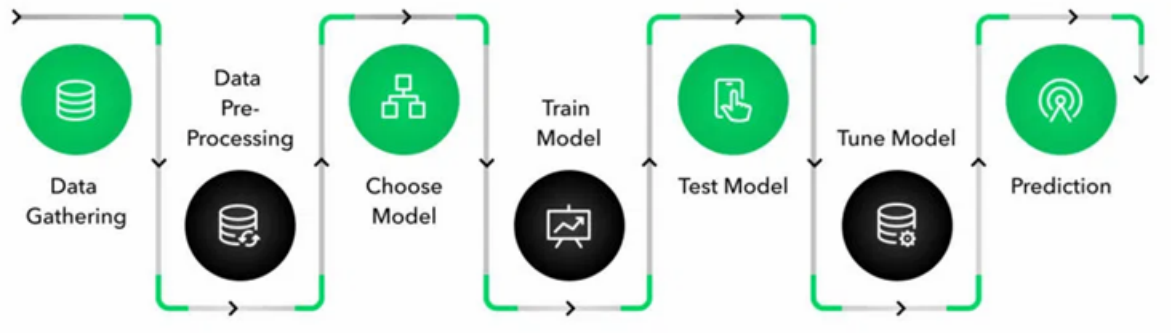

Guidelines for Data Analytics and Visualization Lab Mini Project

Project Overview:
Each student must select an application along with a dataset for the mini project. The application can belong to any of the following domains:

- Machine Learning (ML) or Deep Learning (DL) for classification, regression, or reinforcement learning
- Networking or Security
- Any other application of interest, based on the availability of data

Problem Statement:
Clearly define your problem by specifying:

- The dataset you are considering
- The input and output variables
- The model or methodology you are applying

Steps to Follow:

Step 1: Data Collection and Visualization

- Collect data from available resources.
- Explain the dataset with respect to the concepts learned in Data Analytics and Visualization.
- Visualize the dataset distribution using appropriate graphs or plots.

Step 2: Data Preprocessing

- Describe any operations performed on the data (e.g., feature extraction, outlier detection, data cleaning).
- Use graphs to illustrate the difference between the initial data (Step 1) and the preprocessed data.

Step 3: Data Transformation and Statistical Analysis

- Mention if any data transformations, distribution checks, or hypothesis testing were performed.

- If feature selection or dimensionality reduction techniques were applied, demonstrate the results with appropriate visualizations.

Step 4: Model Implementation

- Specify if the task is classification or regression.
- For classification tasks, explain how the model handles class imbalance, if any.
- Use tables and graphs to present model performance metrics.

Step 5: Results and Comparisons

- Present final results through visualizations only (graphs and plots).
- Highlight key comparisons between different models, preprocessing techniques, or feature selection methods.