**Data Analytics Mentorship Program(DAMP)**

# Curriculum

### Module 1 - Fundamentals of Programming using Python

* + Python basics
  + Control flow in Python
  + Data Structures in Python
  + Functions in Python
  + Object-oriented programming in Python
  + File handling
  + Exception handling
  + Numpy
  + Pandas
  + Matplotlib
  + Seaborn

### Module 2 - Statistics

* + Introduction to Statistics
  + Measures of central tendency
  + Measures of dispersion
  + Correlation and covariance
  + Data visualization using graphs
  + Probability Distributions
  + Central Limit Theorem
  + Confidence Interval
  + Hypothesis Testing
  + Fundamentals of Probability

### Module 3 - Data Analysis using Python

* + Data Gathering from API
  + Web Scraping
  + Data Cleaning
  + Exploratory Data Analysis
  + Data Storytelling
  + Streamlit

### Module 4 - Data Analysis using SQL

* + Fundamentals of Databases
  + OLAP vs OLTP
  + SQL DDL commands
  + SQL DML commands
  + SQL Grouping and Sorting
  + SQL Joins
  + Subquery
  + Window Functions
  + Stored Procedures, View and Triggers
  + Optimizing SQL queries
  + Data analysis using SQL

### Module 5 - PowerBI

* + Introduction to PowerBI
  + Understanding the PowerBI interface
  + PowerBI Visualizations
  + PowerBI filtering and interactivity
  + DAX
  + Advance DAX and Data modelling
  + Power Query
  + Advance Data transformation and integration
  + PowerBI Services
  + PowerBI Architecture
  + PowerBI AI Integration

### Module 6 - Data Analysis using MS Excel

* + Excel Basics
  + Data entry and basic functions
  + Logical and data validation functions
  + Lookup and reference functions
  + Text manipulation functions
  + Excel tables and structured data
  + Pivot tables for data analysis
  + Advanced pivot table techniques
  + Data visualization basics
  + Advance charting techniques
  + Conditional formatting and sparklines
  + Dashboard design principles
  + Advance dashboarding techniques
  + Power query and data transformation

### Projects

##### Interactive Text Analysis Platform

* + - Load and preview datasets interactively.
    - Preprocess text with tokenization, stopword removal, and lemmatization.
    - Perform sentiment analysis and visualize results.
    - Extract and display topics using LDA or NMF.
    - Highlight keywords with frequency and relevance scores.
    - Create interactive visualizations for insights like sentiment trends and topic distributions.
    - Provide search and filtering options for text exploration.
    - Use Streamlit for an intuitive and responsive UI.
    - Export analysis results and processed data.
    - Deploy online for accessibility and scalability.
  + E-commerce Sales Analysis
    - Extract e-commerce data from databases using SQL.
    - Preprocess and transform data with Python.
    - Load processed data into a data warehouse.
    - Create interactive Power BI dashboards for sales analysis.
    - Streamline data handling for improved decision-making.
  + Financial Data Analysis using Excel
    - Automate daily collection of Excel files from field agents.
    - Develop a pipeline to download and combine data.
    - Clean and preprocess data for consistency.
    - Generate dashboards in MS Excel for analysis.
    - Enable efficient and timely financial decision-making.
  + Uber Data Analysis
    - Automate ETL process for Uber trip data using Python.
    - Load and clean data into a data warehouse.
    - Create interactive Power BI dashboards.
    - Visualize ride patterns, peak hours, and revenue trends.
    - Support data-driven decision-making.

**Note** - Projects are tentative and might change in the future