Solution Approach

1. Data Understanding and exploring
2. Exploratory data analysis
    - Visualized the Class Distribution using countplot.
    - Examined Correlations between features using a heatmap.
    - Checked for missing values (none found).
3. Data Preprocessing
    - Feature Engineering: Transformed the Time feature into the "Hour of the Day".
    - Scaling: Standardized the Amount and Hour variables using StandardScaler.
4. Handling Class Imbalance
    - Applied SMOTE (Synthetic Minority Oversampling Technique) to create synthetic samples for the minority class (fraudulent transactions) and balance the dataset.
5. Model Training
    - Trained three models: Logistic Regression, Random Forest, and XGBoost.
    - Split the data into 80% training and 20% testing sets.
6. Model Evaluation
    - Evaluated models using metrics like Accuracy, ROC AUC Score, F1 Score, and Confusion Matrix.
7. Hyperparameter Tuning
    - Performed Hyperparameter tuning for all models using GridSearchCV to find the optimal parameters and improve performance.