

## **AIDI 1003 – Final Project**

### **Final Group Project Outline:**

#### **1. Project Proposal:**

- **Objective:** Define the problem statement and outline the goals of the project.
- **Deliverables:** A short proposal document outlining the project scope, objectives, and intended approach.

#### **2. Data Collection and Preparation:**

- **Objective:** Source a relevant dataset, clean it, and prepare it for analysis.
- **Tasks:**
  - Data cleaning: Handle missing values, duplicates, and outliers.
  - Data preprocessing: Normalize, standardize, and encode features as needed.

#### **3. Exploratory Data Analysis (EDA):**

- **Objective:** Perform EDA to understand the dataset, visualize patterns, and identify trends.
- **Tasks:**
  - Summary statistics
  - Data visualizations (e.g., histograms, scatter plots, correlation heatmaps)

#### **4. Model Selection and Building:**

- **Objective:** Choose appropriate machine learning algorithms based on the project goals and dataset characteristics.
- **Tasks:**
  - Train and validate multiple models
  - Compare model performances using evaluation metrics

#### **5. Hyperparameter Tuning:**

- **Objective:** Optimize model performance through hyperparameter tuning.
- **Tasks:**
  - Use GridSearchCV or RandomizedSearchCV for tuning
  - Document the results and improvements

#### **6. Model Evaluation and Validation:**

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- **Objective:** Assess model accuracy, precision, recall, and other relevant metrics.
- **Tasks:**
  - Cross-validation to validate model generalizability
  - Evaluate the model on a test set

### **7. Model Deployment:**

- **Objective:** Deploy the model in a simulated or real-world environment.
- **Tasks:**
  - Set up a simple REST API for model predictions
  - Use TensorFlow Serving or Flask for deployment

### **8. Project Presentation:**

- **Objective:** Present the project findings, approach, and results.
- **Deliverables:** A presentation summarizing the project, including the EDA findings, model performance, and any deployment considerations.