

Smartphone price prediction

Section 1: Introduction to problem

The mobile industry is one of the most competitive markets, and pricing a new mobile phone is always a challenge for companies. Predicting the price of a mobile phone before it hits the market is essential to determine the best price for maximum profit. In this project, we aim to predict the price of a mobile phone using a RandomForestregressor algorithm.

Section 2: Data set description

The data set used for this project is the Mobile Price Classification data set, which can be found on Kaggle. It contains 2,000 rows and 21 columns, including features such as battery power, RAM, internal memory, and camera features, and the target variable is the price range, which has four possible values. The data set is well-balanced, with each price range having an equal number of samples.

Section 3: Details of regression Algorithm Used

We used the RandomForestregressor algorithm to predict the price range of the mobile phone. The algorithm works by creating multiple decision trees and combining their results to make a final prediction. Each decision tree is created using a random subset of features and a random subset of the data set. This randomization helps prevent overfitting and improves the accuracy of the predictions.

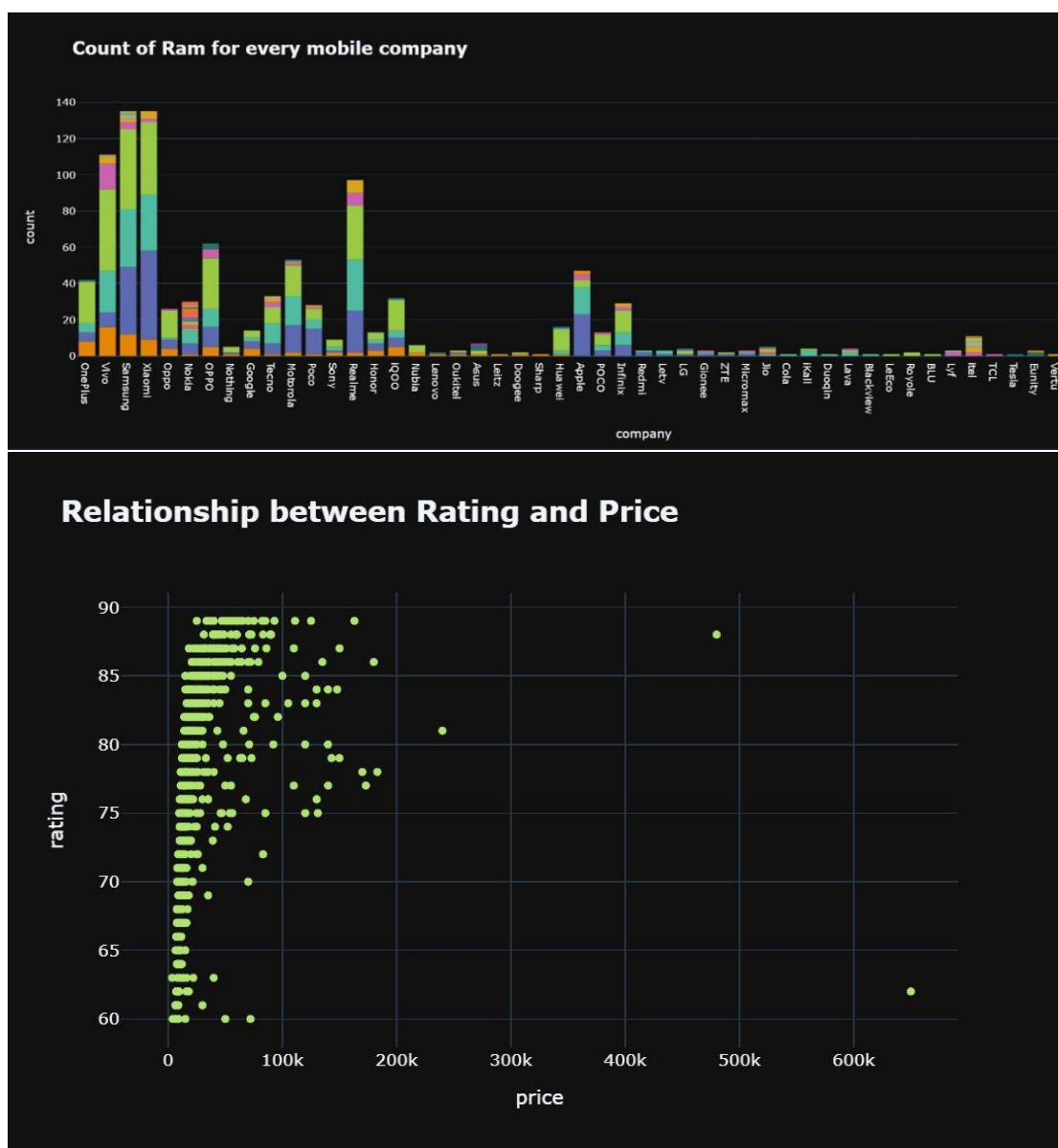
Section 4: Justification of regression Algorithm Used

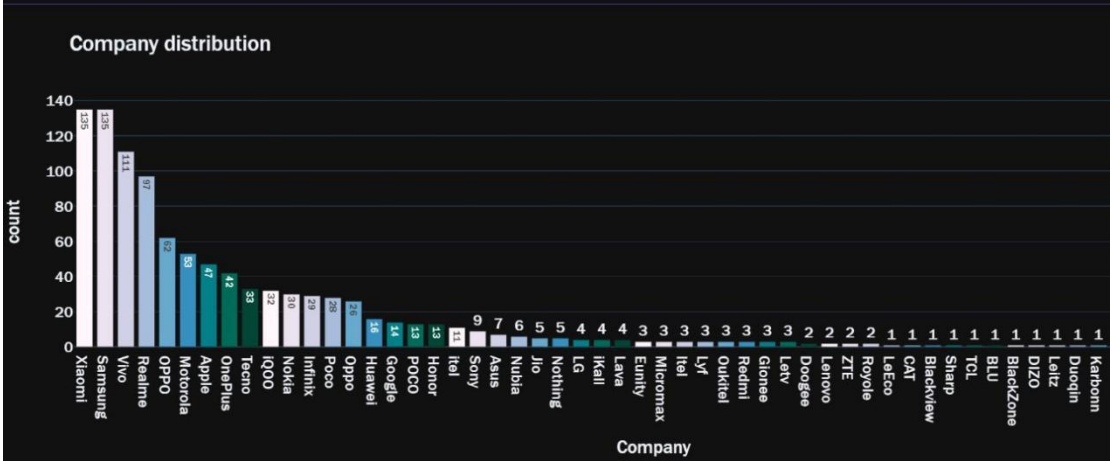
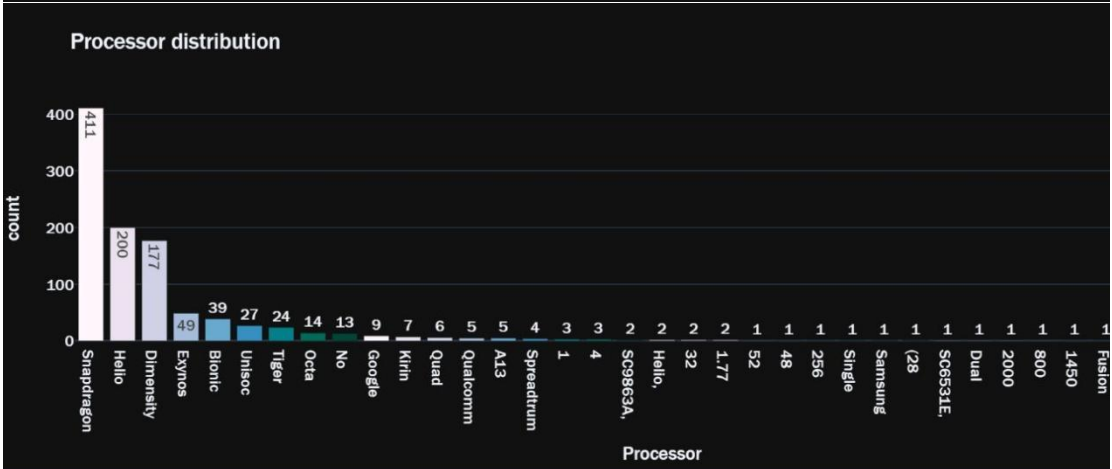
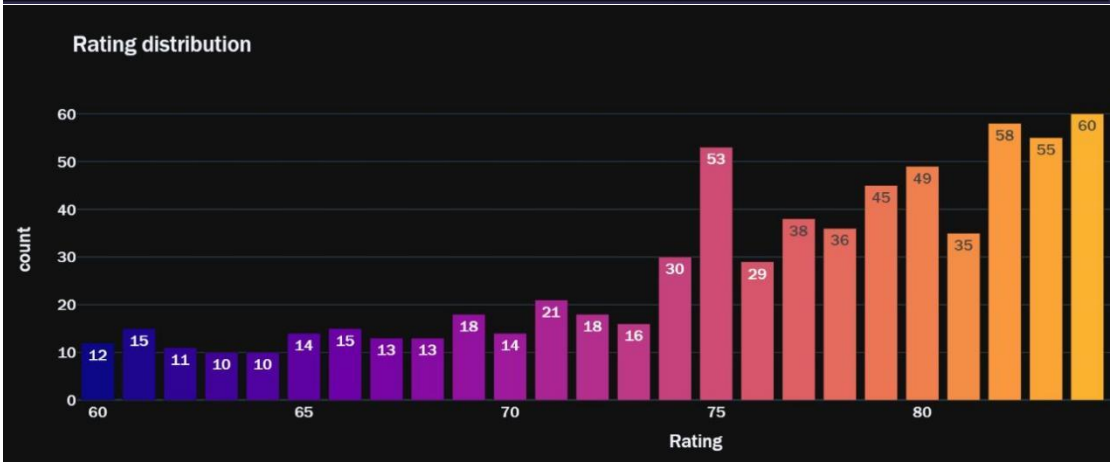
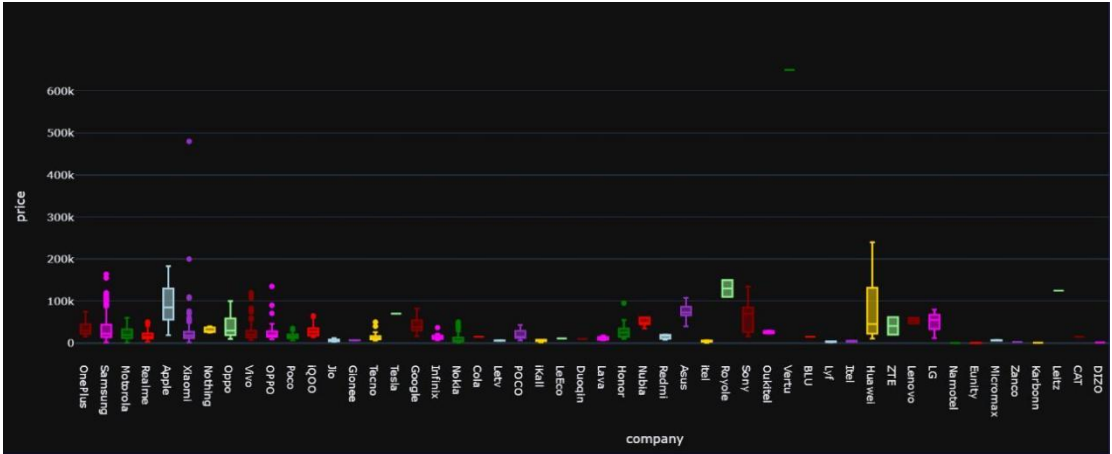
The RandomForestregressor algorithm was chosen because it is a robust and flexible algorithm that can handle complex data sets with high dimensionality. It is also resistant to overfitting, which is a common problem with other regression algorithms, making it ideal for this project.

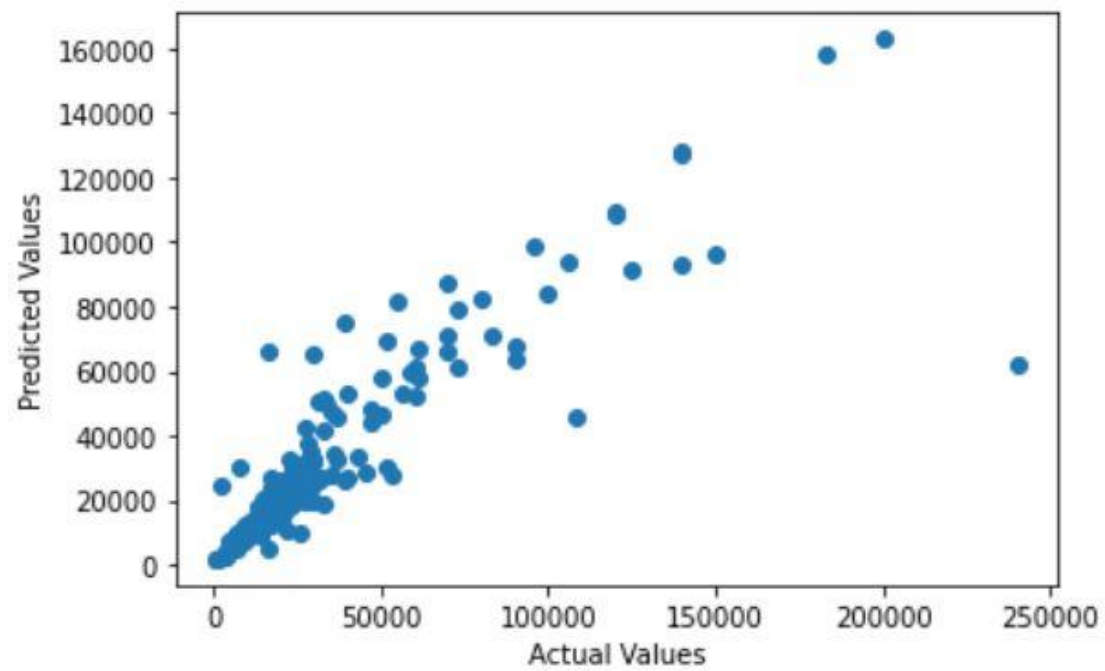
Additionally, the algorithm is capable of handling both categorical and continuous variables, which are present in the Mobile Price Classification data set.

Section 5: Visualization of results

To visualize the results, we created a scatter plot comparing the predicted and actual prices of the mobile phones. The scatter plot shows that the predicted prices are generally close to the actual prices, with some outliers that could be due to factors not included in the data set or errors in the predictions.







Section 6: Conclusion

In conclusion, the RandomForestregressor algorithm was successful in predicting the price range of mobile phones using the Mobile Price Classification data set. The results show that the algorithm is capable of accurately predicting prices, with some outliers that could be improved with further analysis. Overall, this project demonstrates the effectiveness of using machine learning algorithms to predict prices in the mobile industry.