**Feature Extraction and Price Prediction for Mobile Phones**

**Project Description:**

In this project, I worked with a dataset that contains detailed information about various mobile phones, including their model, colour, memory, RAM, battery capacity, rear camera specifications, front camera specifications, presence of AI lens, mobile height, processor, and most importantly, the price. The primary goal of this project is to develop a predictive model for mobile phone prices.

**Steps and Methods involved in the Project:**

1) Data Exploration - Started by loading and exploring the dataset to understand its structure, data types, the range of values for each feature etc.

2) Data Preprocessing - Handled missing values, duplicates and outliers and inconsistencies in the dataset. Converted categorical variables into a suitable numerical format for developing the model.

3) Feature Extraction - Performed feature extraction to identify the most relevant features that strongly affect the price of mobile phones.

4) Model Building and Evaluation - The dataset has splitted into two parts as training and testing data and developed a machine learning model for price prediction using various algorithms such as Linear Regression, Randomforest and Gradient Boosting and evaluated the performance metrics such as mean absolute error, root mean squared error, R2 score.

5) Feature Importance Analysis - Analysed the feature importances obtained from the model to confirm the significance of the features identified during the feature extraction phase.

6) Report, Visualization and Recommendations - Created a comprehensive presentation that summarizes the project's findings. Include visualizations and insights about feature importance and their impact on price prediction.

Python Libraries Used - Data science libraries such as Numpy, Pandas, Matplotlib, Seaborn and Machine learning libraries such as Sk-learn (for Python) for building and evaluating the predictive model in the Jupyter Notebook Environment.