EXCELSSIOR EDUCATION SOCIETY'S

K. C. COLLEGE OF ENGINEERING AND MANAGEMENT STUDIES AND RESEARCH

(Affiliated to the University of Mumbai)

Mith Bunder Road, Near Hume Pipe, Kopari, Thane(E)-400603

Department of Information Technology

Academic Year 2021-22

Vision

To create IT graduates with ethical and employable skills.

Mission

- To imbibe problem solving and analytical skills through teaching learning process.
- To impart technical and managerial skills to meet the industry requirement.
- To encourage ethical and value based education.

MINI PROJECT PRESENTATION

SEM-VI(2021-2022)

Laptop Price Predictor

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- Implementation Details/ Screenshots of GUI
- Data base Identified if any
- References(Books, Websites, Databases Etc.)

Introduction

- In The World Full Of Technology,People Use Laptops And Computers For Different Purposes Such As Gaming,Content Creation,Programming,Or Some Casual Work.
- People May Or May Not Have Clear Idea Or Knowledge When It Comes To The Specifications And Prices Of Laptops Due To Which They May Sometimes Buy Laptops Which Doesn’t Support Their Requirements Or They May Sometimes Pay More Money For The Laptop Which Comes With The Exactly Same Specifications But Different Brand.
- So We Need To Create Awareness Among The Customers And We Need To Increase The Knowledge About Laptops And Their Specifications Among Them So That They Don’t Face These Issues.
- So To Solve This Problem We Have Created A Machine Learning Model Using Different Machine Learning Algorithms And Data Mining Tasks Which Helps Us To Predict The Price Of The Laptop Based On The Specifications Entered By The User.

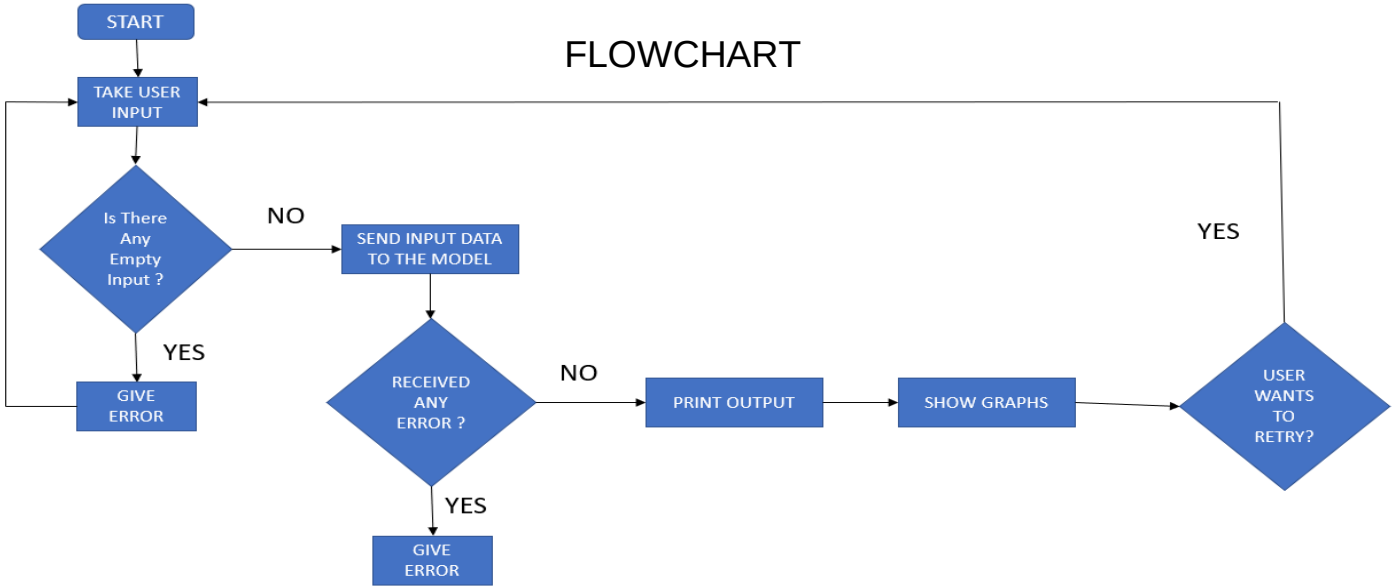
Problem Statement

- Create An Machine Learning Model With The Help Of Linear Regression And Random Forest Machine Learning Algorithms Which Can Predict The Price Of Laptop Based On The System Requirements Set By The User.In Simple Words,The Desired System Requirements Of The User Should Be Given To The ML Models Built Using Both The Algorithms And It Should Tell Us The Approximate Price Of That Laptop,And Display It On The Screen.

Literature Survey

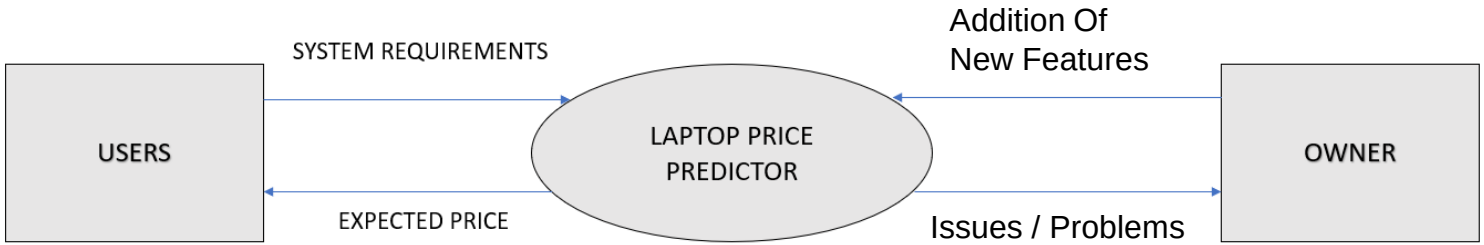
Year Of Paper	Title of paper	Methodology of paper	Advantages	Limitation
2019	Machine learning and its applications: A Review	Machine Learning	It Reduces Man Work,It Can Solve Complex Problems Easily In Very Less Time	Machines Need To Be Properly Trained To Properly Perform Some Tasks
2016	A Review of Data Mining Literature	Data Mining	It Provides Us The Valuable Information Which Can Be Used To Make Conclusions And Decisions	Data Mining Can Lead To Misuse Of Information
2018	Linear Regression Analysis Study	Linear Regression algorithm in ML	Simple To Implement And Understand	Overfitting Is An Important Issue
2012	Analysis of a Random Forests Model	Random Forest algorithm in ML	High Accuracy , Less Chances Of Overfitting Issue	High Complexity , Longer Training Time
2018	Analyzing online price by using machine learning techniques	Building Model Which Can Make Predictions Using ML	Using This Users Can Plan Their Budgets Properly	Data Set Must Be Large Enough To Properly Train The Model
2022	Laptop Price Prediction using Machine Learning	Laptop Price Prediction Using ML	It Can Help The User To Buy The Best Laptop In Their Budget	Data Set Needs To Be Updated Frequently

Diagrams


FLOWCHART
START
TAKE USER INPUT
Is There Any Empty Input ?
NO
YES
SEND INPUT DATA TO THE MODEL
GIVE ERROR
RECEIVED ANY ERROR ?
NO
YES
PRINT OUTPUT
SHOW GRAPHS
USER WANTS TO RETRY?
YES
GIVE ERROR

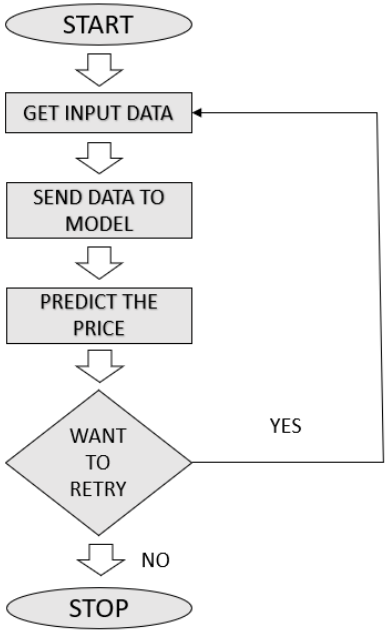
Diagrams

DFD Level 0



Diagrams

DFD Level 1



Hardware And Software Requirements

- **Hardware Requirements :**
  1.System: Laptop With Minimum I3 Processor
- **Software Requirements :**
  1.Visual Studio Code
  2.Google Colab / Jupyter Notebook
  3.Python 3 (With Numpy And Pandas)
  4.Stremlit
  5.Any Browser Supporting Javascript

Feasibility Study

A Feasibility Study Was An Evaluation Of Proposal Designed To Determine The Difficulty In Carrying Out A Designated Task. Generally, A Feasibility Study Precedes Technical Development And Project Implementation. There Are Different Types Of Feasibilities.

- **Economic Feasibility:** To Develop This Project, It Needs No Extra Facilities And Devices. All The Libraries And Dependencies Used Were Open Source.All The Tools Used Are Free, Open Source And Programming Language Is Python And Hence Its Development Is Economical.

- **Technical Feasibility:** Proposed Methodology Is Technically Feasible Because It Requires Only Those Hardware And Software Tools That Are Easily Available In The System.

- **Behavioural Feasibility:** Behavioural Feasibility Determines How Much Effort Will Go In The Proposed Information System, And In Educating And Training The Users On The New System.

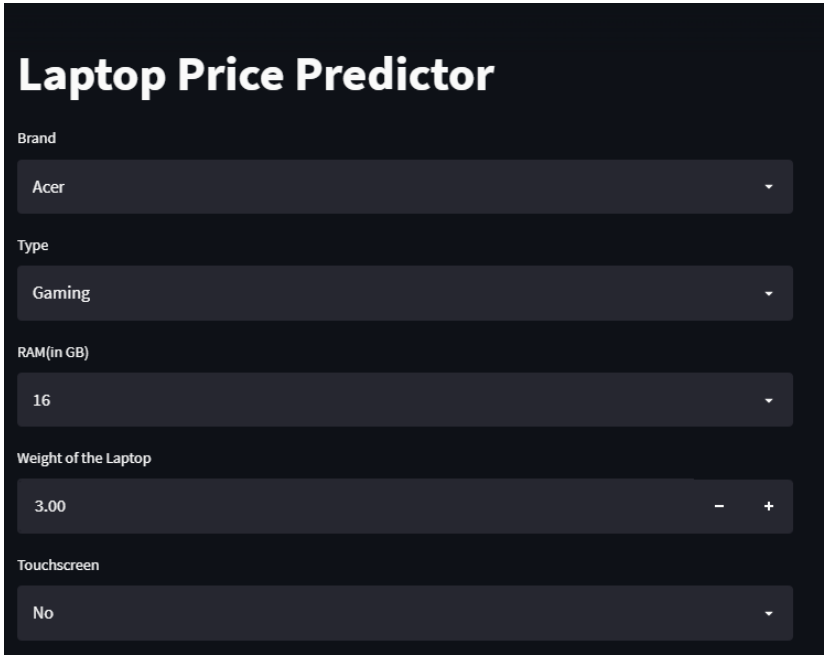
Proposed Methodology

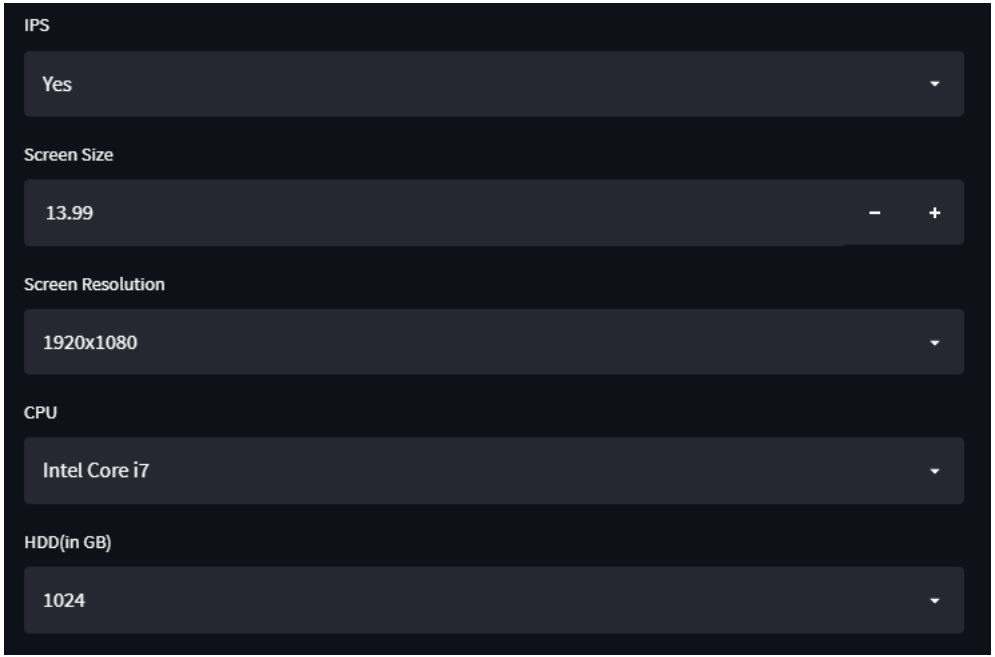
- This Model Is Built To Help The Customers/Users In Helping Them To Make Decisions Regarding Laptop Specification And Their Prices. In This Method The Model Helps The User To Visualize The Prices Of Laptops Based On The Specifications That They Have Selected. In Some Cases The Specifications Selected Can May Be Inapropriate In Which The User Will Be Notified On The Web App Itself About The Same.
- We Have First Taken A Laptop Price Data Set Which Was Available On The Kaggle Website Then We Looked For All The Irregularities In Our Data Set Such As Null Values Or Inappropriate Values.After Doing So We Tried To Make Our Data Set Very Much Simple To Understand.We Removed All The Strings That Were Embedded Already With The Data Values Which Would Have Caused Us Problems During Mathematical Calculations.Once All Of These Tasks Were Completed We Started To Build Our Machine Learning Model.
- Our Intention Was To Generate Two Different Machine Learning Models Which Will Do The Same Thing i.e Predict The Laptop Prices But Both Of The Models Would Be Made Using Different Algorithms So That We Can Get An Clear Idea Which Model Is More Accurate.We Have Used The **Linear Regression** And The **Random Forest** Algorithm To Build The Model.
- We Split The Data Set Into Training And Testing Data Sets As We Typically Do In All The Machine Learning Problems.
- The 85% Of The Dataset Was Used To Train The Model And The Remaining 15% Of The Dataset Was Used To Test The Models And Check Whether The Output It Is Providing Is Correct Or Not.

Proposed Methodology

- After Successfully Building Both The Models We Calculated The **R2 Scores** Of Both The Models,R2 Score Is The Score Which Is Used To Test The Accuracy Of Any ML Model.
- According To The R2 Scores Of Both The Models It Was Found That The Model Built Using Random Forest Algorithm Is More Accurate Than The Other Model.
- Once We Completed The Model Building Process We Started To Make An Web App Through Which Users Can Access This Model.The Web App Was Made Using The **Streamlit** Library Available In Python Which Allows Us To Build Attractive Web Apps Easily.
- The Users Can Enter Their Demands Through The Web App And Can Click On The "**Predict**" Button,Which Directly Sends The Input Data To The Model And Tells Them To Predict The Price Of The Laptop Based On The Input Provided.
- The Web App Also Provides Some **Graphs** Which Can Help The Users To Interpret The Results And Understand Them More Easily.

Implementation Screenshots





Implementation Screenshots

Implementation Screenshots

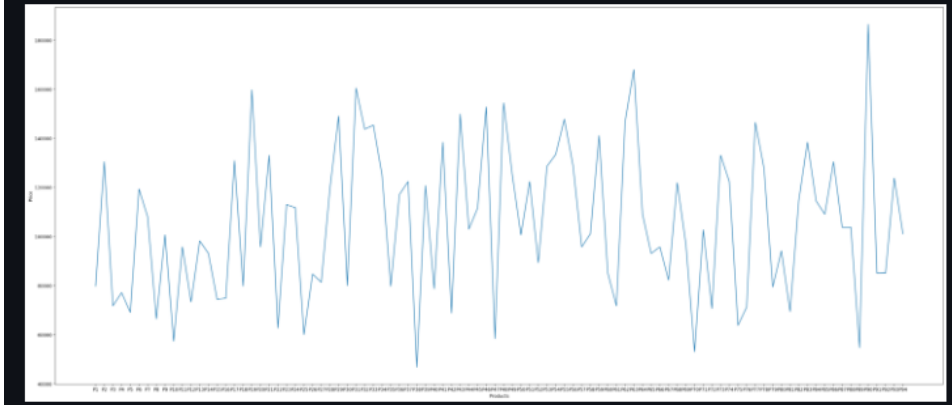
Using Linear Regression

The predicted price of this configuration is 85232

Using Random Forest

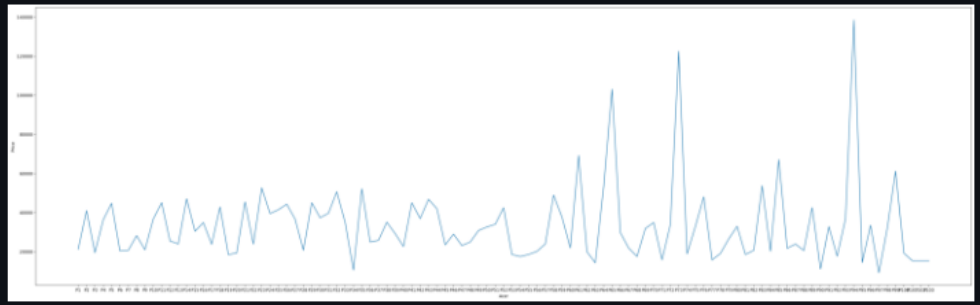
The predicted price of this configuration is 108083

Laptops of Similar Configurations Vs Prices - Line Plot

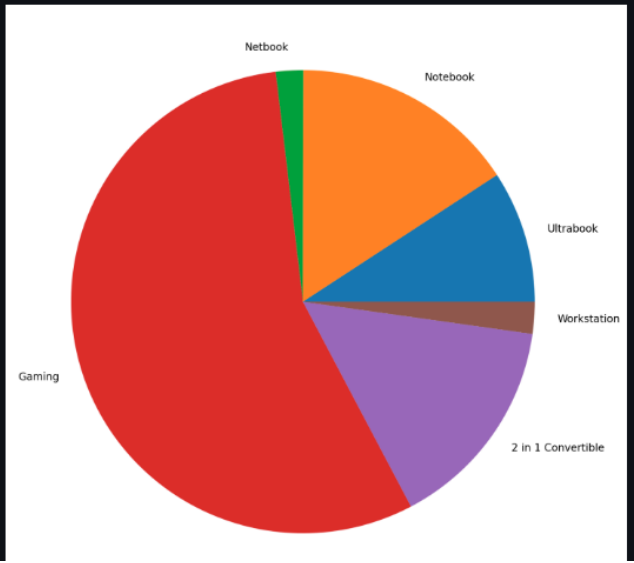


Implementation Screenshots

Laptops of Selected Company Vs Prices - Line Plot

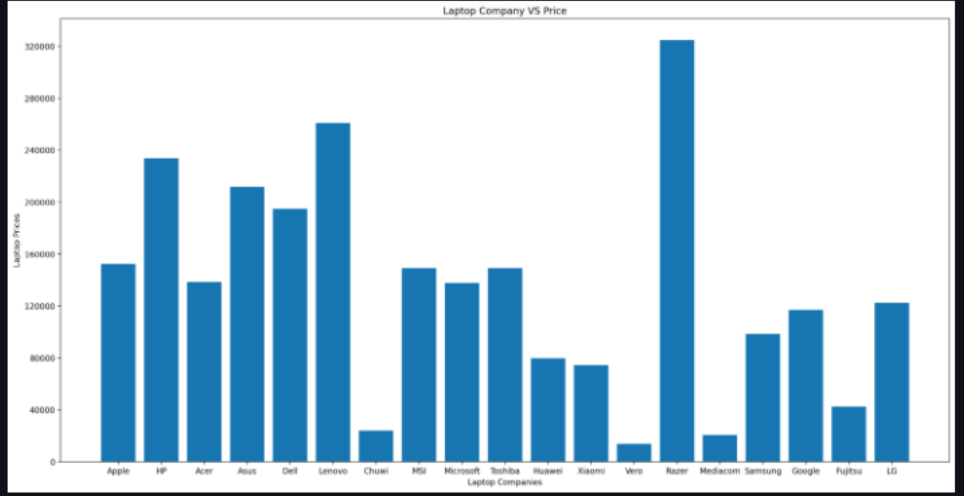


Type Of Laptops Vs Quantity - Pie Chart



Implementation Screenshots

Laptop Companies Vs Prices - Bar Graph



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Thank You!!!