**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

**BELGAVI, KARNATAKA -590 018**

 **A Minor Project Report on**

**“MOBILE PRICE PREDICTION”**

***Submitted in partial fulfillment for the Artificial Intelligence and Machine Learning internship of fourth Semester of Bachelor of Engineering in Computer Science & Engineering during the academic year 2023-24.***

**Submitted By**

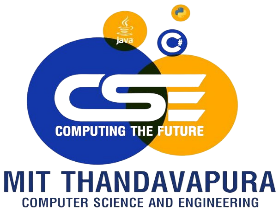
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**Project Report: Mobile Price Classification Based on Machine Learning**

1. **Introduction**

1.1 Problem Statement

In today's competitive mobile market, accurately predicting the price range of a mobile phone based on its features is crucial for both consumers and retailers. This project aims to develop a machine learning model capable of classifying mobile phones into different price ranges based on their specifications.

**1.2 Objectives**

Collect and preprocess a dataset containing mobile phone features and their corresponding price ranges.

Explore different machine learning algorithms suitable for classification tasks.

Build and train classification models to predict mobile phone price ranges.

Evaluate the performance of the models using appropriate metrics.

Identify the most influential features affecting mobile phone prices.

**2.Literature Review**

Discuss existing research on mobile price prediction using machine learning.

Highlight the different datasets, algorithms, and evaluation metrics used in previous studies.

Identify research gaps and potential areas for improvement.

**3.Dataset**

**3.1 Data Collection**

Describe the dataset used for the project.

Specify the source of the data (e.g., Kaggle, online retailers, manufacturers).

Provide details about the data collection process.

**3.2 Data Preprocessing**

Explain the data cleaning and preprocessing steps undertaken.

Handle missing values, outliers, and inconsistencies in the data.

Perform feature engineering if necessary (e.g., creating new features, transforming existing features).

**4. Methodology**

**4.1 Feature Selection**

Discuss the feature selection techniques used to identify the most relevant features.

Explain the rationale behind selecting the chosen features.

**4.2 Model Selection**

Describe the machine learning algorithms considered for the project (e.g., Decision Trees, Random Forest, Support Vector Machines, Logistic Regression).

Justify the selection of the final algorithms based on their suitability for classification tasks and potential performance.

**4.3 Model Training and Evaluation**

sets.

Describe the hyperparameter tuning techniques employed to optimize model performance.

Evaluate the models using appropriate metrics (e.g., accuracy, precision, recall, F1-score, confusion matrix).

Compare the performance of different models and select the best-performing one.

**5. Results and Discussion**

Present the performance metrics of the selected model on the test dataset.

Analyze the model's predictions and identify any patterns or trends.

Discuss the impact of different features on the model's predictions.

Evaluate the model's robustness and limitations.

**6. Conclusion**

Summarize the key findings of the project.

Highlight the achievements and contributions of the research.

Discuss potential future work and improvements to the model.

**7. References**

List all the references cited in the report.

Appendices

Include any additional supporting materials, such as code snippets, data visualizations, or detailed experimental results.

Additional Considerations:

Use clear and concise language throughout the report.

Include relevant visualizations to enhance understanding.

Provide sufficient details about the methodology and results.

Address potential limitations and biases in the data and model.

Possible Dataset:

You can use the dataset available on Kaggle: https://www.kaggle.com/datasets/iabhishekofficial/mobile-price-classification

**Possible Machine Learning Algorithms:**

Decision Trees

Random Forest

Support Vector Machines

Logistic Regression

Naive Bayes

K-Nearest Neighbors

Evaluation Metrics:

