Project Kickoff and Planning
    - Setting Up Project Environment
    - Defining Project Structure
    - Data Exploration and Preparation
    - Implementation of Core Features
    - Integration and Testing
    - Finalizing Project and Documentation
29. **Final Project Review and Presentation**
    - Reviewing Project Code
    - Writing Comprehensive Documentation
    - Preparing a Project Presentation
30. **Conclusion and Sprint 1 Project**
    - Review of the Entire Course
    - Q&A Session
    - Interaction with Dean

SQL Table of Contents

1. **Introduction to RDBMS**
    - Overview of Relational Database Management System (RDBMS)
    - The Relational Model
    - Principles of Database Design
    - Introduction to MySQL
    - MySQL Data Types
    - Creating Databases Using MySQL
2. **Basic MySQL Syntax**
    - Understanding Basic MySQL Syntax
    - Basic SQL Commands - SELECT
    - Basic SQL Commands - INSERT
    - Basic SQL Commands - UPDATE
    - Basic SQL Commands - DELETE
3. **Querying Data with SELECT Statement**
    - The SELECT List
    - SELECT List Wildcard (*)

- The FROM Clause
- How to Constrain the Result Set
- DISTINCT and NOT DISTINCT
- Filtering Results with the WHERE Clause

4. **Advanced Querying Techniques**
   - Other Boolean Operators (BETWEEN, LIKE, IN, IS, IS NOT)
   - Shaping Results with ORDER BY and GROUP BY
   - Set Functions
   - Boolean Operators (AND, OR)
   - Aggregate Functions
   - Set Function and Qualifiers
   - GROUP BY
   - Qualifiers
   - HAVING Clause
5. **Modifying Data in MySQL**
   - ALTER TABLE
   - MySQL Transactions
6. **Working with JOINs**
   - Matching Different Data Tables with JOINs
   - Table Aliases
   - INNER JOIN
   - OUTER JOINs
   - LEFT OUTER JOIN
   - RIGHT OUTER JOIN
   - FULL OUTER JOIN
   - SELF JOIN
   - Natural Join
   - CROSS JOIN

31. **Conclusion and Sprint 2 Project**
   - Review of the Entire Schedule
   - Q&A Session
   - Interaction with Participants