

Mobile Price Prediction System

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Abstract: The key purpose of the research work is to determine that If the mobile when given with the features would be under a certain price range. Some features that are less necessary and redundant, and have minimal complexity in computation are being removed from the dataset. Only optimum ones are being kept to train the data. The System is based on Data Science. 3 Different Machine Learning classifiers are used to achieve the best possible accuracy. Results that are coming as an output are measured in terms of achieving the maximum accuracy. The project is deployed on the web server and input is taken by the model through Flask. Hence, it is a complete GUI based system . It is being suggested that the future work will extend the research. The system gives us the price range for appropriate inputs.

Keywords: Feature Selection, Future Work, GUI, Machine Learning, Minimal Complexity.

I. INTRODUCTION

In Today's day, price is the business and marketing attribute i.e. the most powerful. Every customer has the first question about the price of a particular product. [3] Basically, all are worried about the requirements and the decided budget i.e. whether she/he could purchase something with the given requirements or not Hence the basic aim of this research model is to predict the price at home. [1] The proposed paper describes only the initial step towards the destination or an end described above. [5] Artificial Intelligence — the field which is making the computer intelligent and capable of solving problems — is now a huge field of engineering. Machine learning and Computer Vision provides us with the latest artificial intelligence methods, such as classification, regression, supervised learning and unsupervised learning and much more. Not only

this, but many different tools in this domain are available now, such as MATLAB, Python, cygwin, WEKA etc. The system in the paper is implemented with Decision Tree Classifier, SVM and Logistic regression. [4] These different kinds of techniques and algorithms are necessary for selecting the best features, increasing accuracy and reducing the dataset. Nowadays, mobile is one of the apps having the most purchases and sales. [2] New mobiles or their generations with updates are released every day with new versions and more apps. The implemented system is implemented such that it is a complete GUI based project, takes the input from the user and predicts the accuracy as well as the price of the mobile with inserted parameters. The implementation domain is Data Science and Flask.



Fig1. Introduction

II. LITERATURE SURVEY

[1] This work can be concluded with the comparable results of both Feature selection algorithms and classifiers. This combination has achieved maximum accuracy and selected minimum but most appropriate features. The system is well deployed. The system is

following the pattern of data collection -> dimensionality reduction -> classification. Authors are giving the results whether the mobile is cheap, medium or high priced.

[2] This Project deals with the prediction of the price and the features of the mobile . It uses Feature selection to give precise features to be selected and get maximum accuracy results. If there is Forward selection in the data set then it reduces the accuracy of the features and In Backward selection, if we eliminate an important part then its efficiency is reduced. This project model could be improved by developing software that could predict by selecting features

[3]The technology used in the experiment is Decision Tree, WEKA, Naive Bayes. Basics of the experiment is grounded in WEKA. Similar to the previous one. This work can be concluded with the comparable results of both Feature selection algorithms and classifier except the combination of Wrapperattribut Eval and Decision Tree classifier. This combination has achieved maximum accuracy and selected minimum but most appropriate features.

[4]The proposed system is implemented with WEKA, Exploratory Data Analysis and WEKA. The experiment is carried out using WEKA (Waikato Setting for the Study of Knowledge). Performed in steps such as Data Collection, Dimensionality Reduction, Feature Selection, Feature Extraction, Forward Selection, Backward Selection, Classification. The result here is the accuracy of the machine learning model.

[5]They have proposed an artificial Neural Network system for predicting mobile price range. The model used feed forward backpropagation algorithm for training. The factors for the model were obtained from a data set representing mobile phones specifications. The model was tested and the total result was 96.31% accuracy. This study showed the ability of the artificial neural network to predict mobile phone price range.

III. METHODOLOGY

Firstly, We found a dataset consisting of mobile price and features as columns. Selected the optimum parameters. After the Data Cleaning, visualisations are being done and analysed the parameters vs Price relationships.

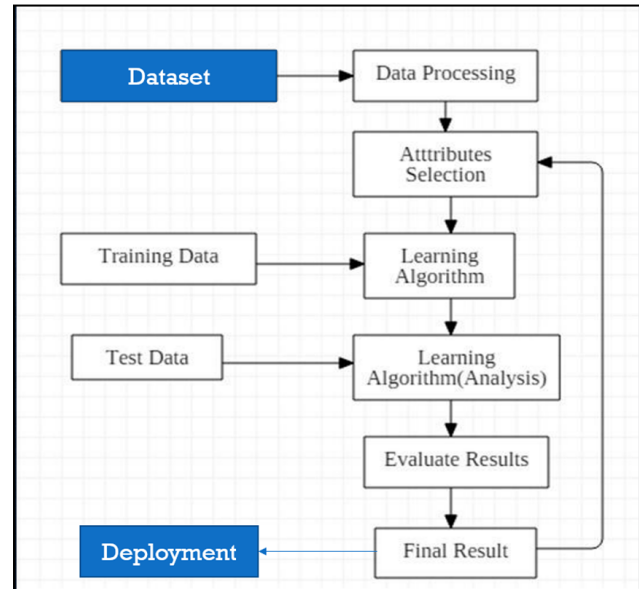


Fig 2. Complete Flowchart

Also trained the model using inbuilt libraries in python. The Flask technique is used to deploy the model over the browser. HTML, Tailwind CSS is also used to create GUI and also to make it user friendly. The model now takes the input from the user and based on that, it predicts the price efficiently giving a range of the price. Thus, Deployment is the last step and the user gets the final result there.

IV. SCOPE OF THE PROJECT

- As the model predicts correctly and it can be deployed for any dataset, the dataset can be updated as this might be the older for new phones.
- Price range can be more efficient .
- If anyone wants a better GUI, he/she can have it.

V. RESULTS AND DISCUSSIONS

The paper represents real-time mobile price predictions. After the collection of the datasets, one of the steps is data visualisations. Here, one can analyse the price vs Features relationship. The techniques used in the training are Decision Tree Classifiers, SVM, Logistic Regression. Out of which, the accuracy for every technique is being calculated. Logistic regression got the best accuracy, so the deployed model is using logistic regression. After that the pickle file is generated and loaded into the flask repository to go for deployment.

App.py is the python file used to deploy and use the technique called Flask. HTML, Tailwind CSS, Python are the languages used to develop the model and predict the prices. There are several inputs that are being taken from the user such as mobile height, width, pixel resolution height and width, RAM, whether there is WiFi, bluetooth or not, etc. The GUI is made simple so that users can understand it nicely. A Readme file is attached with it to make the model simple and so that the user also would be able to understand how to use it.

The screenshot shows a web interface with a dark blue header containing a 'Home' link. Below the header, there is a list of mobile phone features, each followed by a white input field: Battery, Bluetooth, Clock, Sim, Front Camera, 4G, Memory, Mobile Depth, Mobile Weight, Cores, Primary Camera, Pixel Height, Pixel Width, and RAM in MB.

Fig. 5 GUI 2

The screenshot shows a web interface with a dark blue header containing 'Home' and 'Predict Price' links. The main content area displays the README for 'Predict The Mobile Price'. It explains the project's goal: to predict mobile phone prices based on features like RAM, Internal Memory, etc. It also lists parameters to understand: 1) Battery_power (Total energy in mAh), 2) Bluetooth (Has bluetooth or not), 3) Clock speed (speed at which microprocessor executes instructions), and 4) Dual sim (Has dual sim support or not).

Fig. 6 GUI 3

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C:\Users\Lenovo\AppData\Local\Programs\Python\Python39\lib\site-packages\sklearn\0.24.2 when using version 1.0.2. This might lead to breaking code or invalid
https://scikit-learn.org/stable/modules/model_persistence.html#security-ma
warnings.warn(
* Debugger is active!
* Debugger PIN: 862-550-074
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
127.0.0.1 - - [30/Jun/2022 23:23:05] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [30/Jun/2022 23:23:05] "GET /klematis.jpg HTTP/1.1" 404 -
```

Fig. 3 Terminal

The screenshot shows a web interface with a dark blue header containing 'Predict Price' and 'Readme' links. The main content area displays a message titled 'Before It is Too Late Predict The Mobile Price'. The message text says: 'Hey!, You can also have an affordable one. The Mobile Price prediction system alongside is a price predicting system as per the given inputs by user. It is a complete Data Science Based project. Also Includes the Visualisations done with the certain parameters in the Project. Attached with the Readme file. The project can be modified with the parameters and Brand Value. Yet to achieve better, It is never Ending.'

Fig. 4 GUI 1

VI. CONCLUSION

Here, I looked at classification and EDA. Classifiers represent the intersection of advanced machine theory and practical application. These algorithms are more than just a sorting mechanism for organising unlabeled data instances into distinct groupings. Classifiers include a unique set of dynamic rules that include an interpretation mechanism for dealing with ambiguous or unknown values, all of which are suited to the kind of inputs being analysed. Most classifiers also utilise probability estimates, which enable end-users to adjust data categorization using utility functions. Some techniques such as sklearn, KNN, correlation analysis, etc have also been done for EDA.

VII. REFERENCES

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