

INTRO (Tech)

- ↳ HM Sir or Mam, Thank you for giving me this opportunity to introduce myself. I am Vicky Kumar. I belong to Bihar. Currently, I am pursuing B.tech in CSE from CEC College.
- ↳ Talking about my technical skill set I have good hand in Python & C++. My primary language is Python.
- ↳ I have also ~~good~~ basic knowledge about DBMS.
- ↳ I have done my 4 weeks industrial training in Python from Solitaire infocys during which I have made a project name Laptop Price Predictor using linear regression algorithm.
- ↳ Mam/Sir My strength is I am hardworking person and I am self-motivated person.
- ↳ My hobbies is playing cricket, listening music & I'm also good in cooking.
- ↳ My ethic is "I never neglect on opportunities to improve myself".

Laptop Price Predictor (How it works) Explaining the Project

↳ Use

Laptop Price Predictor is a machine learning based project, which is a web application that used to predict the price of different Laptop.

↳ So, First of all I have taken the dataset from website (quicker.com) which contain data of the different Laptop then we perform data preprocessing on that dataset.

↳ Data Preprocessing include process such as data cleaning, data transformation, data integration & data reduction.

↳ Then we split the dataset into

Training Set	Testing Set
--------------	-------------

 algorithm to train our model.

↳ In my project there are no. of independent variable such as size of Laptop, RAM, Storage type etc. to predict the dependent variable i.e. price of the Laptop.

↳ That's all about my project.

• Database used \Rightarrow MS Excel

• User Interface \Rightarrow Streamlit (It is module of Python for UI (User-interface)).

Output

Laptop Price Predictor

Company Name

OS - windows, Mac

RAM

Storage

ROM

Predict Price
₹60000

— User Interface

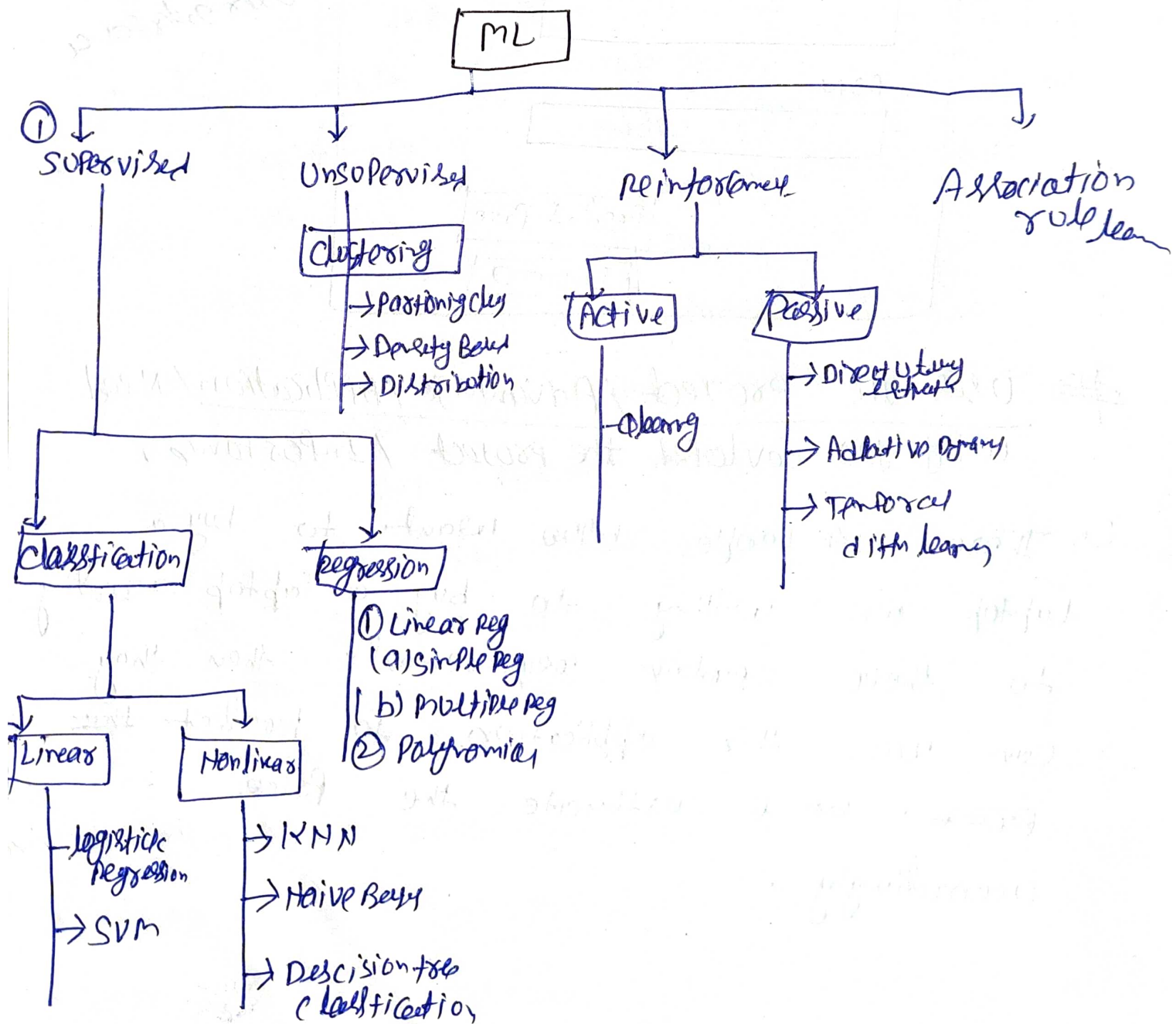
~~##~~ Uses the Project / Advantage / Application / Need
why you developed the Project / Importance,

↳ Those ~~is~~ people who want to buy a Laptop or willing to buy a laptop according to their certain requirements then they can use this application to predict ~~the~~ ~~Price~~ & estimate the Price accordingly.

① Machine Learning

- Machine learning is an AI tech that teaches computer learn from experience.
- Machine learning algorithms use computational methods to learn information directly from data.
- Deep learning is specialized form of machine learning.

⇒ Types of ML



① Supervised learning.

- Supervised ML builds a model that makes prediction based on evidence in the presence of uncertainty.
- A supervised learning algorithm takes a known set of input data and known response to the output data and trains a model.
- If you have known data for the output you are trying to predict.

② Unsupervised learning.

- Unsupervised learning finds hidden pattern or internal structure in input data.
- It is used to draw inferences from dataset.

③ Learning Association.

- Association rule learning is a type of unsupervised learning tech that checks for the dependency of one data item on another data item and makes accordingly so that it can be more profitable.

eg:- If a customer buy a bread, then butter egg storey in near.

④ Reinforcement learning

- Reinforcement learning is type of machine learning that involve an agent learn to interact with an environment in order to achieve a specific goal.
- The agent receives feedback in the form of rewards or punishments based on its action and learn to take action that gets cumulative rewards overtime.
- The goal of reinforcement learn is to find the optimal policy that maximizes the cumulative reward over time.
- Reinforcement learning has been successfully applied to a wide range of problem including game playing Robotics.

Supervised learning

- ① Input data is labeled
- ② It has a feedback mechanism
- ③ It divides into regression and classification.
- ④ It is used for Prediction
- ⑤ A known no. of classes
- ⑥ Texts
- ⑦ Highy scalar

Unsupervised learning

- ① Input data is unlabeled
- ② It has no feedback mechanism.
- ③ It divides into clustering & Association rule learning
- ④ It is used for queries
- ⑤ A unknown no. of classes
- ⑥ Slower
- ⑦ less scalar.

Regression

- Regression analysis is a statistical method.
 - It showing the relationship b/w a dependent and independent variable with one or more independent variables.
 - Regression analysis helps us to understand how the value of the dependent variable is changing consistently to an independent variable, when other independent variables are fixed.
 - It Predict continuous/real values such as temp, age, salary, price, e.t.c
- ⇒ Need / Uses
- Prediction of rain using temp and other factors.
 - It determine market trends.
 - It Prediction road accident due to reckless driving.
- ⇒ Types

① ~~Linear~~ Linear

→ (a) Simple
(b) multiple.

② Polynomial.

① Linear Regression

- Linear regression is one of the easiest and most popular machine learning algorithms.
- Linear Regression is a statistical method that is used for Predictive analysis
- It Predicts continuous/real value such as temp, age, salary, price, e.t.c

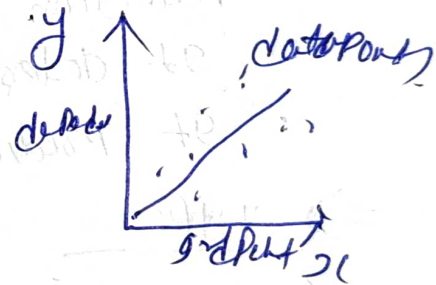
③ Linear regression showing relationship b/w a dependent and independent variables with one or more independent variables.

④ Linear regression helps us to understand how the value of the dependent variable changes correspondingly to an independent variable. When other independent variables are fixed.

(a) Simple linear reg

- If a single independent variable is used to predict the value of a numerical dependent variable then such type of regression is called simple linear regression.

$$y = b_0 + b_1 x_1$$



(b) Multiple linear regression

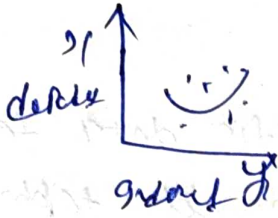
- If more than one independent variable is used to predict the value of a numerical dependent variable, then such type of regression is called multiple linear regression.

$$y = b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 \dots$$

Graph not possible

② Polynomial regression

- Polynomial regression is a type of regression algorithm that showing relationship between dependent and independent variable as n th degree polynomial.



$$y = b_0 + b_1x_1 + b_2x_2^2 + b_3x_3^3 + \dots + b_nx_n^n$$

Data Preprocessing

- Data preprocessing is a process of preparing the raw data and making it suitable for a machine learning model.
- It is the first and crucial step while creating a ML model.

⇒ Need data preprocessing

- A real world data generally contain noises, missing values and maybe in an unsuitable format which cannot be directly used for ML models. So for these reasons we use data preprocessing.
- Data preprocessing is needed for cleaning the data and making it suitable for ML model. which also increases the accuracy and efficiency of a ML model.

⇒ methods / steps / types / performed Data Preprocessing

① Data cleaning.

- The first step data preprocessing is data cleaning, where we remove irrelevant, incorrect or inaccurate data from the dataset. This step is essential for cleaning the data because inaccurate data can lead to wrong conclusions.

② Data integration

- In some cases, data may contain multiple sources. It is essential to integrate this data into single dataset.

- Data integration ensures that there is no duplication or inconsistency in the data.
- Data integration is particularly important when dealing with large, complex dataset that may contain missing or inconsistent information.

③ Data transformation

- machine learning algorithms may require specific data formats to be effective and data transformation is technique to convert the data into the desired format.
- data transformation help us to ensure that the data is clean and consistent.

④ Data reduction

- The dataset may contain a large amount of data that is not required for the analysis. Data reduction techniques such as, selection and dimensionality reduction. that can be used to reduce the size of dataset, making it easier to analyze.
- Data reduction is used to improve the efficiency and accuracy.

Data splitting

- Data splitting is the process of dividing dataset in two parts: training set and test set.
- Data splitting helps to ~~avoid~~ ensure that model is unbiased.
- Data splitting helps to improve the accuracy of the model.

Dataset	
training set	test set

- Training set \Rightarrow A subset of dataset to train the ML model, and we already know the output.
- test set \Rightarrow A subset of dataset to test the ML model, and by using the test set model predicts the output.