CURRICULUM FOR YOUR SUCCESS

Module	Topics	Case Studies
Introduction to Data Analytics and Excel	• Introduction to Data Analytics and it's types • Data Cleaning and tools of Data Analysis • Operations, Functions and Formatting in MS Excel • Data Extraction and it's understanding • LOOKUPs in Excel • AI tools in MS excel • Data Cleaning in Excel - Handling Missing Values and Outliers • Charts in Data Analytics • Methods of Data Analysis - Univariate and Bivariate • Power Query • Data Transformation in Power Query	 National Air Quality  US Healthcare Dataset  India CPI Inflation
Data Visualization with PowerBI	• Introduction to Power BI and Business Intelligence • Basic functionality of PowerBI and Data Transformations • Data Cleaning with Power BI • AI Tools in Power BI • Advanced Power Query and Data Modelling • DAX Functions • Advanced DAX Functions • Hierarchy and visualization in Power BI • Creating Compelling Reports in Power BI • Data Analysis and Data Storytelling using Power BI • Features in Power BI Service with AI Insights • Row Level Security and KPIs	 IT Department PowerBI Dashboard  E com Orders

Module	Topics	Case Studies
Analytics with SQL	• Introduction to SQL and different types of databases • Fundamentals of SQL and Data • Management in MySQL Workbench • Advanced SQL Query Techniques for Data • Retrieval and Documentation • CRUD Operations and Data Integrity • Database Schema Management • Operations • String Operations • Aggregate Functions • Joins, Constraints and ER Modelling • Advanced Query writing using Joins and Aggregate Functions • Case Statements for Conditional Logic and Aggregation • Common Table Expressions (CTEs) and • Subqueries in SQL • Date Manipulation - Data Types and • Functions • Fundamentals of Window Functions and it's applications • Views, Indexes and Data Partitioning • Stored Procedures and Triggers • TCL and DCL Commands	 Retail Store  E-Com Business

Module	Topics	Case Studies
Python Programming	• Introduction to Python and AIML • Fundamentals of Python: Syntax, Variables, and Data Types • Types and Order of Operators • Strings : Operations and Methods • Data Structure - List, Tuple, Set, Dictionary • Conditional Statements • Looping Statements • Control Transfer Statements - Break, Continue and Pass • Functions • Exception Handling • Modules • File Handling , Overview of library • Numpy - Libraries for Array Management • Attributes, Operations, and Statistical Analysis using NumPy • Data Structures and Series Management using Pandas • Data Manipulation and Analysis in Pandas: File Handling, Data • Selection, and Aggregation • Data Visualization using Matplotlib and Seaborn • Concepts and Application of OOPS • Database Connectivity : Using Libraries for Data Management	 Covid-19  PhonePe Digital Payments

Module	Topics	Case Studies
Statistics & EDA with Python	• Introduction to Statistics • Types of Data and Data Collection • Sampling Techniques & Measures of Central Tendency • Descriptive Statistics: Measures of dispersion • Introduction to Probability in Statistics • Probability Distributions • Central Limit Theorem and Sampling • Distributions and their properties • Hypothesis Testing • Confidence Intervals • Statistical Tests and uses for bivariate analysis	 Loan Default  Pro Kabaddi League  Superstore Sales
Generative AI (Live lectures)	• Introduction to Generative AI: Concepts, tools, and applications • Prompt Engineering Techniques for crafting effective prompts • Generative AI in Excel for Data processing and automation • Python Development with Generative AI: prompting, assistance, and best practices. • Generative AI for SQL Coding: prompting, debugging, and optimization Generative AI for Data Analysis and Visualization: Summarization, EDA, and best practices.	 Credit Risk Modelling

Optional Module	Topics	Projects
Machine Learning Optional (Recorded content)	• Introduction to Machine Learning • Introduction to Python • Strings & Tuples • Conditionals and Loops • Functions & Lists • Dictionaries • 2D Lists • Numpy • Pandas • Plotting Graphs • Introduction to Linear Regression • Multivariable Regression & Gradient Descent • Logistic Regression • Decision Trees - 1 & 2 • Random Forests • Naive Bayes • K-nearest neighbours • Support Vector Machine • PCA - 1 & 2 • Assignment • NLP - 1 & NLP - 2 • Neural Networks - 1 & 2 • TensorFlow • Keras • CNN - 1 & CNN - 2 • Recurrent Neural Network • Long Short Term Memory • Unsupervised Learning - 1 & 2	• Gradient Descent • Decision Tree Implementation • Text Classification • Cifario • Twitter Sentiment Analysis • Text Classification

Here are some of the ways

HOW GENAI IS BEING USED FOR DATA ANALYSIS

Excel

- **Analyze Data:** Spot trends and outliers by asking simple questions.
- **Flash Fill:** Recognizes patterns in data and applies them to similar rows automatically.

Power BI

- **Advanced Visualizations:** AI provides clear, interactive visuals to make data insights more accessible.
- **Constant Improvement:** The AI capabilities in Power BI are advanced and continuously evolving.

SQL

- **Query Generation:** AI tools like Photon Natural Language by Salesforce create SQL queries based on prompts.
- **Basic SQL Knowledge Needed:** While AI simplifies querying, familiarity with SQL basics is beneficial.

Python

- **Data Manipulation**: Use Pandas for quick data cleaning and structuring.
- **Predictive Analytics:** Build machine learning models with Scikit-learn.

and more applications will be covered in the program.....

REAL WORLD CASE STUDIES

National Air Quality

Analyse national air quality data,focusing on PM 2.5 and PM 10 levels to understand pollution trends and regional variations. Evaluate potential health impacts based on these key indicators.

US Healthcare Case Study

Investigate healthcare data to identify prevalent conditions, cost trends, and hospital admissions across demographics. Provide recommendations for reducing costs, managing resources, and improving patient outcomes.

India CPI Inflation

Examine India's inflation trends through Consumer Price Index data, focusing on keysectors like food, energy, and transport. Assess year-over-year inflation patterns, the impact of global events, and COVID-19's influence on essential sectors, offering insights into India’s economic dynamics.

Ecom Orders

Analyse 2023 e-commerce data from a Bangalore-based mobile accessories company serving 14 countries. Explore order methods (app, website, WhatsApp, helpline), customer segments, and targeted sales teams to improve sales strategies and boost global customer engagement.

Retail Analytics

Use data to address product performance, customer segmentation, and behaviour analysis. Gain insights from sales and customer data to optimise inventory and improve customer engagement.

E-Com Company

Analyze customer insights, product performance, and sales trends to enhance market segmentation, inventory management, and sales strategy. Apply SQL to uncover actionable insights for boosting customer satisfaction and sales.

COVID-19 Analysis

Explore the global impact of COVID-19 using datasets on cases, deaths, and recoveries. This study enhances skills in Python for data manipulation, cleaning, and visualisation, offering insights into pandemic trends across regions.

PhonePe Transactions

Analyze PhonePe transaction data along with demographic details from Indian states and districts. Examine trends in transactions, device usage, and demographic correlations while ensuring data consistency for in-depth insights.

Pro Kabaddi Dataset

Conduct Exploratory Data Analysis (EDA) on Kabaddi match events to uncover insights on gameplay and player performance using Python libraries like Pandas, NumPy, and Matplotlib.

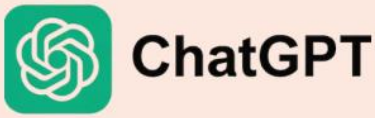
Superstore Sales

Analyze the Superstore Sales dataset to uncover trends and insights critical for retail decision-making, applying advanced data techniques for actionable business insights.

Loan DefaultAnalysis

Examine loan application data to identify factors influencing defaults by analysing demographic,financial, and behavioural attributes, helping inform risk management strategies.

TOOLS COVERED



SKILLS LEARNED

- Data Analytics Fundamentals
- Data Cleaning and Handling Missing Values
- Data Extraction andTransformation
- Univariate and BivariateAnalysis
- DataVisualizationTechniques
- Data Storytelling
- Database Management and SQL Querying
- SQLJoins, Constraints, and Modeling
- Advanced SQLTechniques (WindowFunctions, CTEs, etc.)
- Python Programming Basics
- DataManipulation in Python (Pandas, Numpy)
- DataVisualization in Python (Matplotlib, Seaborn)
- Statistical Analysis and Hypothesis Testing
- Probability and StatisticalTests
- Business Intelligence Reporting
- Data Security(RowLevel Security)