Phone Purchase Prediction - ML Project Report

Step 1: Project Objective

The goal is to build a machine learning classification model that predicts whether a person will purchase a new phone based on certain features like salary, location, and previous phone usage.

Step 2: Dataset Creation

We generated a synthetic dataset named 'phone_purchase_data.csv' with the following features:

- Age
- Salary
- Location (Urban, Suburban, Rural)
- Phone Age (years old)
- Phone Brand
- Bought (target: 1 = Yes, 0 = No)

Step 3: Data Loading and Preprocessing

We loaded the CSV into pandas and checked for missing values.

Used Label Encoding and OneHotEncoding for categorical variables like 'Location' and 'Phone Brand'. Used MinMaxScaler for scaling numerical features.

Step 4: Model Training

Split the dataset into training and testing sets.
Used Logistic Regression for training the classification
model. Evaluated performance using accuracy score.

Step 5: Prediction and Evaluation

After training, the model was used to predict test values.
Evaluation metrics such as Accuracy, Confusion Matrix, and Classification Report were generated to assess model performance.

Step 6: Conclusion

The ML model successfully classifies users based on given features to predict phone purchase behavior. This project demonstrates the end-to-end machine learning pipeline from data preparation to deployment-ready predictions.