

## List of Experiment

| Experiment No. | Experiment                                                                                                                                                                                                                                          |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1              | To install Anaconda, set up Jupyter Notebook environment, and execute basic Python programs including variables, lists, loops, and functions.                                                                                                       |
| 2              | To create NumPy arrays and perform indexing, slicing, vectorized operations, and matrix manipulations.                                                                                                                                              |
| 3              | To import real-world datasets (CSV files) using Pandas and perform data inspection, filtering, sorting, and missing value handling operations.                                                                                                      |
| 4              | To perform Exploratory Data Analysis (EDA) on a dataset by computing summary statistics (mean, median, variance), identifying missing values and outliers, and visualizing data using histograms and boxplots.                                      |
| 5              | To create and interpret various data visualizations such as bar charts, histograms, scatter plots, and heatmaps using Matplotlib and Seaborn libraries in Python.                                                                                   |
| 6              | To compute correlation coefficients between numerical variables and visualize the relationship using scatter plots with regression lines using <code>seaborn.regplot()</code> .                                                                     |
| 7              | To perform statistical hypothesis testing using: <ul style="list-style-type: none"><li>• Z-Test</li><li>• Independent T-Test</li><li>• One-Way ANOVA</li></ul> and interpret p-values to draw statistical conclusions..                             |
| 8              | To build a predictive model using Linear Regression to predict house prices, perform train-test split, and evaluate the model using RMSE and $R^2$ score.                                                                                           |
| 9              | To build a Logistic Regression classification model to predict binary outcomes (diabetes: Yes/No) and evaluate the model using: <ul style="list-style-type: none"><li>• Accuracy</li><li>• Confusion Matrix</li><li>• ROC Curve &amp; AUC</li></ul> |
| 10             | To apply K-Means clustering algorithm on a dataset, interpret cluster groupings, evaluate clustering quality using Silhouette Score, and visualize clusters graphically.                                                                            |