1.A Simple linear Regression.

Simple linear Regression is used when one indipendent variable is used to estimate a dependent variable.

And here we have one indipendent variable which is Years of Experiance (x) and an dependent variable, Salary (Y).

The objective of linear Regression " to minimize the MST equation error,

And to minimize it we should find the best parameters Q_1 and Q_2

$$MSE = \frac{1}{n} \sum_{i=1}^{n} (Y_i - \hat{y}_i)^2$$

a_0 and a_1 are the coefficients of the fit line.

python code

```
import numpy as np.
import metaplotlib as plt.
import pandas as pd.
from sklearn.model_selection import train test-split
# import dataset

db = pd.read_csv ('salary.csv')

~~x = dataset. iloc [: , : -1]~~
~~y = dat~~

x = db.iloc [: , : -1].values
y = db.iloc [: , 1].values
x-train, x-test, y-train
```

```
x-train, x-test, y-train, y-test = train_test-split
                        (x, y, test_size = ¼ , random_
                                            state = 0)
```

building model

```
from sklearn.linear_model import LinearRegression


rg = LinearRegression ()
rg.fit (x-train, y train)
```

vizualization using metaplotlib.

```
vz = plt
vz = ptt
vz.scatter (x-test, y-test , color = 'black')

vz.plot (x-train, ~~togot~~ rg. predict (x-train),
                                color = "green")

vz.xlabel ('Years')

vz.ylabel (' salary )

vz-show.
```

The model evaluation we are using here
is Train/Test split. By using this model
we select a portion for training and other
portions for testing.

By this way we get more accurate results.

2.B.   KNN Algorithm

→ k-Nearest Neighbors Algorithm (KNN) is one
of the most used learning Algorithm due
to its simplicity.

→ It is mostly used for classification.

→ KNN algorithm stores all the data, or analyze a database that already exists and classifies the data into catagories.

→ KNN does not make any assumptions on the data. underlying data.

→ Also known as lazy learner Algorithm.

Steps

→ Train Data.

→ choose the value of nearest data points (k)

→ For each point in the data.

→ calculate the distance between query and the current example from the data

→ Based on the distance, sort them

→ choose top k rown from the sorted

array

→ End.

3.B. SVM (Support vector machine)

Support vector machine (svm) is a

supervised machine learning algorithm

which can be used for ~~netase~~ both classi-

fication and regression.

It uses a technique called the kernal trick

to transform data.

Since svm can be used in both classi

fication and regression if have wide range

of applications. for example, Face detection, image classification, etc..

Image Classification

By using sum Algorithm we can classify images. ~~One of the classifications of image~~ Example of sum image classification is google photos. In google photos it categories the the image based on different parameters and display the categories. By this way cress can efficiently search images.

Face recognisation

Face recognisation is a widly used feature or technique. It is used for security purposes and it is also used in social media

platforms like facebook to recognise
friends. Other example of face recogni
sation is google photos. In google photos
by using face recognisation it categories
or identify each people.