D Y PATIL INTERNATIONAL UNIVERSITY AKURDI ,PUNE.

Project Report

On

"LAPTOP PRICE PREDICTION"

Presented By

"20210812002. Sarvesh Karanjkar"

"20210812004. Soham Badgujar"

"20200802024. Shivam Tejpal"

Program: **Bachler of Engineering(B.Tech CSE)**

Class**: TY (Semester - 6th)**

Course: **Deep Neural Network (Subject Code: CSE601)**

Guided By

Prof. Varshita Gangadhar and Prof.Shrikant Mahindrakar

School of Computer Science Engineering Department

Part A – Plan

Laptop Price Prediction

1.0 Problem Statement:

We will make a project for Laptop price prediction. The problem statement is that if any user wants to buy a laptop, then our application should be compatible to provide a tentative price of laptop according to the user configurations. Although it looks like a simple project or just developing a model, the dataset we have is noisy and needs lots of feature engineering, and preprocessing that will drive your interest in developing this project.

2.0 Aim of the Micro-Project

This Micro-Project aims at

1. To understand Machine learning Project lifecycle.
2. To Perform various operations on dataset.
3. To be able to use various libraries in python which is required for machine learning.
4. To understand concept of regression and implement it.

3.0 Action Plan

Sr. No.	Details of Activity	Planned Start date	Planned Finish date	Name of Responsible Team Members
1	Formation of Group	20/3/2023	20/3/2023	NA
2	Decide project topic	22/3/2023	22/3/2023	All Team Members
3	Approval from guide	25/5/2023	25/5/2023	All Team Members
4	Finalizing project topic	26/6/2023	26/6/2023	All Team Members
5	Working on code	2/4/2023	6/4/2023	All Team Members
6	Understanding concepts related to project topic.	8/4/2023	10/4/2023	All Team Members
7	Preparation of report.	12/4/2023	14/4/2023	All Team Members
8	Viva and Presentations.	19/4/2023	20/4/2023	All Team Members

4.0 Resources Required (Major resources such as raw materials, some machining facility, software etc)

Sr. No.	Name of resource / material	Specification	Quantity	Remarks
1	Jupyter Notebook	Anaconda Navigator 3	1	--
2	Python	Version 3.7.8	1	--
3	Google Chrome	Version 111.0.5563.147 (Official Build) (64-bit)	1	--

****

Part B – Outcome after Execution

Laptop Price Prediction

1.0 Brief Description:

We will make a project for Laptop price prediction. The problem statement is that if any user wants to buy a laptop, then our application should be compatible to provide a tentative price of laptop according to the user configurations. Although it looks like a simple project or just developing a model, the dataset we have is noisy and needs lots of feature engineering, and preprocessing that will drive our interest in developing this project.

A laptop price prediction project using linear regression is a machine learning project that aims to build a predictive model that can estimate the price of a laptop based on various features such as the processor speed, RAM size, hard disk capacity, screen size, and other specifications. Linear regression is a statistical method used to model the relationship between a dependent variable (in this case, the laptop price) and one or more independent variables (the features). The goal of the project is to develop a linear regression model that can predict the laptop price accurately based on the input features. To build this model, you would first need a dataset containing information about various laptops along with their prices and specifications. You would then need to preprocess the data by cleaning it, removing any missing values, and transforming the features into a numerical format suitable for linear regression. Next, you would split the data into training and testing sets, and use the training data to train the linear regression model. Once the model is trained, you can evaluate its performance using the testing data and adjust the model parameters as needed. Finally, once you have a well-performing model, you can use it to make laptop price predictions for new laptops based on their specifications. This can be useful for laptop retailers, manufacturers, or consumers who are interested in buying or selling laptops. Overall, the goal of the project would be to build an accurate and robust laptop price prediction model using linear regression, and to gain insights into the factors that affect the laptop prices.

2.0 Aim of the Micro-Project

This Project aims at

1. The aim of a linear regression project using Python would typically be to develop a statistical model that can predict a continuous numerical output variable based on one or more input variables, by fitting a straight line to the data. This can be achieved using

various libraries in Python such as NumPy, Pandas, and Scikit-learn. The specific aim of the project may vary depending on the data.

2. To identify the relationship between an independent variable and a dependent variable, and use this relationship to predict the dependent variable based on the independent variable.
3. The ultimate goal of a linear regression project would be to develop a model that accurately predicts the output variable for new input data, and to use this model to gain insights into the factors that affect the output variable.
4. To preprocess the laptop dataset, including cleaning the data, handling missing values, and transforming the features into a numerical format suitable for linear regression.
5. To evaluate the performance of the model using the testing data, and adjust the model parameters as needed to improve its accuracy.

3.0 Course Outcome Integrated .

1. To understand concepts in neural networks.
2. Deep machine learning.
3. To train machine learning models.

4.0 Actual Procedure Followed

1. Basic Understanding of Laptop price Prediction data
2. Imported required libraries in Jupyter Notebook.
3. Import dataset and created dataframe using pandas.
4. Check if there are any null values present or not.
5. Dropped column in dataframe which is not required.
6. Performed exploratory data analysis(EDA).
7. Analyzed Target column i.e Price.
8. Performed analysis on each column and understood relation relationship of them with price column.
9. This analysis involves cleaning of data , changing datatypes of columns, creating some new columns, dropping non-required columns , basic data visualizations etc.
10. After performing data analysis we get clean dataframe. Now we can use this dataframe for training and testing purpose.
11. we have imported libraries to split data, and algorithms which are required.
12. Split data into training and testing.
13. Implement pipeline for training and testing.
14. Observed R2 Score .
15. Exporting our model using pickle library.
16. Create Web Application for Deployment of Laptop Price Prediction Model.

5.0 Actual Resources Used

Sr. No.	Name of resource / material	Specification	Quantity	Remarks
1	Jupyter Notebook	Anaconda Navigator 3	1	--
2	Python	Version 3.7.8	1	--
3	Google Chrome	Version 111.0.5563.147 (Official Build) (64-bit)	1	--

6.0 Skill developed / Learning out of the Project

1. While working on this project we learned that there is various steps required for machine learning project cycle such as Data cleaning, EDA, Feature engineering , Data modelling etc.
2. There are various libraries and classes present in python which help us for modelling, visualizations, data – cleaning , training and testing of model etc.
3. Before training machine learning model first we have to prepare our data and that's why Data preprocessing plays important role.
4. In data preprocessing sometimes we have to create some extra columns in data frame and after use we should drop it from data frame otherwise data redundancy may happen.
5. By Using correlation and heatmap we can understand relationship between target variable with other variables.
6. We explored various library-functions in python and implement it.
7. Analysis becomes easy when data visualization comes into picture.

7.0 Output OF Project -

****

END OF REPORT