BIG DATA ANALYTICS

A PRACTICAL REPORT
ON
BIG DATA ANALYTICS

SUBMITTED BY

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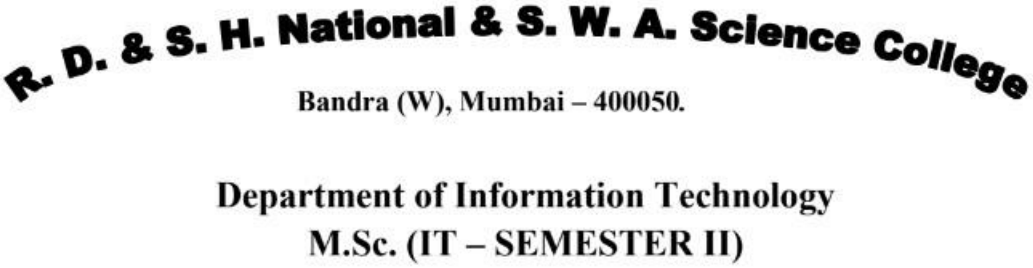
Roll No: 24011

UNDER THE GUIDANCE OF
PROF. AKBER KHAN

Submitted in fulfilment of the requirements for qualifying
MSc. IT Part I Semester - II Examination 2024-2025

University of Mumbai
Department of Information Technology

R.D. & S.H National College of Arts, Commerce &
S.W.A. Science College Bandra (West), Mumbai – 400 050



R. D. & S. H. National & S. W. A. Science College
Bandra (W), Mumbai – 400050.

Department of Information Technology
M.Sc. (IT – SEMESTER II)

Certificate

This is to certify that Big Data Analytics Practical performed at R.D & S.H National & S.W.A. Science College by Mr. **JEEVAN PARIYAR** holding Seat No. ________studying Master of Science in Information Technology Semester – II has been satisfactorily completed as prescribed by the University of Mumbai, during the year 2024– 2025.

Subject In-Charge **Coordinator In-Charge** **External Examiner**

College Stamp

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Practical 1

Aim: Implement Decision tree classification technique

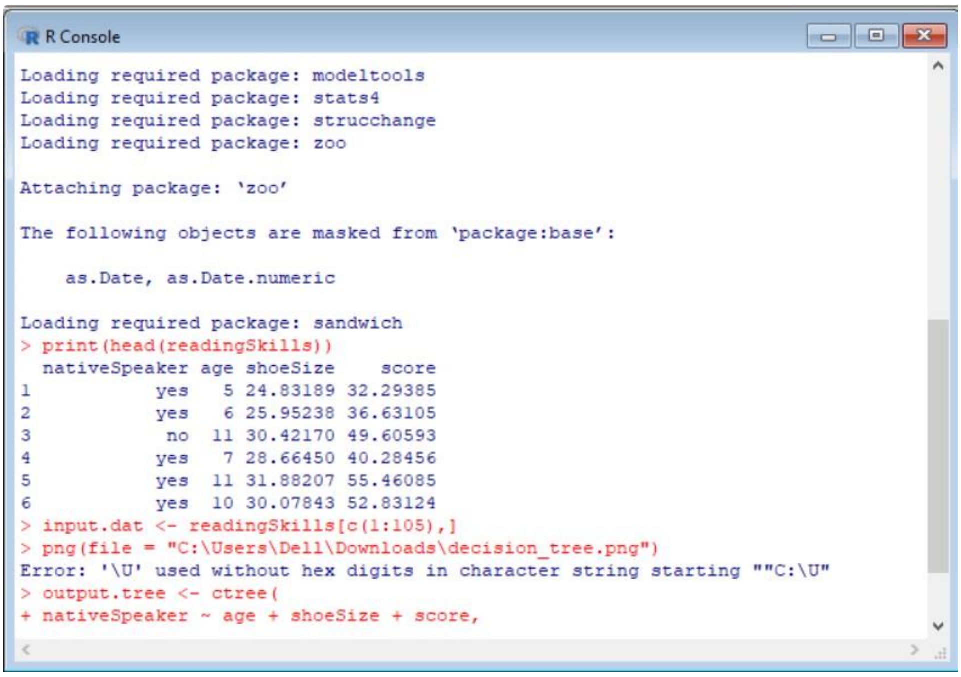
Writeup:

[A]: Implement Decision tree classification technique

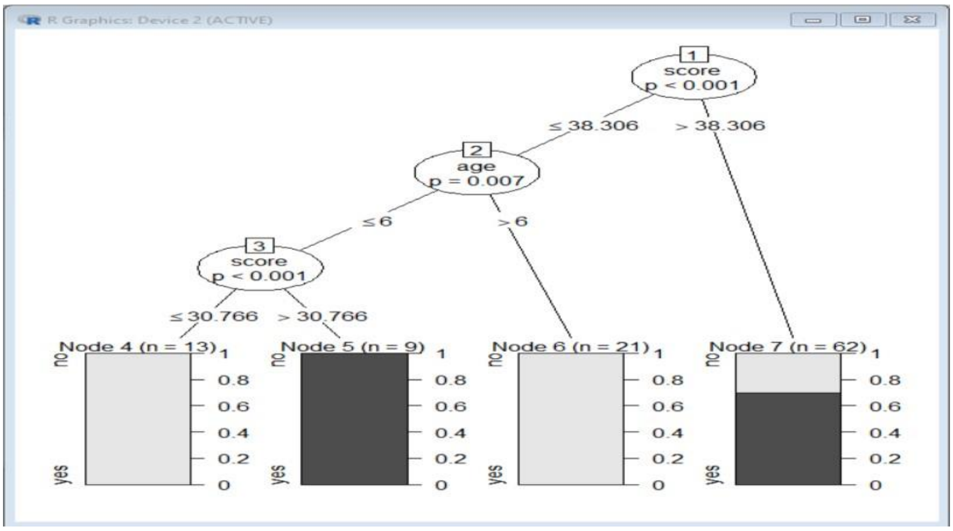
Code:

```
library(party)
print(head(readingSkills)) input.dat
<- readingSkills[c(1:105),]
png(file = "C:\Users\Dell\Downloads\decision_tree.png") output.tree
<- ctree(
nativeSpeaker ~ age + shoeSize + score,  data
= input.dat)
plot(output.tree)
```

Output:



```
Loading required package: modeltools
Loading required package: stats4
Loading required package: strucchange
Loading required package: zoo

Attaching package: 'zoo'

The following objects are masked from 'package:base':

    as.Date, as.Date.numeric

Loading required package: sandwich
> print(head(readingSkills))
  nativeSpeaker age shoeSize    score
1           yes   5 24.83189 32.29385
2           yes   6 25.95238 36.63105
3            no  11 30.42170 49.60593
4           yes   7 28.66450 40.28456
5           yes  11 31.88207 55.46085
6           yes  10 30.07843 52.83124
> input.dat <- readingSkills[c(1:105),]
> png(file = "C:\Users\Dell\Downloads\decision_tree.png")
Error: '\U' used without hex digits in character string starting ""C:\U"
> output.tree <- ctree(
+ nativeSpeaker ~ age + shoeSize + score,
```



Practical 2

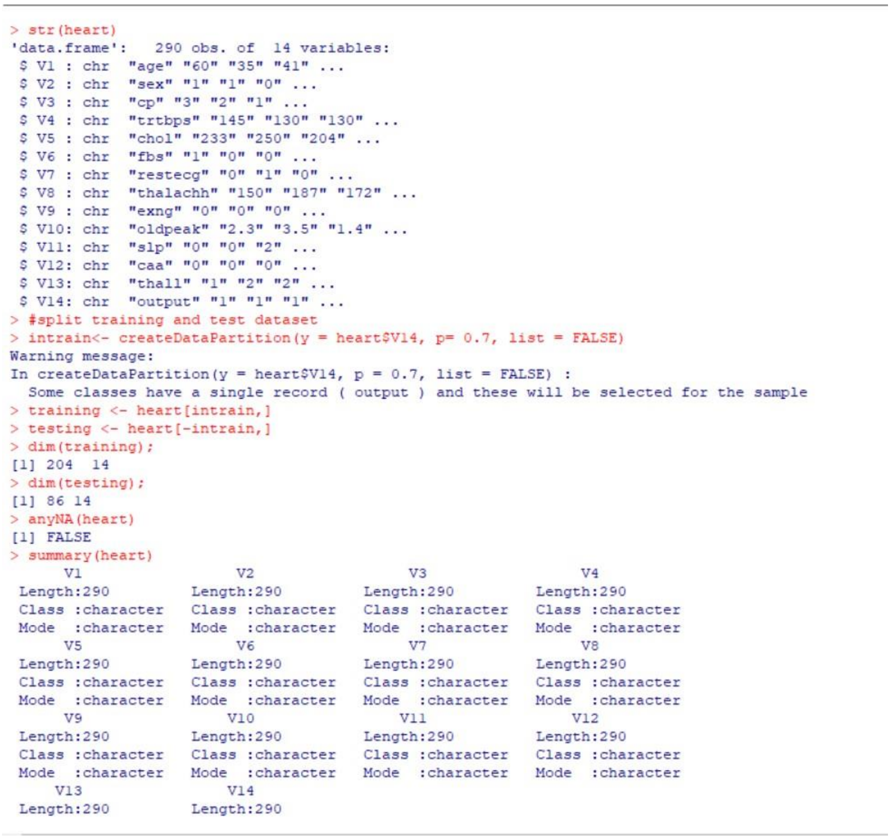
Aim: Implement SVM classification technique

Writeup:

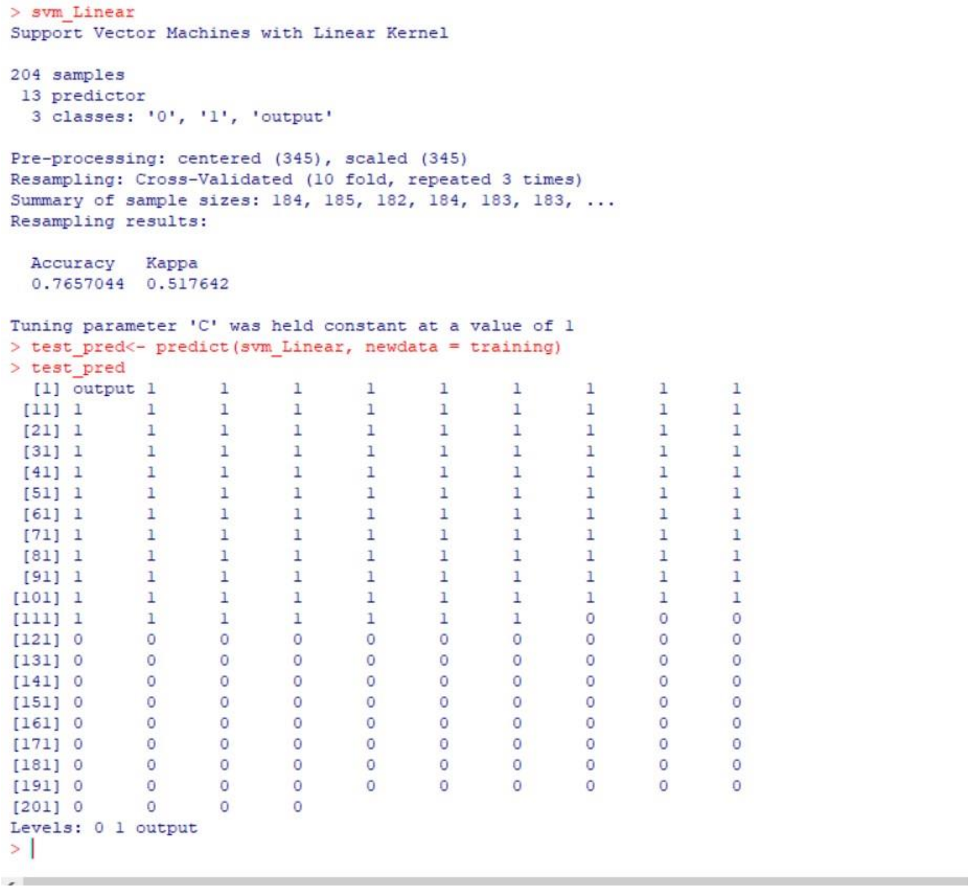
[A]: Implement SVM classification technique Code:

```
install.packages("caret")
library('caret')
heart <- read.csv("C:\\Users\\Dell\\Downloads\\heart.csv", sep = ',', header =  FALSE)
str(heart)
#split training and test dataset
intrain<- createDataPartition(y = heart$V14, p= 0.7, list = FALSE)
training <- heart[intrain,] testing <- heart[-intrain,]
dim(training);
dim(testing); anyNA(heart)
summary(heart)
training[["V14"]] <- factor(training[["V14"]])
trctrl<- trainControl(method = "repeatedcv", number = 10, repeats = 3) svm_Linear<-
train(V14 ~., data = training, method =
"svmLinear",trControl=trctrl,preProcess = c("center", "scale"),tuneLength = 10)
svm_Linear
test_pred<- predict(svm_Linear, newdata = training) test_pred
```

Output:



```
> str(heart)
'data.frame':   290 obs. of  14 variables:
 $ V1 : chr  "age" "60" "35" "41" ...
 $ V2 : chr  "sex" "1" "1" "0" ...
 $ V3 : chr  "cp" "3" "2" "1" ...
 $ V4 : chr  "trtbps" "145" "130" "130" ...
 $ V5 : chr  "chol" "233" "250" "204" ...
 $ V6 : chr  "fbs" "1" "0" "0" ...
 $ V7 : chr  "restecg" "0" "1" "0" ...
 $ V8 : chr  "thalachh" "150" "187" "172" ...
 $ V9 : chr  "exng" "0" "0" "0" ...
 $ V10: chr  "oldpeak" "2.3" "3.5" "1.4" ...
 $ V11: chr  "slp" "0" "0" "2" ...
 $ V12: chr  "caa" "0" "0" "0" ...
 $ V13: chr  "thall" "1" "2" "2" ...
 $ V14: chr  "output" "1" "1" "1" ...
> #split training and test dataset
> intrain<- createDataPartition(y = heart$V14, p= 0.7, list = FALSE)
Warning message:
In createDataPartition(y = heart$V14, p = 0.7, list = FALSE) :
  Some classes have a single record ( output ) and these will be selected for the sample
> training <- heart[intrain,]
> testing <- heart[-intrain,]
> dim(training);
[1] 204  14
> dim(testing);
[1] 86 14
> anyNA(heart)
[1] FALSE
> summary(heart)
      V1                  V2                  V3                  V4           
 Length:290          Length:290          Length:290          Length:290        
 Class :character    Class :character    Class :character    Class :character  
 Mode  :character    Mode  :character    Mode  :character    Mode  :character  
      V5                  V6                  V7                  V8           
 Length:290          Length:290          Length:290          Length:290        
 Class :character    Class :character    Class :character    Class :character  
 Mode  :character    Mode  :character    Mode  :character    Mode  :character  
      V9                 V10                 V11                 V12           
 Length:290          Length:290          Length:290          Length:290        
 Class :character    Class :character    Class :character    Class :character  
 Mode  :character    Mode  :character    Mode  :character    Mode  :character  
     V13                 V14           
 Length:290          Length:290        
```



```
> svm_Linear
Support Vector Machines with Linear Kernel

204 samples
 13 predictor
  3 classes: '0', '1', 'output'

Pre-processing: centered (345), scaled (345)
Resampling: Cross-Validated (10 fold, repeated 3 times)
Summary of sample sizes: 184, 185, 182, 184, 183, 183, ...
Resampling results:

  Accuracy   Kappa
  0.7657044  0.517642

Tuning parameter 'C' was held constant at a value of 1
> test_pred<- predict(svm_Linear, newdata = training)
> test_pred
  [1] output 1      1      1      1      1      1      1      1      1
 [11] 1      1      1      1      1      1      1      1      1      1
 [21] 1      1      1      1      1      1      1      1      1      1
 [31] 1      1      1      1      1      1      1      1      1      1
 [41] 1      1      1      1      1      1      1      1      1      1
 [51] 1      1      1      1      1      1      1      1      1      1
 [61] 1      1      1      1      1      1      1      1      1      1
 [71] 1      1      1      1      1      1      1      1      1      1
 [81] 1      1      1      1      1      1      1      1      1      1
 [91] 1      1      1      1      1      1      1      1      1      1
[101] 1      1      1      1      1      1      1      1      1      1
[111] 1      1      1      1      1      1      1      0      0      0
[121] 0      0      0      0      0      0      0      0      0      0
[131] 0      0      0      0      0      0      0      0      0      0
[141] 0      0      0      0      0      0      0      0      0      0
[151] 0      0      0      0      0      0      0      0      0      0
[161] 0      0      0      0      0      0      0      0      0      0
[171] 0      0      0      0      0      0      0      0      0      0
[181] 0      0      0      0      0      0      0      0      0      0
[191] 0      0      0      0      0      0      0      0      0      0
[201] 0      0      0      0
Levels: 0 1 output
> 
```

Practical 3

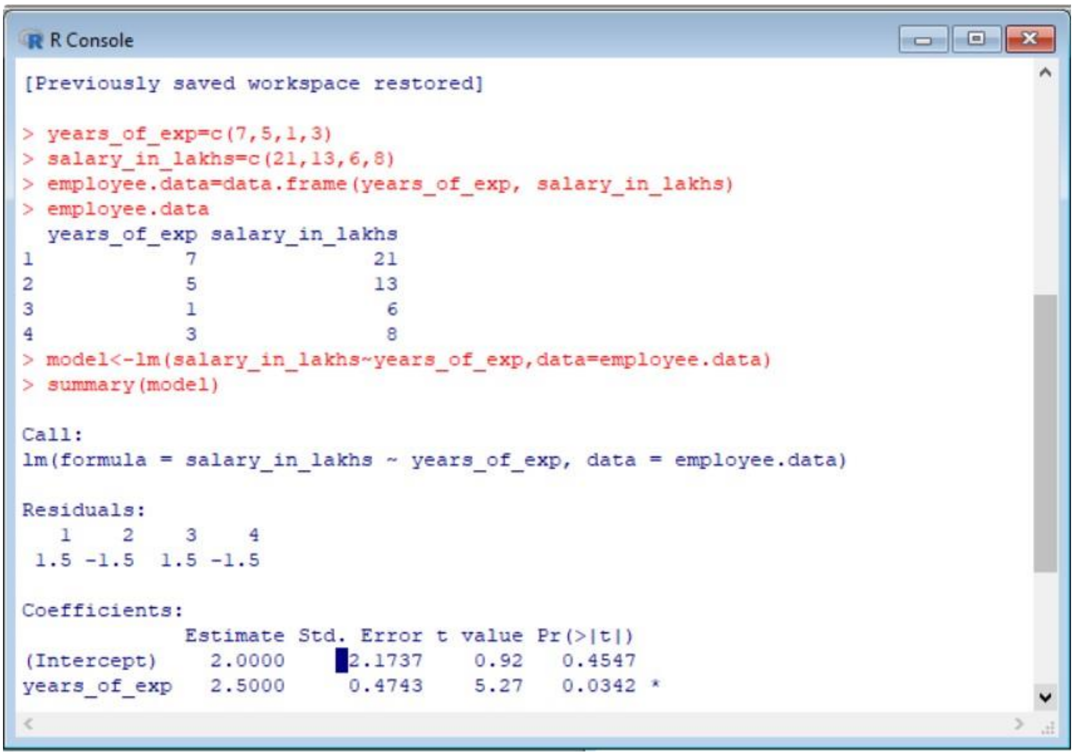
Aim: Implement Regression Model to import a data from web storage. Name the dataset and now do Linear Regression to find out relation between variables. Also check the model is fit or not. Writeup:

[A]:Implement Regression Model to import a data from web storage. Name the dataset and now do Linear Regression to find out relation between variables. Also check the model is fit or not.

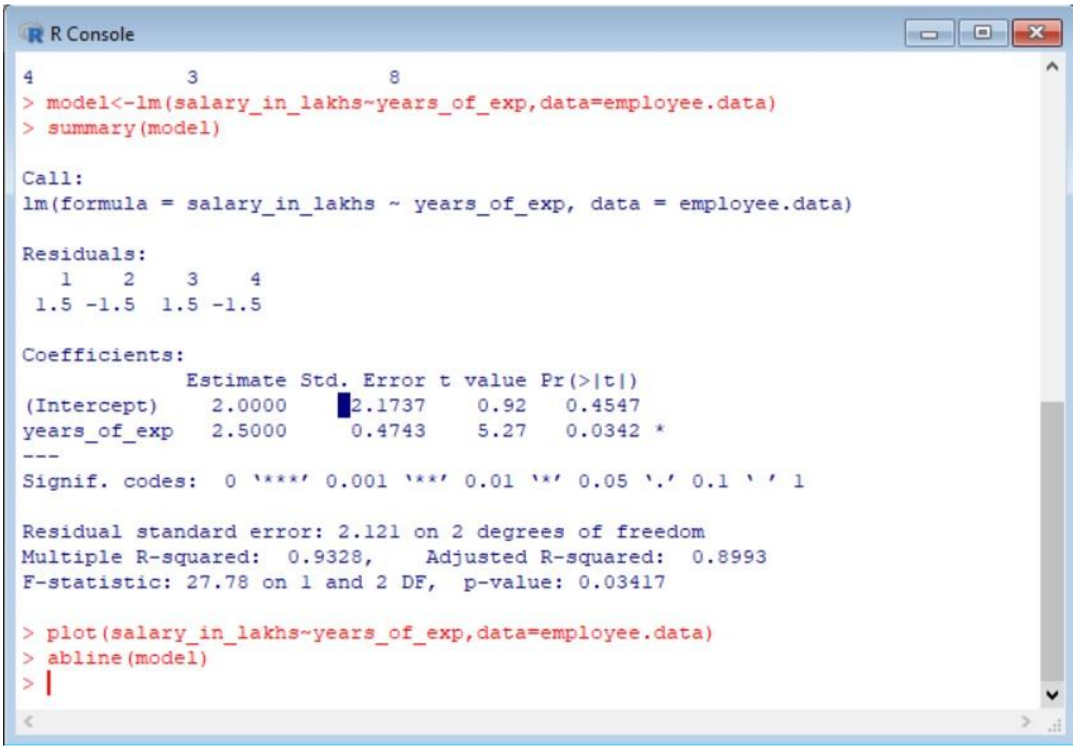
Code:

```
years_of_exp=c(7,5,1,3)  salary_in_lakhs=c(21,13,6,8)
employee.data=data.frame(years_of_exp, salary_in_lakhs)  employee.data
model<-lm(salary_in_lakhs~years_of_exp,data=employee.data)  summary(model)
plot(salary_in_lakhs~years_of_exp,data=employee.data) abline(model)
```

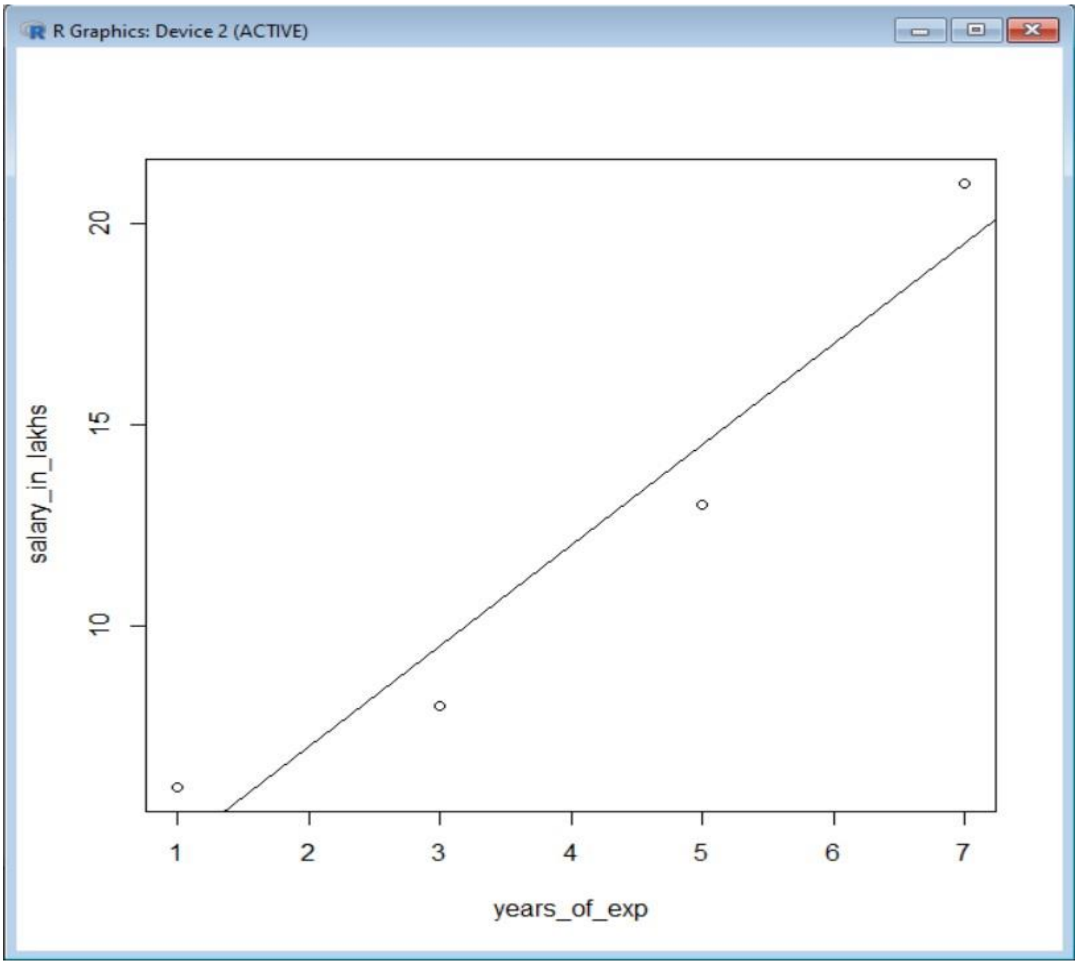
Output:



```
[Previously saved workspace restored]

> years_of_exp=c(7,5,1,3)
> salary_in_lakhs=c(21,13,6,8)
> employee.data=data.frame(years_of_exp, salary_in_lakhs)
> employee.data
  years_of_exp salary_in_lakhs
1            7              21
2            5              13
3            1               6
4            3               8
> model<-lm(salary_in_lakhs~years_of_exp,data=employee.data)
> summary(model)

Call:
lm(formula = salary_in_lakhs ~ years_of_exp, data = employee.data)

Residuals:
   1    2    3    4 
 1.5 -1.5  1.5 -1.5 

Coefficients:
             Estimate Std. Error t value Pr(>|t|)  
(Intercept)    2.0000     2.1737    0.92   0.4547  
years_of_exp   2.5000     0.4743    5.27   0.0342 *
```



```
4            3               8
> model<-lm(salary_in_lakhs~years_of_exp,data=employee.data)
> summary(model)

Call:
lm(formula = salary_in_lakhs ~ years_of_exp, data = employee.data)

Residuals:
   1    2    3    4 
 1.5 -1.5  1.5 -1.5 

Coefficients:
             Estimate Std. Error t value Pr(>|t|)  
(Intercept)    2.0000     2.1737    0.92   0.4547  
years_of_exp   2.5000     0.4743    5.27   0.0342 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 2.121 on 2 degrees of freedom
Multiple R-squared:  0.9328,    Adjusted R-squared:  0.8993 
F-statistic: 27.78 on 1 and 2 DF,  p-value: 0.03417

> plot(salary_in_lakhs~years_of_exp,data=employee.data)
> abline(model)
> 
```



Practical 4

Aim: Apply Multiple Regression on a dataset having a continuous independent variable.

Writeup:

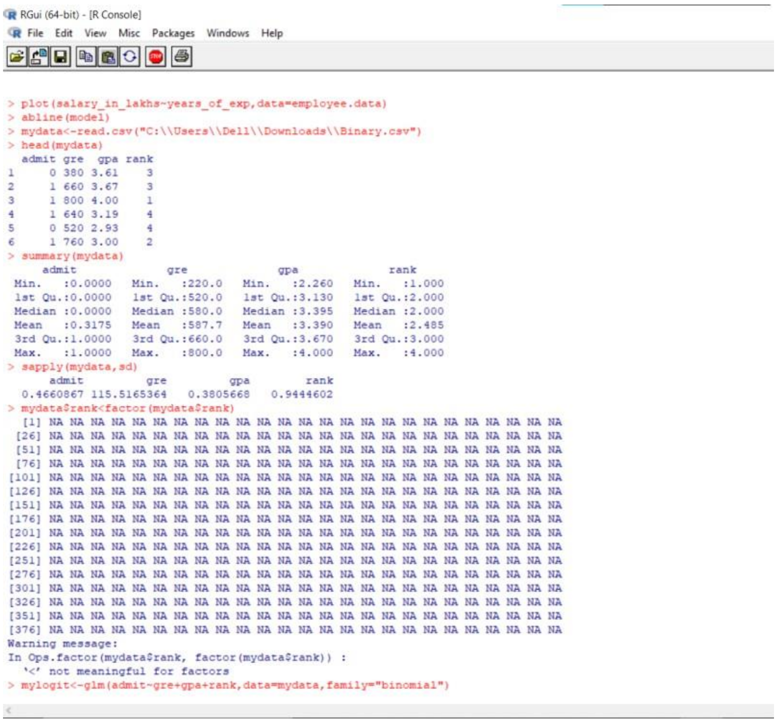
[A]: Apply Multiple Regression on a dataset having a continuous independent variable.

Code:

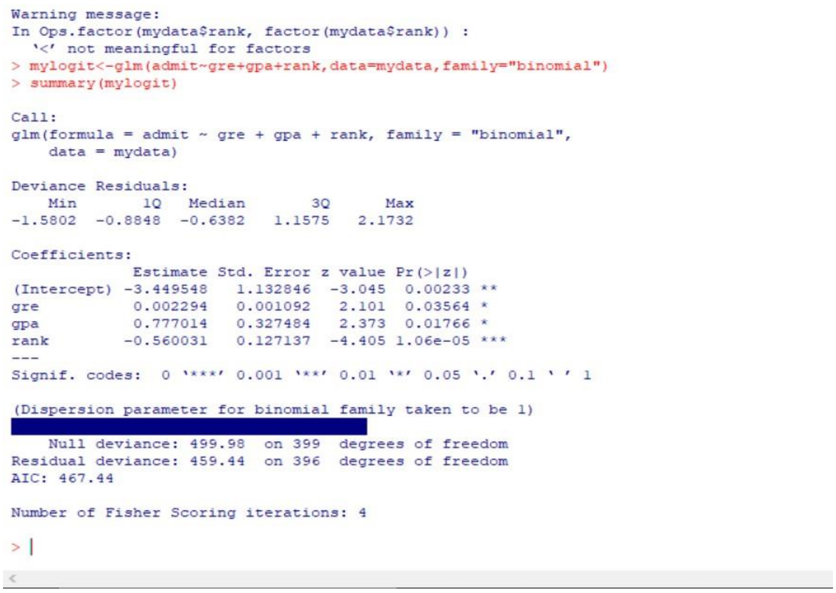
```
mydata<-read.csv("C:\\Users\\Dell\\Downloads\\Binary.csv")
head(mydata)  summary(mydata) sapply(mydata,sd)
mydata$rank<factor(mydata$rank)
```

mylogit<-glm(admit~gre+gpa+rank,data=mydata,family="binomial")
summary(mylogit)

Output:


RGui (64-bit) - [R Console]
File Edit View Misc Packages Windows Help

```
> plot(salary_in_lakhs~years_of_exp,data=employee.data)
> abline(model)
> mydata<-read.csv("C:\\Users\\Dell\\Downloads\\Binary.csv")
> head(mydata)
  admit gre  gpa rank
1     0 380 3.61    3
2     1 660 3.67    3
3     1 800 4.00    1
4     1 640 3.19    4
5     0 520 2.93    4
6     1 760 3.00    2
> summary(mydata)
     admit             gre             gpa             rank      
 Min.   :0.0000   Min.   :220.0   Min.   :2.260   Min.   :1.000  
 1st Qu.:0.0000   1st Qu.:520.0   1st Qu.:3.130   1st Qu.:2.000  
 Median :0.0000   Median :580.0   Median :3.395   Median :2.000  
 Mean   :0.3175   Mean   :587.7   Mean   :3.390   Mean   :2.485  
 3rd Qu.:1.0000   3rd Qu.:660.0   3rd Qu.:3.670   3rd Qu.:3.000  
 Max.   :1.0000   Max.   :800.0   Max.   :4.000   Max.   :4.000  
> sapply(mydata,sd)
      admit         gre         gpa        rank 
  0.4660867 115.5165364   0.3805668   0.9444602 
> mydata$rank<factor(mydata$rank)
  [1] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
 [26] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
 [51] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
 [76] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
[101] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
[126] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
[151] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
[176] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
[201] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
[226] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
[251] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
[276] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
[301] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
[326] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
[351] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
[376] NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA NA
Warning message:
In Ops.factor(mydata$rank, factor(mydata$rank)) :
  '<' not meaningful for factors
> mylogit<-glm(admit~gre+gpa+rank,data=mydata,family="binomial")
```



```
Warning message:
In Ops.factor(mydata$rank, factor(mydata$rank)) :
  '<' not meaningful for factors
> mylogit<-glm(admit~gre+gpa+rank,data=mydata,family="binomial")
> summary(mylogit)

Call:
glm(formula = admit ~ gre + gpa + rank, family = "binomial", 
    data = mydata)

Deviance Residuals: 
    Min       1Q   Median       3Q      Max  
-1.5802  -0.8848  -0.6382   1.1575   2.1732  

Coefficients:
             Estimate Std. Error z value Pr(>|z|)    
(Intercept) -3.449548   1.132846  -3.045  0.00233 ** 
gre          0.002294   0.001092   2.101  0.03564 *  
gpa          0.777014   0.327484   2.373  0.01766 *  
rank        -0.560031   0.127137  -4.405 1.06e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 499.98  on 399  degrees of freedom
Residual deviance: 459.44  on 396  degrees of freedom
AIC: 467.44

Number of Fisher Scoring iterations: 4

> |
```

Practical 5

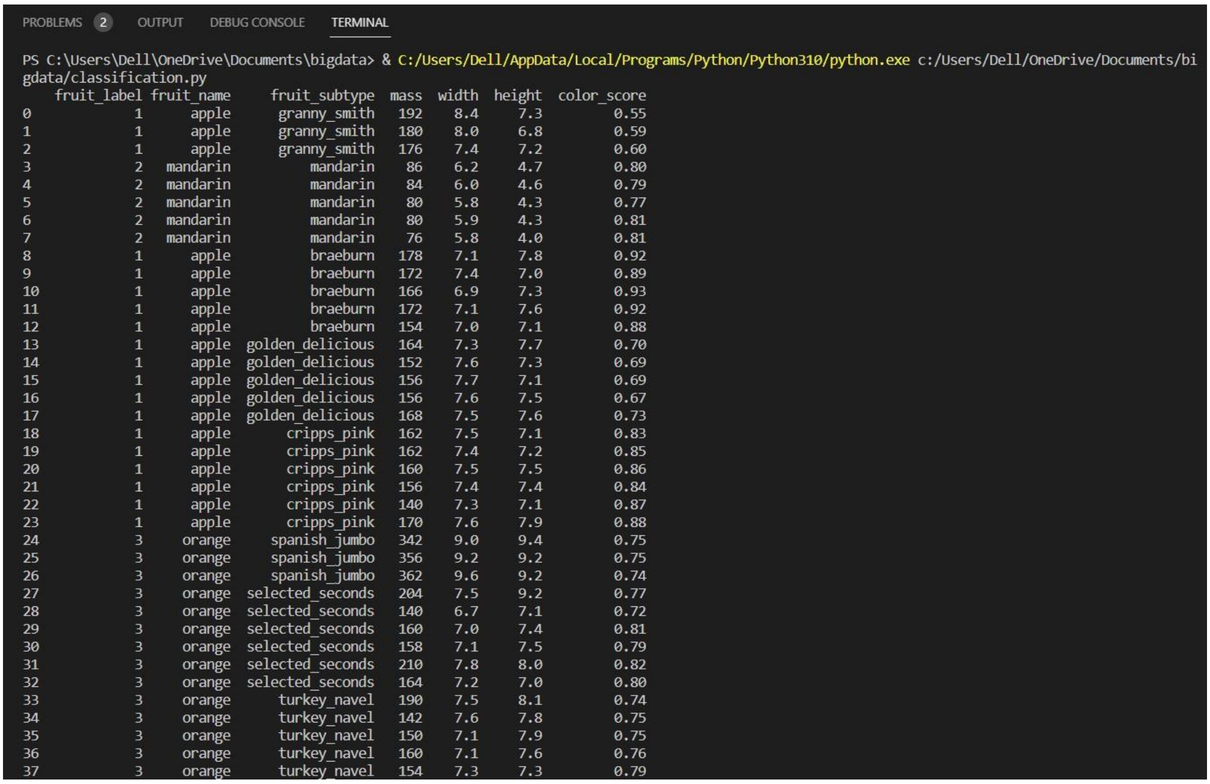
Aim: Build a Classification Model.

Writeup:

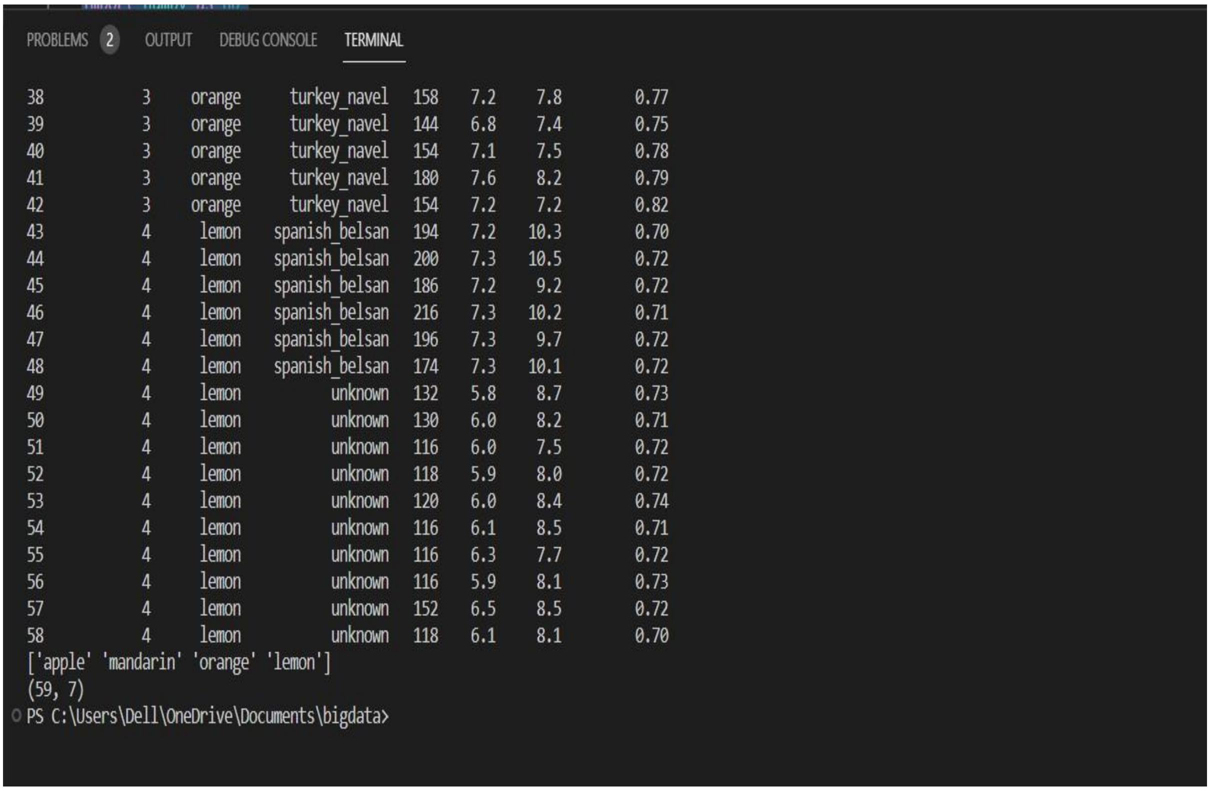
[A]: Build a Classification Model.

```
import numpy as np import
pandas as pd import
matplotlib.pyplot as plt

fruits=pd.read_table('C:\\Users\\Dell\OneDrive\\Documents\\JEEVA
N PARIYAR\\IPCV\\images\\fruit_data_with_colors.txt')
fruits.head() print(fruits) print(fruits['fruit_name'].unique())
print(fruits.shape)
```

Output:

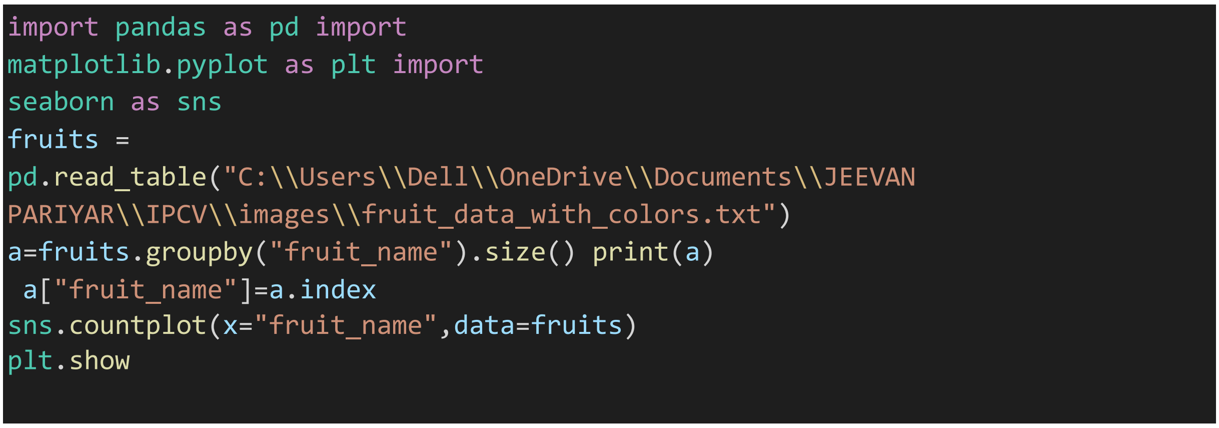


```
PS C:\Users\Dell\OneDrive\Documents\bigdata> & C:/Users/Dell/AppData/Local/Programs/Python/Python310/python.exe c:/Users/Dell/OneDrive/Documents/bi
gdata/classification.py
    fruit_label fruit_name     fruit_subtype  mass  width  height  color_score
0             1      apple      granny_smith   192    8.4     7.3         0.55
1             1      apple      granny_smith   180    8.0     6.8         0.59
2             1      apple      granny_smith   176    7.4     7.2         0.60
3             2   mandarin          mandarin    86    6.2     4.7         0.80
4             2   mandarin          mandarin    84    6.0     4.6         0.79
5             2   mandarin          mandarin    80    5.8     4.3         0.77
6             2   mandarin          mandarin    80    5.9     4.3         0.81
7             2   mandarin          mandarin    76    5.8     4.0         0.81
8             1      apple          braeburn   178    7.1     7.8         0.92
9             1      apple          braeburn   172    7.4     7.0         0.89
10            1      apple          braeburn   166    6.9     7.3         0.93
11            1      apple          braeburn   172    7.1     7.6         0.92
12            1      apple          braeburn   154    7.0     7.1         0.88
13            1      apple  golden_delicious   164    7.3     7.7         0.70
14            1      apple  golden_delicious   152    7.6     7.3         0.69
15            1      apple  golden_delicious   156    7.7     7.1         0.69
16            1      apple  golden_delicious   156    7.6     7.5         0.67
17            1      apple  golden_delicious   168    7.5     7.6         0.73
18            1      apple       cripps_pink   162    7.5     7.1         0.83
19            1      apple       cripps_pink   162    7.4     7.2         0.85
20            1      apple       cripps_pink   160    7.5     7.5         0.86
21            1      apple       cripps_pink   156    7.4     7.4         0.84
22            1      apple       cripps_pink   140    7.3     7.1         0.87
23            1      apple       cripps_pink   170    7.6     7.9         0.88
24            3     orange     spanish_jumbo   342    9.0     9.4         0.75
25            3     orange     spanish_jumbo   356    9.2     9.2         0.75
26            3     orange     spanish_jumbo   362    9.6     9.2         0.74
27            3     orange  selected_seconds   204    7.5     9.2         0.77
28            3     orange  selected_seconds   140    6.7     7.1         0.72
29            3     orange  selected_seconds   160    7.0     7.4         0.81
30            3     orange  selected_seconds   158    7.1     7.5         0.79
31            3     orange  selected_seconds   210    7.8     8.0         0.82
32            3     orange  selected_seconds   164    7.2     7.0         0.80
33            3     orange       turkey_navel   190    7.5     8.1         0.74
34            3     orange       turkey_navel   142    7.6     7.8         0.75
35            3     orange       turkey_navel   150    7.1     7.9         0.75
36            3     orange       turkey_navel   160    7.1     7.6         0.76
37            3     orange       turkey_navel   154    7.3     7.3         0.79
```



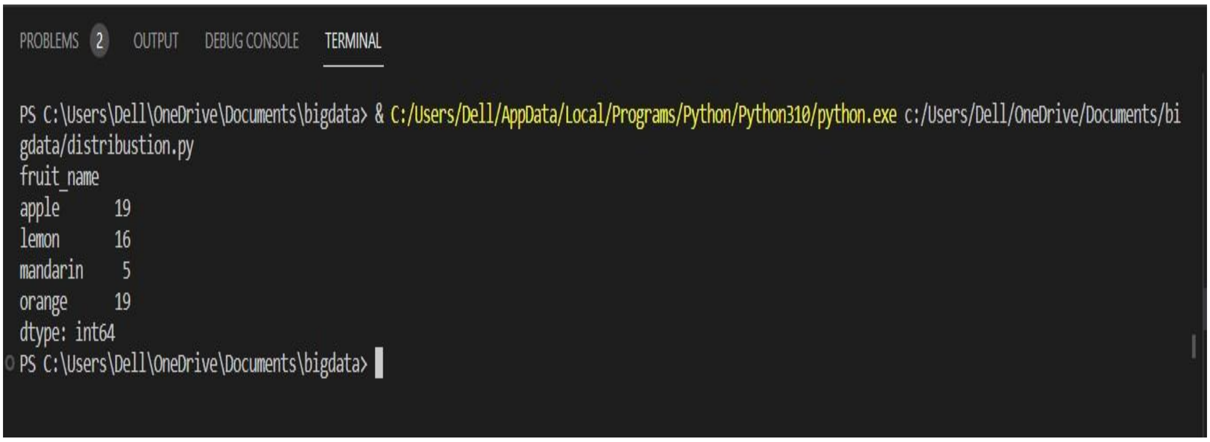
```
38          3    orange     turkey_navel  158   7.2    7.8        0.77
39          3    orange     turkey_navel  144   6.8    7.4        0.75
40          3    orange     turkey_navel  154   7.1    7.5        0.78
41          3    orange     turkey_navel  180   7.6    8.2        0.79
42          3    orange     turkey_navel  154   7.2    7.2        0.82
43          4     lemon   spanish_belsan  194   7.2   10.3        0.70
44          4     lemon   spanish_belsan  200   7.3   10.5        0.72
45          4     lemon   spanish_belsan  186   7.2    9.2        0.72
46          4     lemon   spanish_belsan  216   7.3   10.2        0.71
47          4     lemon   spanish_belsan  196   7.3    9.7        0.72
48          4     lemon   spanish_belsan  174   7.3   10.1        0.72
49          4     lemon          unknown  132   5.8    8.7        0.73
50          4     lemon          unknown  130   6.0    8.2        0.71
51          4     lemon          unknown  116   6.0    7.5        0.72
52          4     lemon          unknown  118   5.9    8.0        0.72
53          4     lemon          unknown  120   6.0    8.4        0.74
54          4     lemon          unknown  116   6.1    8.5        0.71
55          4     lemon          unknown  116   6.3    7.7        0.72
56          4     lemon          unknown  116   5.9    8.1        0.73
57          4     lemon          unknown  152   6.5    8.5        0.72
58          4     lemon          unknown  118   6.1    8.1        0.70
['apple' 'mandarin' 'orange' 'lemon']
(59, 7)
PS C:\Users\Dell\OneDrive\Documents\bigdata>
```

[B]: Fruit Type Distribution

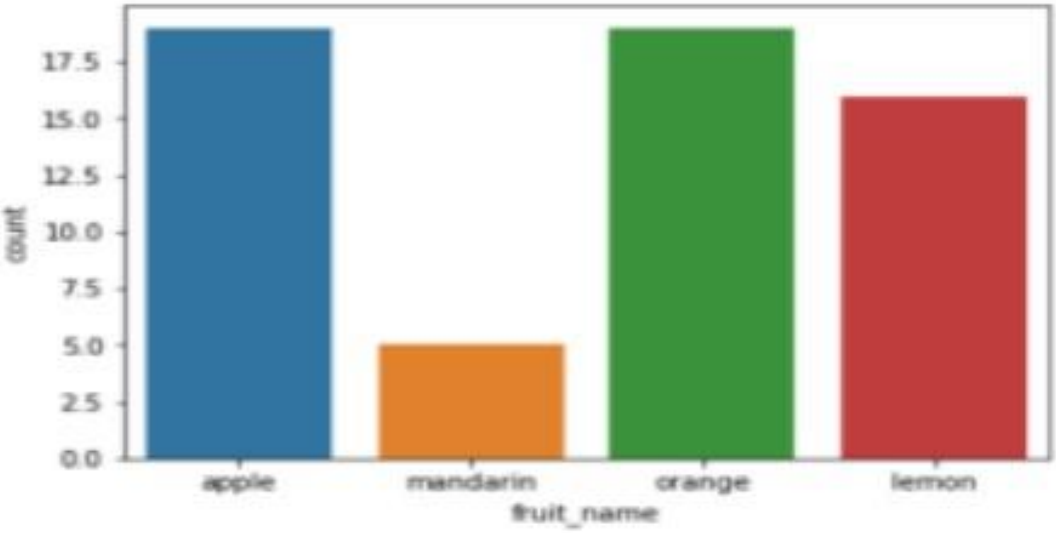


```
import pandas as pd import
matplotlib.pyplot as plt import
seaborn as sns
fruits =
pd.read_table("C:\\Users\\Dell\\OneDrive\\Documents\\JEEVAN
PARIYAR\\IPCV\\images\\fruit_data_with_colors.txt")
a=fruits.groupby("fruit_name").size() print(a)
 a["fruit_name"]=a.index
sns.countplot(x="fruit_name",data=fruits)
plt.show
```

Output:



```
PS C:\Users\Dell\OneDrive\Documents\bigdata> & C:/Users/Dell/AppData/Local/Programs/Python/Python310/python.exe c:/Users/Dell/OneDrive/Documents/bi
gdata/distribution.py
fruit_name
apple       19
lemon       16
mandarin     5
orange      19
dtype: int64
PS C:\Users\Dell\OneDrive\Documents\bigdata> 
```



Practical 6

Aim: Build a Clustering Model

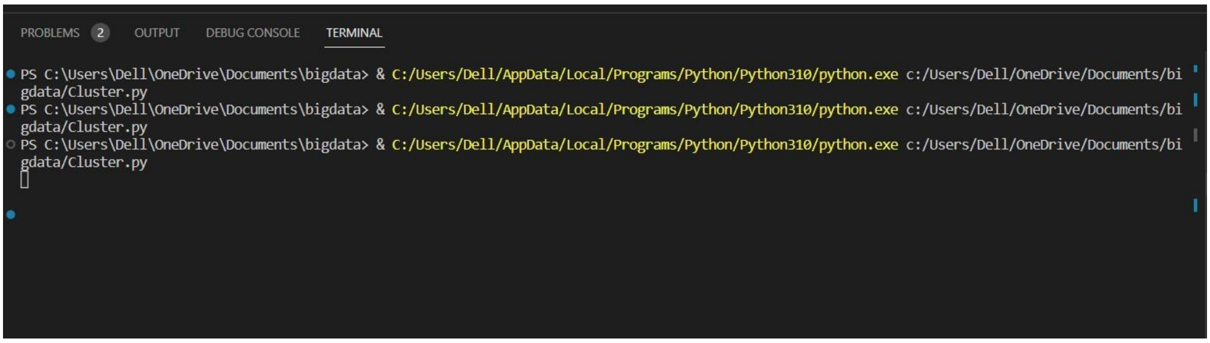
Writeup:

[A]: Build a Clustering Model

Code:

```
from numpy import unique from numpy import
where from sklearn.datasets import
make_classification from sklearn.cluster import
KMeans # synthetic classification dataset from
numpy import where from sklearn.datasets import
make_classification from matplotlib import
pyplot
# define dataset
X, y = make_classification(n_samples=1000, n_features=2,
n_informative=2, n_redundant=0, n_clusters_per_class=1, random_state=4)
# create scatter plot for samples from each class for class_value in
range(2):
 # get row indexes for samples with this
class  row_ix = where(y == class_value)  #
create scatter of these samples
 pyplot.scatter(X[row_ix, 0], X[row_ix, 1])
# show the plot
pyplot.show()
```

Output:



```
PS C:\Users\Dell\OneDrive\Documents\bigdata> & C:/Users/Dell/AppData/Local/Programs/Python/Python310/python.exe c:/Users/Dell/OneDrive/Documents/bi
gdata/Cluster.py
PS C:\Users\Dell\OneDrive\Documents\bigdata> & C:/Users/Dell/AppData/Local/Programs/Python/Python310/python.exe c:/Users/Dell/OneDrive/Documents/bi
gdata/Cluster.py
PS C:\Users\Dell\OneDrive\Documents\bigdata> & C:/Users/Dell/AppData/Local/Programs/Python/Python310/python.exe c:/Users/Dell/OneDrive/Documents/bi
gdata/Cluster.py
```

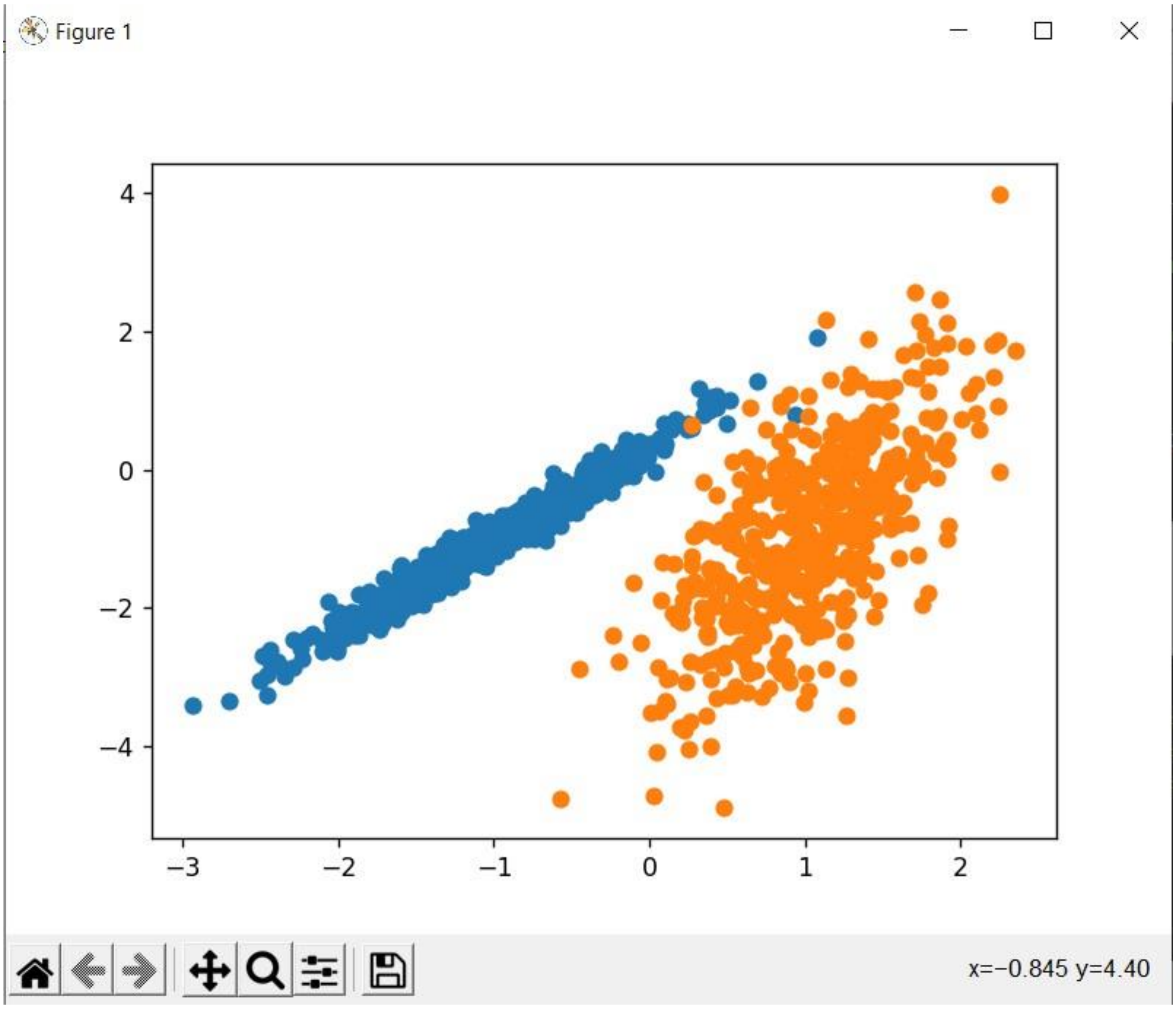


Figure 1
4
2
0
−2
−4
−3
−2
−1
0
1
2
x=−0.845 y=4.40

Practical 7

Aim: Install, configure and run Hadoop and HDFS and explore HDFS

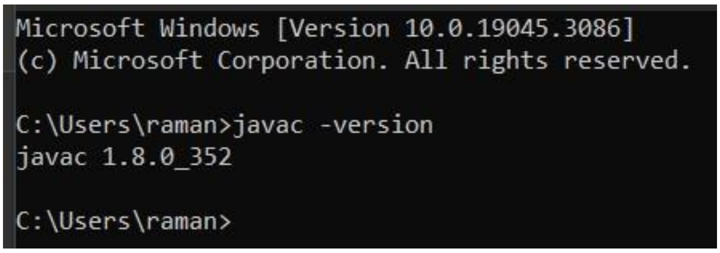
Writeup:

Pre-requisites:

- **Java JDK 8.0**
- **Apache Hadoop 3.3.4 from (https://www.apache.org/dyn/closer.cgi/hadoop/common/hadoop-3.3.4/hadoop-3.3.4-src.tar.gz)**

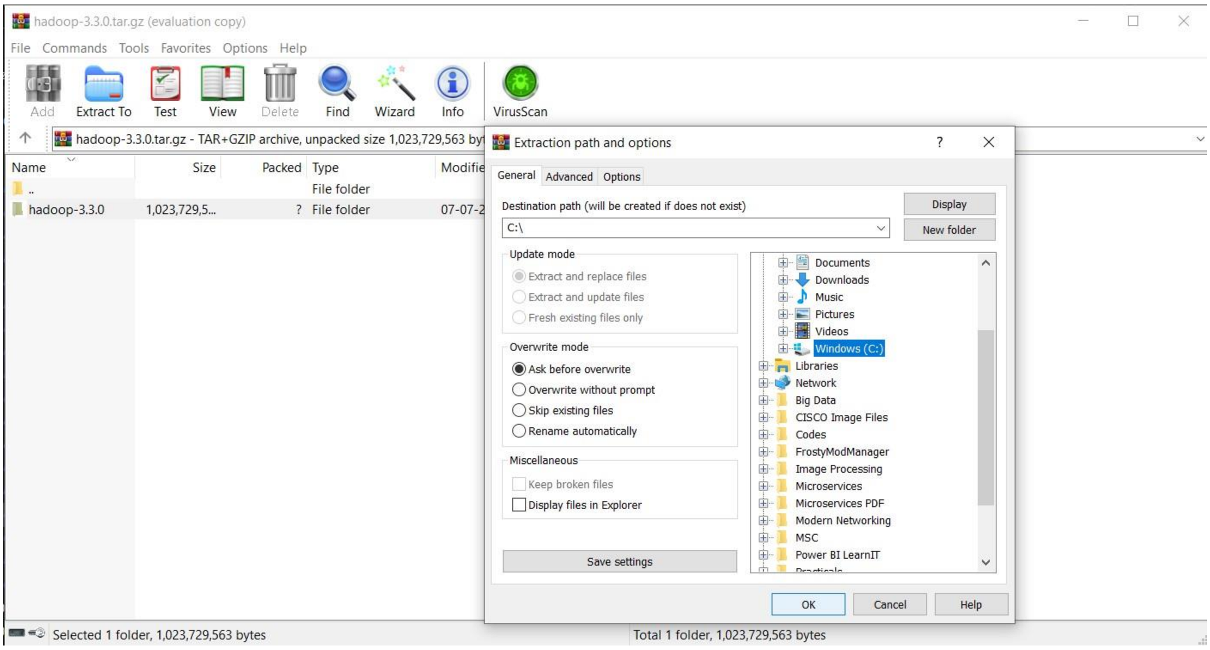
Step 1: Check Java version with command **javac -version.**
Open command prompt and type the above command.

Output:



```
Microsoft Windows [Version 10.0.19045.3086]
(c) Microsoft Corporation. All rights reserved.

C:\Users\raman>javac -version
javac 1.8.0_352

C:\Users\raman>
```

Step 2: Extract the Hadoop files from the compressed folder to the C- Drive Directory



hadoop-3.3.0.tar.gz (evaluation copy)

hadoop-3.3.0.tar.gz - TAR+GZIP archive, unpacked size 1,023,729,563 bytes

Name	Size	Packed	Type
..			File folder
hadoop-3.3.0	1,023,729,5...	?	File folder

Extraction path and options

Destination path (will be created if does not exist)

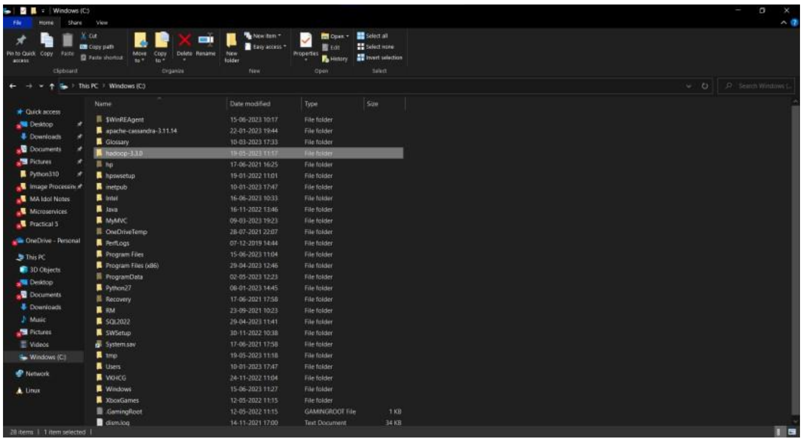
C:\

Overwrite mode: ● Ask before overwrite

Selected 1 folder, 1,023,729,563 bytes

Total 1 folder, 1,023,729,563 bytes

Ensure that both the Hadoop Folder as well as the JAVA folder are in the Main Directory of the C-Drive.



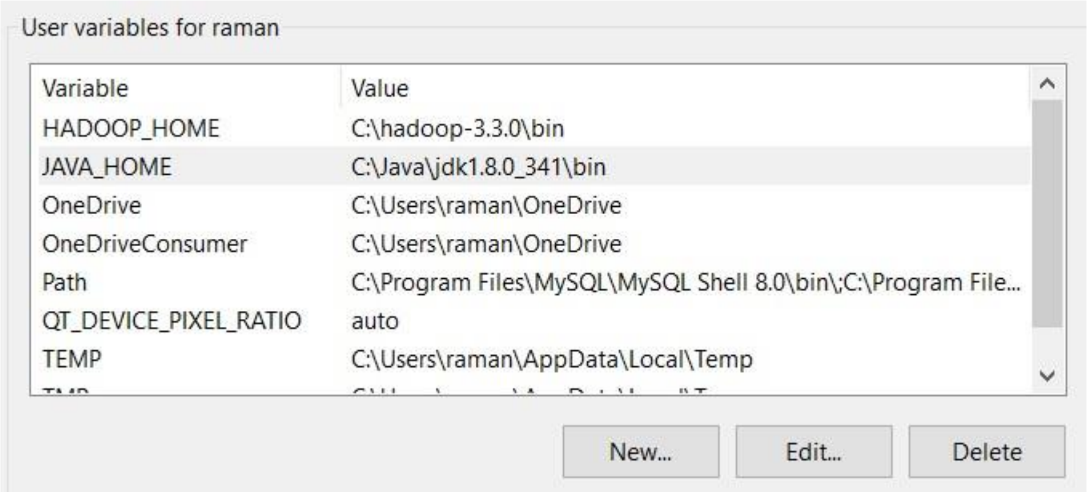
This PC › Windows (C:)

Name	Date modified	Type	Size
$WinREAgent	15-06-2023 10:17	File folder	
apache-cassandra-3.11.14	22-01-2023 19:44	File folder	
Glossary	10-03-2023 17:33	File folder	
hadoop-3.3.0	19-05-2023 11:17	File folder	
hp	17-06-2021 16:25	File folder	
hpswsetup	19-01-2022 11:01	File folder	
inetpub	10-01-2023 17:47	File folder	
Intel	16-06-2023 10:33	File folder	
Java	16-11-2022 13:46	File folder	
MyMVC	09-03-2023 19:23	File folder	
OneDriveTemp	28-07-2021 22:07	File folder	
PerfLogs	07-12-2019 14:44	File folder	
Program Files	15-06-2023 11:04	File folder	
Program Files (x86)	29-04-2023 12:46	File folder	
ProgramData	02-05-2023 12:23	File folder	
Python27	08-01-2023 14:45	File folder	
Recovery	17-06-2021 17:58	File folder	
RM	23-09-2021 10:23	File folder	
SQL2022	29-04-2023 11:41	File folder	
SWSetup	30-11-2022 10:38	File folder	
System.sav	17-06-2021 17:58	File folder	
tmp	19-05-2023 11:18	File folder	
Users	10-01-2023 17:47	File folder	
VKHCG	24-11-2022 11:04	File folder	
Windows	15-06-2023 11:27	File folder	
XboxGames	12-05-2022 11:15	File folder	
.GamingRoot	12-05-2022 11:15	GAMINGROOT File	1 KB
dism.log	14-11-2021 17:00	Text Document	34 KB

28 items | 1 item selected |

File Home Share View
Cut Copy path Paste shortcut Paste
Move to Copy to Delete Rename New folder New item Easy access
Properties Open Edit History
Select all Select none Invert selection
Clipboard Organize New Open Select

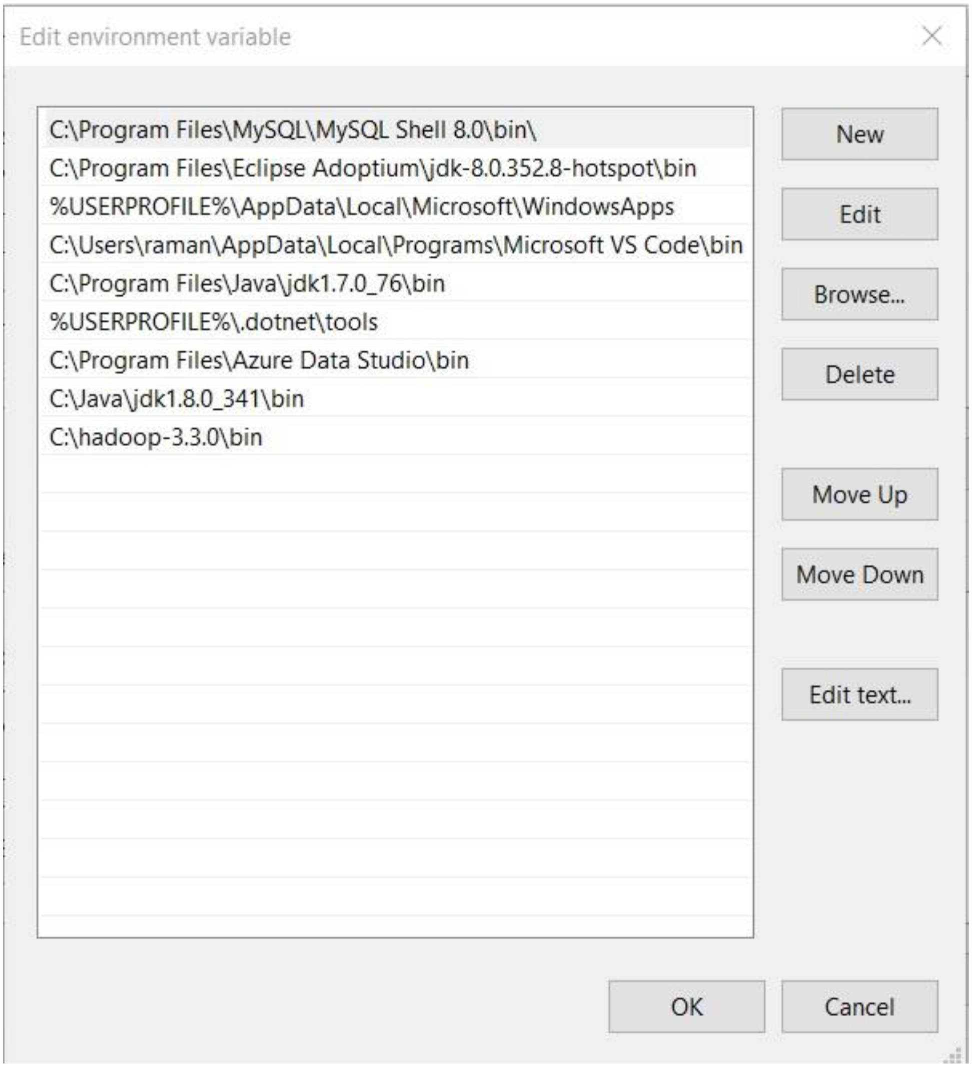
Step 3: Configure the Environment Variables for **JAVA_HOME** and **HADOOP_HOME**.



User variables for raman

Variable	Value
HADOOP_HOME	C:\hadoop-3.3.0\bin
JAVA_HOME	C:\Java\jdk1.8.0_341\bin
OneDrive	C:\Users\raman\OneDrive
OneDriveConsumer	C:\Users\raman\OneDrive
Path	C:\Program Files\MySQL\MySQL Shell 8.0\bin\;C:\Program File...
QT_DEVICE_PIXEL_RATIO	auto
TEMP	C:\Users\raman\AppData\Local\Temp

Also check the Path attribute within the environment variables and create the necessary locations for Hadoop and Java.



Edit environment variable

```
C:\Program Files\MySQL\MySQL Shell 8.0\bin\
C:\Program Files\Eclipse Adoptium\jdk-8.0.352.8-hotspot\bin
%USERPROFILE%\AppData\Local\Microsoft\WindowsApps
C:\Users\raman\AppData\Local\Programs\Microsoft VS Code\bin
C:\Program Files\Java\jdk1.7.0_76\bin
%USERPROFILE%\.dotnet\tools
C:\Program Files\Azure Data Studio\bin
C:\Java\jdk1.8.0_341\bin
C:\hadoop-3.3.0\bin
```

Step 4: Configuring Hadoop Files.

- Edit file C:/Hadoop-3.3.0/etc/hadoop/core-site.xml **Code:**

```
<configuration>
        <property>
                <name>fs.defaultFS</name>
                <value>hdfs://localhost:9000</value>
        </property>
</configuration>
```

Paste the above code within the configuration file.

- Rename “mapred-site.xml.template” to “mapred-site.xml” and edit this file C:/Hadoop3.3.0/etc/hadoop/mapred-site.xml

Code:

```
<configuration>
        <property>
                <name>mapreduce.framework.name</name>
                <value>yarn</value>
        </property>
</configuration>
```

Paste the above code within the configuration file.

- **Creating Folders:-** ○ Create folder “data” under “C:\Hadoop-3.3.0” ○ Create folder “datanode” under “C:\Hadoop-3.3.0\data” ○ Create folder “namenode” under “C:\Hadoop-3.3.0\data”

- Edit file C:\Hadoop-3.3.0/etc/hadoop/hdfs-site.xml

Code:

```
<configuration>
        <property>
                <name>dfs.replication</name>
                <value>1</value>
        </property>
        <property>
                <name>dfs.namenode.name.dir</name>
                <value>/hadoop-3.3.0/data/namenode</value>
        </property>
        <property>
```

```
                <name>dfs.datanode.data.dir</name>
                <value>/hadoop-3.3.0/data/datanode</value>
        </property>
</configuration>
```

Paste the above code in the configuration file.

- Edit file C:/Hadoop-3.3.0/etc/hadoop/yarn-site.xml

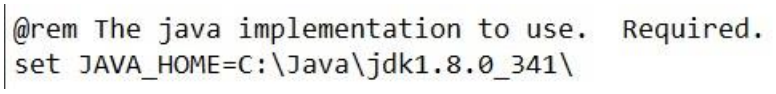
Code:

```
<configuration>
         <property>
                <name>yarn.nodemanager.aux-services</name>
                <value>mapreduce_shuffle</value>
         </property>
        <property>
                <name>yarn.nodemanager.auxservices.mapreduce.shuffle.class</name>
                <value>org.apache.hadoop.mapred.ShuffleHandler</value>
        </property>
</configuration>
```

Paste the above code in the configuration file.

- Edit file C:/Hadoop-3.3.0/etc/hadoop/hadoop-env.cmd

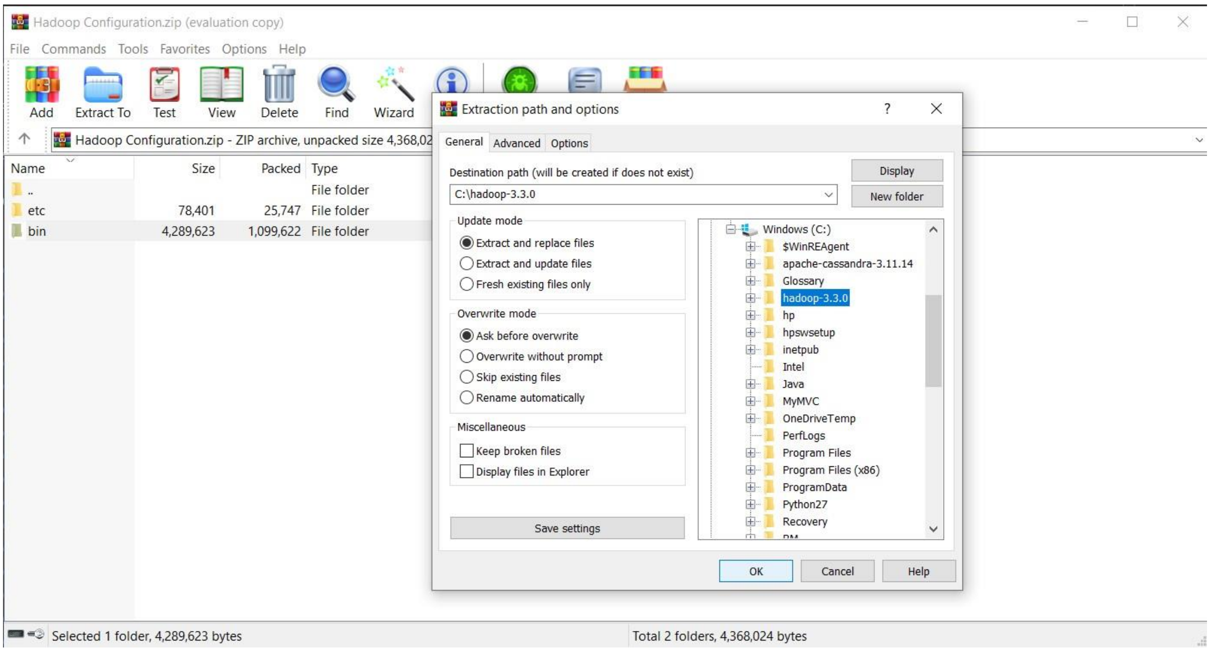
Search for the line:- "**JAVA_HOME=%JAVA_HOME%**" Replace the above line with **set JAVA_HOME = C:\Java\jdk version you have downloaded\"**
It should look like this:



```
@rem The java implementation to use.  Required.
set JAVA_HOME=C:\Java\jdk1.8.0_341\
```

Step 5: Hadoop Configurations

- From the Downloaded Hadoop configuration file extract the **bin** folder and replace it with the **bin** folder in the Hadoop Main Directory.



Hadoop Configuration.zip (evaluation copy)

Hadoop Configuration.zip - ZIP archive, unpacked size 4,368,02

Name	Size	Packed	Type
..			File folder
etc	78,401	25,747	File folder
bin	4,289,623	1,099,622	File folder

Extraction path and options

Destination path (will be created if does not exist)

C:\hadoop-3.3.0

Update mode

● Extract and replace files
○ Extract and update files
○ Fresh existing files only

Overwrite mode

● Ask before overwrite
○ Overwrite without prompt
○ Skip existing files
○ Rename automatically

Miscellaneous

□ Keep broken files
□ Display files in Explorer

Windows (C:)
$WinREAgent
apache-cassandra-3.11.14
Glossary
hadoop-3.3.0
hp
hpswsetup
inetpub
Intel
Java
MyMVC
OneDriveTemp
PerfLogs
Program Files
Program Files (x86)
ProgramData
Python27
Recovery

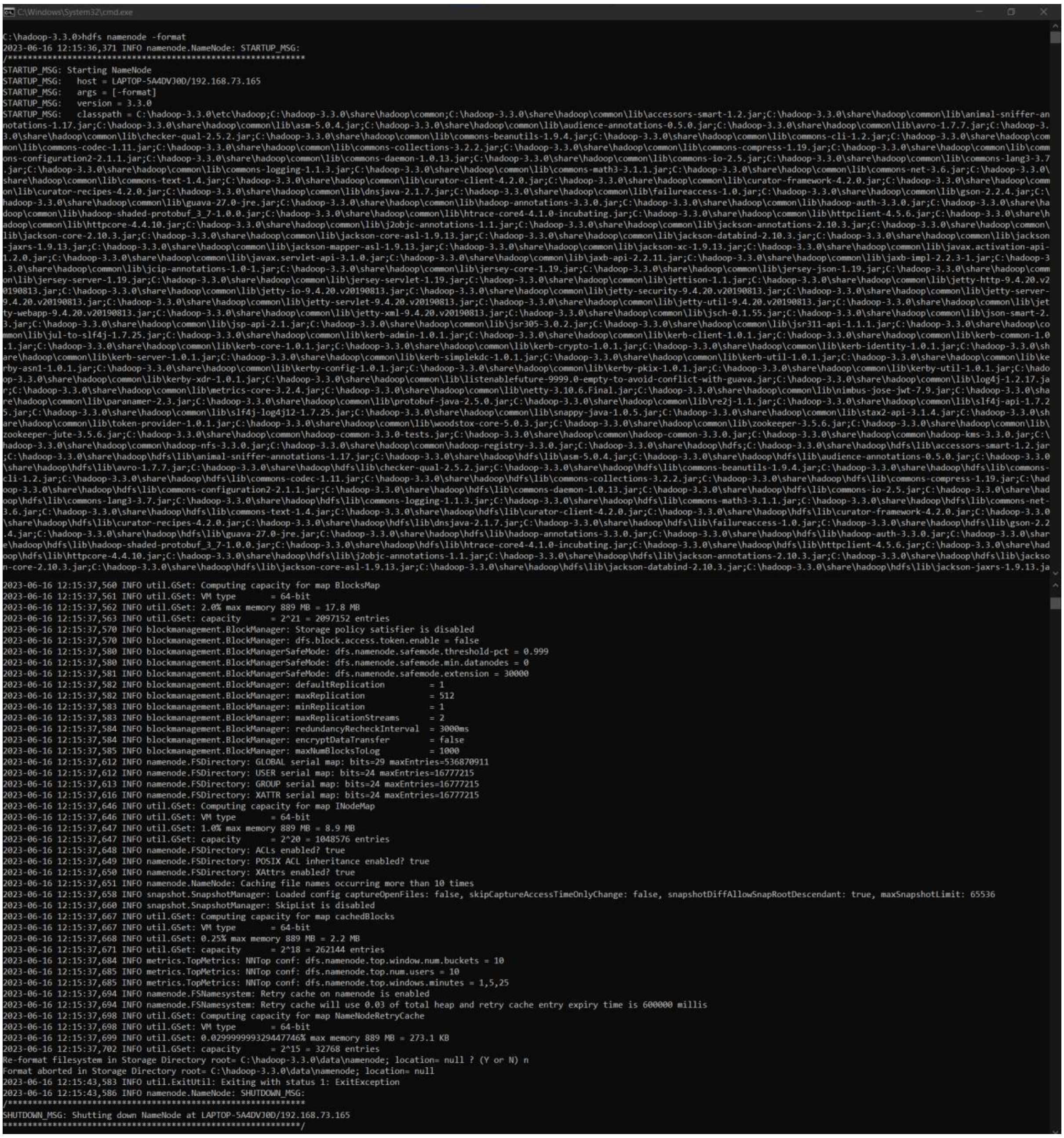
Selected 1 folder, 4,289,623 bytes

Total 2 folders, 4,368,024 bytes

Step 6: Starting Hadoop

- In the Hadoop File Directory, open a CMD and type in the command **hdfs name node format** This is done to test if the instance is working.

Output:



```
C:\hadoop-3.3.0>hdfs namenode -format
2023-06-16 12:15:36,371 INFO namenode.NameNode: STARTUP_MSG:
/************************************************************
STARTUP_MSG: Starting NameNode
STARTUP_MSG:   host = LAPTOP-5A4DVJ0D/192.168.73.165
STARTUP_MSG:   args = [-format]
STARTUP_MSG:   version = 3.3.0
STARTUP_MSG:   classpath = C:\hadoop-3.3.0\etc\hadoop;C:\hadoop-3.3.0\share\hadoop\common;C:\hadoop-3.3.0\share\hadoop\common\lib\accessors-smart-1.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\animal-sniffer-an
notations-1.17.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\asm-5.0.4.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\audience-annotations-0.5.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\avro-1.7.7.jar;C:\hadoop-3.
3.0\share\hadoop\common\lib\checker-qual-2.5.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-beanutils-1.9.4.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-cli-1.2.jar;C:\hadoop-3.3.0\share\hadoop\com
mon\lib\commons-codec-1.11.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-collections-3.2.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-compress-1.19.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\comm
ons-configuration2-2.1.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-daemon-1.0.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-io-2.5.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-lang3-3.7
.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-logging-1.1.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-math3-3.1.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-net-3.6.jar;C:\hadoop-3.3.0\
share\hadoop\common\lib\commons-text-1.4.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\curator-client-4.2.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\curator-framework-4.2.0.jar;C:\hadoop-3.3.0\share\hadoop\comm
on\lib\curator-recipes-4.2.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\dnsjava-2.1.7.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\failureaccess-1.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\gson-2.2.4.jar;C:\
hadoop-3.3.0\share\hadoop\common\lib\guava-27.0-jre.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\hadoop-annotations-3.3.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\hadoop-auth-3.3.0.jar;C:\hadoop-3.3.0\share\ha
doop\common\lib\hadoop-shaded-protobuf_3_7-1.0.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\htrace-core4-4.1.0-incubating.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\httpclient-4.5.6.jar;C:\hadoop-3.3.0\share\h
adoop\common\lib\httpcore-4.4.10.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\j2objc-annotations-1.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-annotations-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\common\
lib\jackson-core-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-core-asl-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-databind-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson
-jaxrs-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-mapper-asl-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-xc-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\javax.activation-api-
1.2.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\javax.servlet-api-3.1.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jaxb-api-2.2.11.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jaxb-impl-2.2.3-1.jar;C:\hadoop-3
.3.0\share\hadoop\common\lib\jcip-annotations-1.0-1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jersey-core-1.19.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jersey-json-1.19.jar;C:\hadoop-3.3.0\share\hadoop\comm
on\lib\jersey-server-1.19.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jersey-servlet-1.19.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jettison-1.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jetty-http-9.4.20.v2
0190813.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jetty-io-9.4.20.v20190813.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jetty-security-9.4.20.v20190813.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jetty-server-
9.4.20.v20190813.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jetty-servlet-9.4.20.v20190813.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jetty-util-9.4.20.v20190813.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jet
ty-webapp-9.4.20.v20190813.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jetty-xml-9.4.20.v20190813.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jsch-0.1.55.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\json-smart-2.
3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jsp-api-2.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jsr305-3.0.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jsr311-api-1.1.1.jar;C:\hadoop-3.3.0\share\hadoop\co
mmon\lib\jul-to-slf4j-1.7.25.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\kerb-admin-1.0.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\kerb-client-1.0.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\kerb-common-1.0
.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\kerb-core-1.0.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\kerb-crypto-1.0.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\kerb-identity-1.0.1.jar;C:\hadoop-3.3.0\sh
are\hadoop\common\lib\kerb-server-1.0.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\kerb-simplekdc-1.0.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\kerb-util-1.0.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\ke
rby-asn1-1.0.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\kerby-config-1.0.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\kerby-pkix-1.0.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\kerby-util-1.0.1.jar;C:\hado
op-3.3.0\share\hadoop\common\lib\kerby-xdr-1.0.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\listenablefuture-9999.0-empty-to-avoid-conflict-with-guava.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\log4j-1.2.17.ja
r;C:\hadoop-3.3.0\share\hadoop\common\lib\metrics-core-3.2.4.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\netty-3.10.6.Final.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\nimbus-jose-jwt-7.9.jar;C:\hadoop-3.3.0\sha
re\hadoop\common\lib\paranamer-2.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\protobuf-java-2.5.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\re2j-1.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\slf4j-api-1.7.2
5.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\slf4j-log4j12-1.7.25.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\snappy-java-1.0.5.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\stax2-api-3.1.4.jar;C:\hadoop-3.3.0\sh
are\hadoop\common\lib\token-provider-1.0.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\woodstox-core-5.0.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\zookeeper-3.5.6.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\
zookeeper-jute-3.5.6.jar;C:\hadoop-3.3.0\share\hadoop\common\hadoop-common-3.3.0-tests.jar;C:\hadoop-3.3.0\share\hadoop\common\hadoop-common-3.3.0.jar;C:\hadoop-3.3.0\share\hadoop\common\hadoop-kms-3.3.0.jar;C:\
hadoop-3.3.0\share\hadoop\common\hadoop-nfs-3.3.0.jar;C:\hadoop-3.3.0\share\hadoop\common\hadoop-registry-3.3.0.jar;C:\hadoop-3.3.0\share\hadoop\hdfs;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\accessors-smart-1.2.jar
;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\animal-sniffer-annotations-1.17.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\asm-5.0.4.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\audience-annotations-0.5.0.jar;C:\hadoop-3.3.0
\share\hadoop\hdfs\lib\avro-1.7.7.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\checker-qual-2.5.2.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\commons-beanutils-1.9.4.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\commons-
cli-1.2.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\commons-codec-1.11.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\commons-collections-3.2.2.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\commons-compress-1.19.jar;C:\had
oop-3.3.0\share\hadoop\hdfs\lib\commons-configuration2-2.1.1.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\commons-daemon-1.0.13.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\commons-io-2.5.jar;C:\hadoop-3.3.0\share\had
oop\hdfs\lib\commons-lang3-3.7.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\commons-logging-1.1.3.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\commons-math3-3.1.1.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\commons-net-
3.6.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\commons-text-1.4.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\curator-client-4.2.0.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\curator-framework-4.2.0.jar;C:\hadoop-3.3.0
\share\hadoop\hdfs\lib\curator-recipes-4.2.0.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\dnsjava-2.1.7.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\failureaccess-1.0.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\gson-2.2
.4.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\guava-27.0-jre.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\hadoop-annotations-3.3.0.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\hadoop-auth-3.3.0.jar;C:\hadoop-3.3.0\shar
e\hadoop\hdfs\lib\hadoop-shaded-protobuf_3_7-1.0.0.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\htrace-core4-4.1.0-incubating.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\httpclient-4.5.6.jar;C:\hadoop-3.3.0\share\had
oop\hdfs\lib\httpcore-4.4.10.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\j2objc-annotations-1.1.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\jackson-annotations-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\jackso
n-core-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\jackson-core-asl-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\jackson-databind-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\hdfs\lib\jackson-jaxrs-1.9.13.ja
```

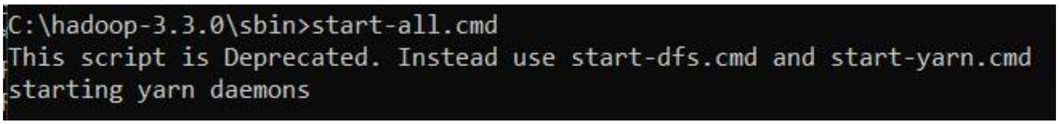
```
2023-06-16 12:15:37,560 INFO util.GSet: Computing capacity for map BlocksMap
2023-06-16 12:15:37,561 INFO util.GSet: VM type       = 64-bit
2023-06-16 12:15:37,562 INFO util.GSet: 2.0% max memory 889 MB = 17.8 MB
2023-06-16 12:15:37,563 INFO util.GSet: capacity      = 2^21 = 2097152 entries
2023-06-16 12:15:37,570 INFO blockmanagement.BlockManager: Storage policy satisfier is disabled
2023-06-16 12:15:37,570 INFO blockmanagement.BlockManager: dfs.block.access.token.enable = false
2023-06-16 12:15:37,580 INFO blockmanagement.BlockManagerSafeMode: dfs.namenode.safemode.threshold-pct = 0.999
2023-06-16 12:15:37,580 INFO blockmanagement.BlockManagerSafeMode: dfs.namenode.safemode.min.datanodes = 0
2023-06-16 12:15:37,581 INFO blockmanagement.BlockManagerSafeMode: dfs.namenode.safemode.extension = 30000
2023-06-16 12:15:37,582 INFO blockmanagement.BlockManager: defaultReplication         = 1
2023-06-16 12:15:37,582 INFO blockmanagement.BlockManager: maxReplication             = 512
2023-06-16 12:15:37,583 INFO blockmanagement.BlockManager: minReplication             = 1
2023-06-16 12:15:37,583 INFO blockmanagement.BlockManager: maxReplicationStreams      = 2
2023-06-16 12:15:37,584 INFO blockmanagement.BlockManager: redundancyRecheckInterval  = 3000ms
2023-06-16 12:15:37,584 INFO blockmanagement.BlockManager: encryptDataTransfer        = false
2023-06-16 12:15:37,585 INFO blockmanagement.BlockManager: maxNumBlocksToLog          = 1000
2023-06-16 12:15:37,612 INFO namenode.FSDirectory: GLOBAL serial map: bits=29 maxEntries=536870911
2023-06-16 12:15:37,612 INFO namenode.FSDirectory: USER serial map: bits=24 maxEntries=16777215
2023-06-16 12:15:37,613 INFO namenode.FSDirectory: GROUP serial map: bits=24 maxEntries=16777215
2023-06-16 12:15:37,616 INFO namenode.FSDirectory: XATTR serial map: bits=24 maxEntries=16777215
2023-06-16 12:15:37,646 INFO util.GSet: Computing capacity for map INodeMap
2023-06-16 12:15:37,646 INFO util.GSet: VM type       = 64-bit
2023-06-16 12:15:37,647 INFO util.GSet: 1.0% max memory 889 MB = 8.9 MB
2023-06-16 12:15:37,647 INFO util.GSet: capacity      = 2^20 = 1048576 entries
2023-06-16 12:15:37,648 INFO namenode.FSDirectory: ACLs enabled? true
2023-06-16 12:15:37,649 INFO namenode.FSDirectory: POSIX ACL inheritance enabled? true
2023-06-16 12:15:37,650 INFO namenode.FSDirectory: XAttrs enabled? true
2023-06-16 12:15:37,651 INFO namenode.NameNode: Caching file names occurring more than 10 times
2023-06-16 12:15:37,658 INFO snapshot.SnapshotManager: Loaded config captureOpenFiles: false, skipCaptureAccessTimeOnlyChange: false, snapshotDiffAllowSnapRootDescendant: true, maxSnapshotLimit: 65536
2023-06-16 12:15:37,660 INFO snapshot.SnapshotManager: SkipList is disabled
2023-06-16 12:15:37,667 INFO util.GSet: Computing capacity for map cachedBlocks
2023-06-16 12:15:37,667 INFO util.GSet: VM type       = 64-bit
2023-06-16 12:15:37,668 INFO util.GSet: 0.25% max memory 889 MB = 2.2 MB
2023-06-16 12:15:37,671 INFO util.GSet: capacity      = 2^18 = 262144 entries
2023-06-16 12:15:37,684 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.window.num.buckets = 10
2023-06-16 12:15:37,685 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.num.users = 10
2023-06-16 12:15:37,685 INFO metrics.TopMetrics: NNTop conf: dfs.namenode.top.windows.minutes = 1,5,25
2023-06-16 12:15:37,694 INFO namenode.FSNamesystem: Retry cache on namenode is enabled
2023-06-16 12:15:37,694 INFO namenode.FSNamesystem: Retry cache will use 0.03 of total heap and retry cache entry expiry time is 600000 millis
2023-06-16 12:15:37,698 INFO util.GSet: Computing capacity for map NameNodeRetryCache
2023-06-16 12:15:37,698 INFO util.GSet: VM type       = 64-bit
2023-06-16 12:15:37,699 INFO util.GSet: 0.029999999329447746% max memory 889 MB = 273.1 KB
2023-06-16 12:15:37,702 INFO util.GSet: capacity      = 2^15 = 32768 entries
Re-format filesystem in Storage Directory root= C:\hadoop-3.3.0\data\namenode; location= null ? (Y or N) n
Format aborted in Storage Directory root= C:\hadoop-3.3.0\data\namenode; location= null
2023-06-16 12:15:43,583 INFO util.ExitUtil: Exiting with status 1: ExitException
2023-06-16 12:15:43,586 INFO namenode.NameNode: SHUTDOWN_MSG:
/************************************************************
SHUTDOWN_MSG: Shutting down NameNode at LAPTOP-5A4DVJ0D/192.168.73.165
************************************************************/
```

Step 7: Testing Hadoop

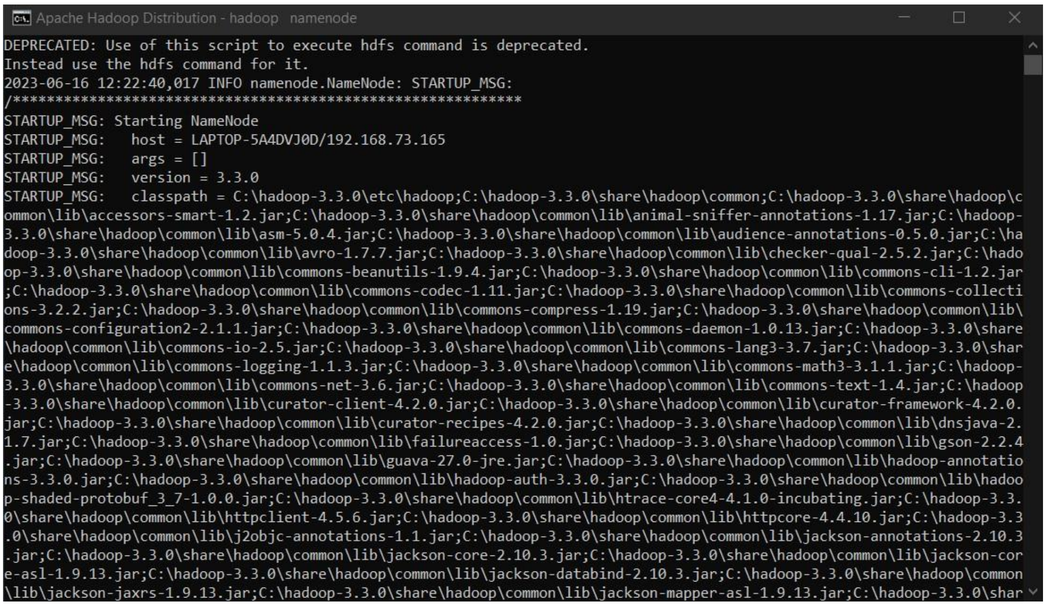
Now within the same CMD created in the previous step change the directory to the **sbin** file within Hadoop.
Type the command: **start-all.cmd**
After execution of the command there should be four instances created:

- **Hadoop Name node**
- **Hadoop data node**
- **YARN Resource Manager**
- **YARN Node Manager**

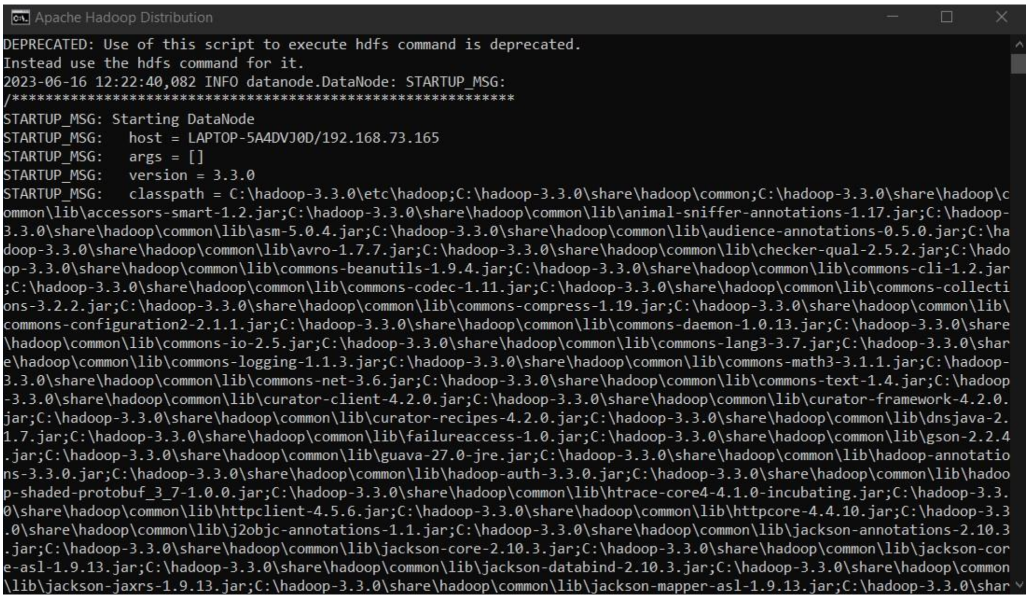
Output:



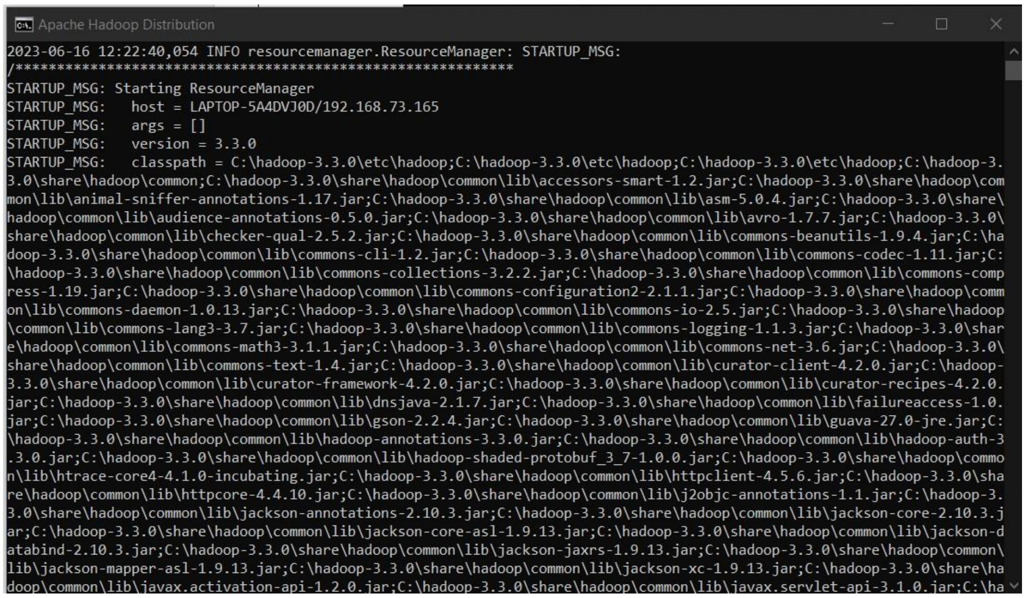
```
C:\hadoop-3.3.0\sbin>start-all.cmd
This script is Deprecated. Instead use start-dfs.cmd and start-yarn.cmd
starting yarn daemons
```



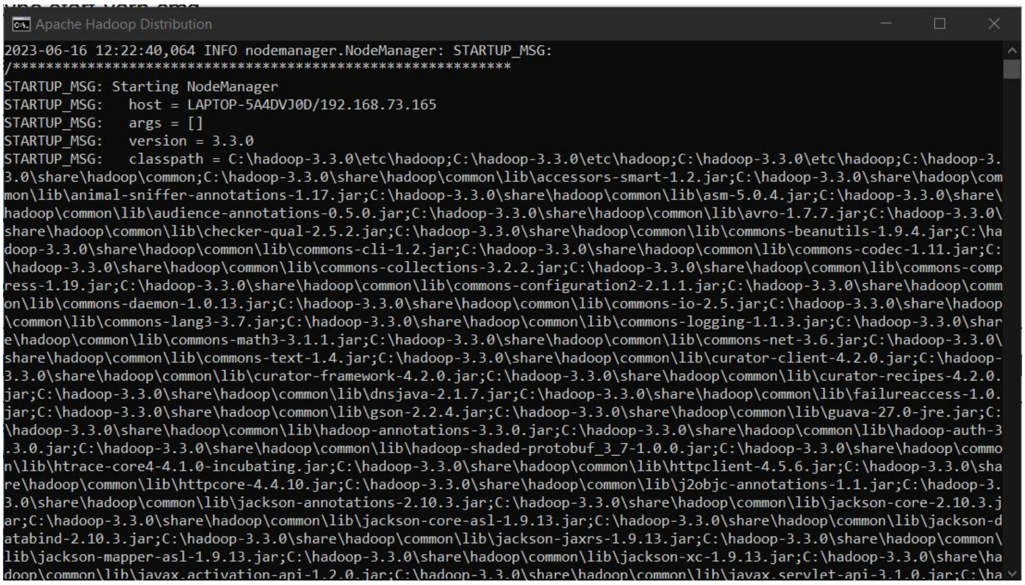
```
DEPRECATED: Use of this script to execute hdfs command is deprecated.
Instead use the hdfs command for it.
2023-06-16 12:22:40,017 INFO namenode.NameNode: STARTUP_MSG:
/********************************************************
STARTUP_MSG: Starting NameNode
STARTUP_MSG:   host = LAPTOP-5A4DVJ0D/192.168.73.165
STARTUP_MSG:   args = []
STARTUP_MSG:   version = 3.3.0
STARTUP_MSG:   classpath = C:\hadoop-3.3.0\etc\hadoop;C:\hadoop-3.3.0\share\hadoop\common;C:\hadoop-3.3.0\share\hadoop\c
ommon\lib\accessors-smart-1.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\animal-sniffer-annotations-1.17.jar;C:\hadoop-
3.3.0\share\hadoop\common\lib\asm-5.0.4.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\audience-annotations-0.5.0.jar;C:\ha
doop-3.3.0\share\hadoop\common\lib\avro-1.7.7.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\checker-qual-2.5.2.jar;C:\hado
op-3.3.0\share\hadoop\common\lib\commons-beanutils-1.9.4.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-cli-1.2.jar
;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-codec-1.11.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-collecti
ons-3.2.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-compress-1.19.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\
commons-configuration2-2.1.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-daemon-1.0.13.jar;C:\hadoop-3.3.0\share
\hadoop\common\lib\commons-io-2.5.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-lang3-3.7.jar;C:\hadoop-3.3.0\shar
e\hadoop\common\lib\commons-logging-1.1.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-math3-3.1.1.jar;C:\hadoop-
3.3.0\share\hadoop\common\lib\commons-net-3.6.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-text-1.4.jar;C:\hadoop
-3.3.0\share\hadoop\common\lib\curator-client-4.2.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\curator-framework-4.2.0.
jar;C:\hadoop-3.3.0\share\hadoop\common\lib\curator-recipes-4.2.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\dnsjava-2.
1.7.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\failureaccess-1.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\gson-2.2.4
.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\guava-27.0-jre.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\hadoop-annotatio
ns-3.3.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\hadoop-auth-3.3.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\hadoo
p-shaded-protobuf_3_7-1.0.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\htrace-core4-4.1.0-incubating.jar;C:\hadoop-3.3.
0\share\hadoop\common\lib\httpclient-4.5.6.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\httpcore-4.4.10.jar;C:\hadoop-3.3
.0\share\hadoop\common\lib\j2objc-annotations-1.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-annotations-2.10.3
.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-core-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-cor
e-asl-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-databind-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\common
\lib\jackson-jaxrs-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-mapper-asl-1.9.13.jar;C:\hadoop-3.3.0\shar
```



```
DEPRECATED: Use of this script to execute hdfs command is deprecated.
Instead use the hdfs command for it.
2023-06-16 12:22:40,082 INFO datanode.DataNode: STARTUP_MSG:
/********************************************************
STARTUP_MSG: Starting DataNode
STARTUP_MSG:   host = LAPTOP-5A4DVJ0D/192.168.73.165
STARTUP_MSG:   args = []
STARTUP_MSG:   version = 3.3.0
STARTUP_MSG:   classpath = C:\hadoop-3.3.0\etc\hadoop;C:\hadoop-3.3.0\share\hadoop\common;C:\hadoop-3.3.0\share\hadoop\c
ommon\lib\accessors-smart-1.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\animal-sniffer-annotations-1.17.jar;C:\hadoop-
3.3.0\share\hadoop\common\lib\asm-5.0.4.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\audience-annotations-0.5.0.jar;C:\ha
doop-3.3.0\share\hadoop\common\lib\avro-1.7.7.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\checker-qual-2.5.2.jar;C:\hado
op-3.3.0\share\hadoop\common\lib\commons-beanutils-1.9.4.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-cli-1.2.jar
;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-codec-1.11.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-collecti
ons-3.2.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-compress-1.19.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\
commons-configuration2-2.1.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-daemon-1.0.13.jar;C:\hadoop-3.3.0\share
\hadoop\common\lib\commons-io-2.5.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-lang3-3.7.jar;C:\hadoop-3.3.0\shar
e\hadoop\common\lib\commons-logging-1.1.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-math3-3.1.1.jar;C:\hadoop-
3.3.0\share\hadoop\common\lib\commons-net-3.6.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-text-1.4.jar;C:\hadoop
-3.3.0\share\hadoop\common\lib\curator-client-4.2.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\curator-framework-4.2.0.
jar;C:\hadoop-3.3.0\share\hadoop\common\lib\curator-recipes-4.2.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\dnsjava-2.
1.7.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\failureaccess-1.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\gson-2.2.4
.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\guava-27.0-jre.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\hadoop-annotatio
ns-3.3.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\hadoop-auth-3.3.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\hadoo
p-shaded-protobuf_3_7-1.0.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\htrace-core4-4.1.0-incubating.jar;C:\hadoop-3.3.
0\share\hadoop\common\lib\httpclient-4.5.6.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\httpcore-4.4.10.jar;C:\hadoop-3.3
.0\share\hadoop\common\lib\j2objc-annotations-1.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-annotations-2.10.3
.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-core-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-cor
e-asl-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-databind-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\common
\lib\jackson-jaxrs-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-mapper-asl-1.9.13.jar;C:\hadoop-3.3.0\shar
```



```
2023-06-16 12:22:40,054 INFO resourcemanager.ResourceManager: STARTUP_MSG:
/************************************************************
STARTUP_MSG: Starting ResourceManager
STARTUP_MSG:   host = LAPTOP-5A4DVJ0D/192.168.73.165
STARTUP_MSG:   args = []
STARTUP_MSG:   version = 3.3.0
STARTUP_MSG:   classpath = C:\hadoop-3.3.0\etc\hadoop;C:\hadoop-3.3.0\etc\hadoop;C:\hadoop-3.3.0\etc\hadoop;C:\hadoop-3.
3.0\share\hadoop\common;C:\hadoop-3.3.0\share\hadoop\common\lib\accessors-smart-1.2.jar;C:\hadoop-3.3.0\share\hadoop\com
mon\lib\animal-sniffer-annotations-1.17.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\asm-5.0.4.jar;C:\hadoop-3.3.0\share\
hadoop\common\lib\audience-annotations-0.5.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\avro-1.7.7.jar;C:\hadoop-3.3.0\
share\hadoop\common\lib\checker-qual-2.5.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-beanutils-1.9.4.jar;C:\ha
doop-3.3.0\share\hadoop\common\lib\commons-cli-1.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-codec-1.11.jar;C:
\hadoop-3.3.0\share\hadoop\common\lib\commons-collections-3.2.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-comp
ress-1.19.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-configuration2-2.1.1.jar;C:\hadoop-3.3.0\share\hadoop\comm
on\lib\commons-daemon-1.0.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-io-2.5.jar;C:\hadoop-3.3.0\share\hadoop
\common\lib\commons-lang3-3.7.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-logging-1.1.3.jar;C:\hadoop-3.3.0\shar
e\hadoop\common\lib\commons-math3-3.1.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-net-3.6.jar;C:\hadoop-3.3.0\
share\hadoop\common\lib\commons-text-1.4.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\curator-client-4.2.0.jar;C:\hadoop-
3.3.0\share\hadoop\common\lib\curator-framework-4.2.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\curator-recipes-4.2.0.
jar;C:\hadoop-3.3.0\share\hadoop\common\lib\dnsjava-2.1.7.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\failureaccess-1.0.
jar;C:\hadoop-3.3.0\share\hadoop\common\lib\gson-2.2.4.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\guava-27.0-jre.jar;C:
\hadoop-3.3.0\share\hadoop\common\lib\hadoop-annotations-3.3.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\hadoop-auth-3
.3.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\hadoop-shaded-protobuf_3_7-1.0.0.jar;C:\hadoop-3.3.0\share\hadoop\commo
n\lib\htrace-core4-4.1.0-incubating.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\httpclient-4.5.6.jar;C:\hadoop-3.3.0\sha
re\hadoop\common\lib\httpcore-4.4.10.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\j2objc-annotations-1.1.jar;C:\hadoop-3.
3.0\share\hadoop\common\lib\jackson-annotations-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-core-2.10.3.j
ar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-core-asl-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-d
atabind-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-jaxrs-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\
lib\jackson-mapper-asl-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-xc-1.9.13.jar;C:\hadoop-3.3.0\share\ha
doop\common\lib\javax.activation-api-1.2.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\javax.servlet-api-3.1.0.jar;C:\ha
```



```
2023-06-16 12:22:40,064 INFO nodemanager.NodeManager: STARTUP_MSG:
/************************************************************
STARTUP_MSG: Starting NodeManager
STARTUP_MSG:   host = LAPTOP-5A4DVJ0D/192.168.73.165
STARTUP_MSG:   args = []
STARTUP_MSG:   version = 3.3.0
STARTUP_MSG:   classpath = C:\hadoop-3.3.0\etc\hadoop;C:\hadoop-3.3.0\etc\hadoop;C:\hadoop-3.3.0\etc\hadoop;C:\hadoop-3.
3.0\share\hadoop\common;C:\hadoop-3.3.0\share\hadoop\common\lib\accessors-smart-1.2.jar;C:\hadoop-3.3.0\share\hadoop\com
mon\lib\animal-sniffer-annotations-1.17.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\asm-5.0.4.jar;C:\hadoop-3.3.0\share\
hadoop\common\lib\audience-annotations-0.5.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\avro-1.7.7.jar;C:\hadoop-3.3.0\
share\hadoop\common\lib\checker-qual-2.5.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-beanutils-1.9.4.jar;C:\ha
doop-3.3.0\share\hadoop\common\lib\commons-cli-1.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-codec-1.11.jar;C:
\hadoop-3.3.0\share\hadoop\common\lib\commons-collections-3.2.2.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-comp
ress-1.19.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-configuration2-2.1.1.jar;C:\hadoop-3.3.0\share\hadoop\comm
on\lib\commons-daemon-1.0.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-io-2.5.jar;C:\hadoop-3.3.0\share\hadoop
\common\lib\commons-lang3-3.7.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-logging-1.1.3.jar;C:\hadoop-3.3.0\shar
e\hadoop\common\lib\commons-math3-3.1.1.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\commons-net-3.6.jar;C:\hadoop-3.3.0\
share\hadoop\common\lib\commons-text-1.4.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\curator-client-4.2.0.jar;C:\hadoop-
3.3.0\share\hadoop\common\lib\curator-framework-4.2.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\curator-recipes-4.2.0.
jar;C:\hadoop-3.3.0\share\hadoop\common\lib\dnsjava-2.1.7.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\failureaccess-1.0.
jar;C:\hadoop-3.3.0\share\hadoop\common\lib\gson-2.2.4.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\guava-27.0-jre.jar;C:
\hadoop-3.3.0\share\hadoop\common\lib\hadoop-annotations-3.3.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\hadoop-auth-3
.3.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\hadoop-shaded-protobuf_3_7-1.0.0.jar;C:\hadoop-3.3.0\share\hadoop\commo
n\lib\htrace-core4-4.1.0-incubating.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\httpclient-4.5.6.jar;C:\hadoop-3.3.0\sha
re\hadoop\common\lib\httpcore-4.4.10.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\j2objc-annotations-1.1.jar;C:\hadoop-3.
3.0\share\hadoop\common\lib\jackson-annotations-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-core-2.10.3.j
ar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-core-asl-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-d
atabind-2.10.3.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-jaxrs-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\
lib\jackson-mapper-asl-1.9.13.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\jackson-xc-1.9.13.jar;C:\hadoop-3.3.0\share\ha
doop\common\lib\javax.activation-api-1.2.0.jar;C:\hadoop-3.3.0\share\hadoop\common\lib\javax.servlet-api-3.1.0.jar;C:\ha
```

Practical 8

Aim: Implement an application that stores big data in MongoDB and manipulate it using Python.

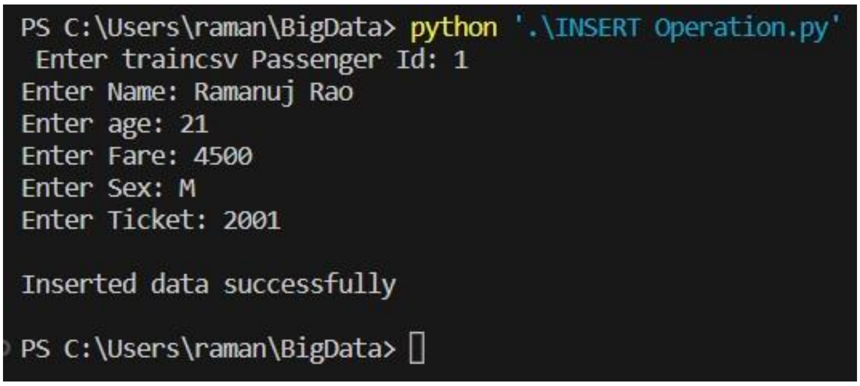
Writeup:

- **Insert data:**

Code:

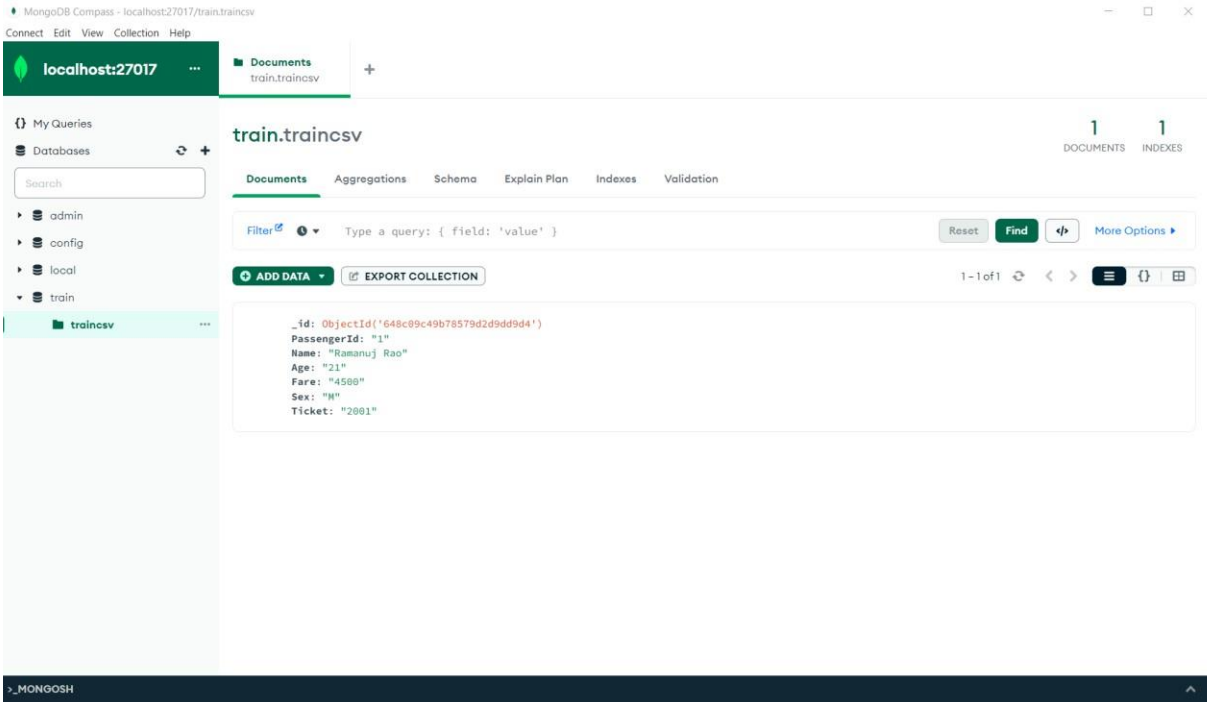
```
from pymongo import MongoClient
client= MongoClient('localhost:27017')
db = client.train
 def
insert():
try:
        Id =input(' Enter traincsv Passenger Id: ')
        Name =input('Enter Name: ')
Age =input('Enter age: ')
        Fare =input('Enter Fare: ')
        Sex =input('Enter Sex: ')
Ticket =input('Enter Ticket: ')
db.traincsv.insert_one(
            {
                "PassengerId": Id,
                "Name":Name,
"Age":Age,
                "Fare":Fare,
                "Sex":Sex,
                "Ticket":Ticket,
                })         print("\nInserted
data successfully\n")
     except Exception as
e:
        print(str(e))

insert()
```

Output:



```
PS C:\Users\raman\BigData> python '.\INSERT Operation.py'
 Enter traincsv Passenger Id: 1
Enter Name: Ramanuj Rao
Enter age: 21
Enter Fare: 4500
Enter Sex: M
Enter Ticket: 2001

Inserted data successfully

PS C:\Users\raman\BigData> 
```

Confirm that the data has been inserted by using MongoDB Compass to check whether the data has been inserted into the database.



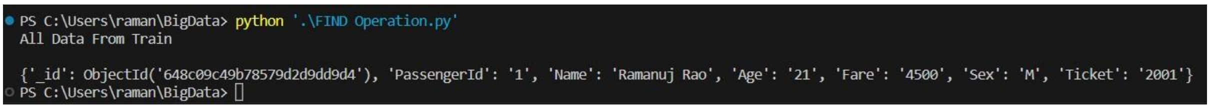
```
_id: ObjectId('648c09c49b78579d2d9dd9d4')
PassengerId: "1"
Name: "Ramanuj Rao"
Age: "21"
Fare: "4500"
Sex: "M"
Ticket: "2001"
```

- **Find Data:**

Code:

```
from pymongo import MongoClient
client= MongoClient('localhost:27017')
db = client.train
 def
read():
try:
        TrainCol =db.traincsv.find()
print("All Data From Train \n")
         for Train in
TrainCol:
            print(Train)
         except Exception
as e:
        print(str(e))

read()
```

Output:



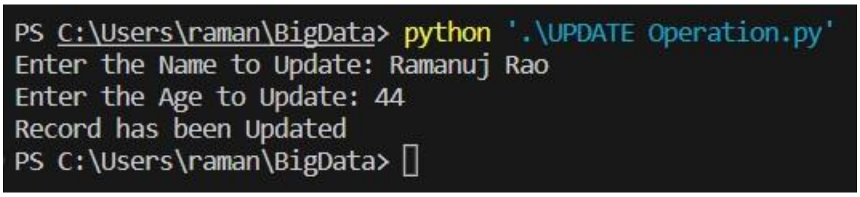
```
PS C:\Users\raman\BigData> python '.\FIND Operation.py'
All Data From Train

{'_id': ObjectId('648c09c49b78579d2d9dd9d4'), 'PassengerId': '1', 'Name': 'Ramanuj Rao', 'Age': '21', 'Fare': '4500', 'Sex': 'M', 'Ticket': '2001'}
PS C:\Users\raman\BigData> 
```

- **Update Data:**

Code:

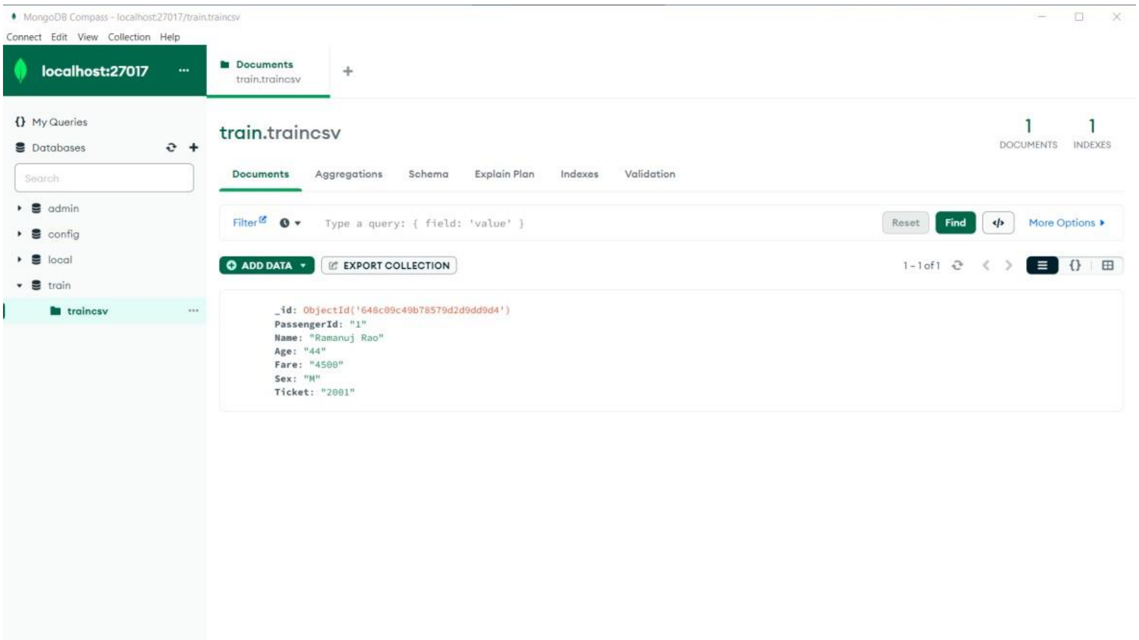
```
from pymongo import MongoClient
client= MongoClient('localhost:27017')
db = client.train
 def
update():
try:
        name = input("Enter the Name to Update: ")
age = input("Enter the Age to Update: ")
         db.traincsv.update_one({"Name":
name},
                               {"$set": {"Age": age} }
                                )
                 print("Record has been
Updated")
     except Exception as
e:
        print(str(e))

update()
```

Output:



```
PS C:\Users\raman\BigData> python '.\UPDATE Operation.py'
Enter the Name to Update: Ramanuj Rao
Enter the Age to Update: 44
Record has been Updated
PS C:\Users\raman\BigData> 
```

Check on Mongo Compass as well



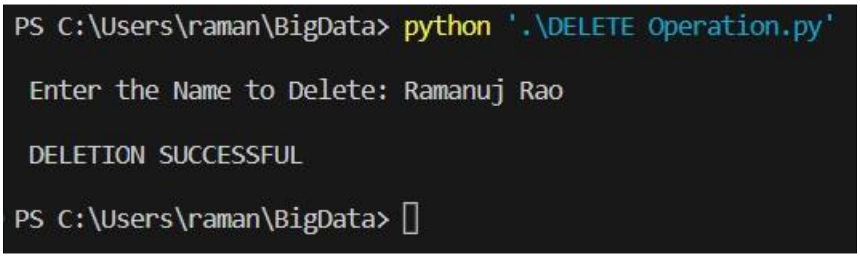
```
_id: ObjectId('648c09c49b78579d2d9dd9d4')
PassengerId: "1"
Name: "Ramanuj Rao"
Age: "44"
Fare: "4500"
Sex: "M"
Ticket: "2001"
```

- **Delete Data:**

Code:

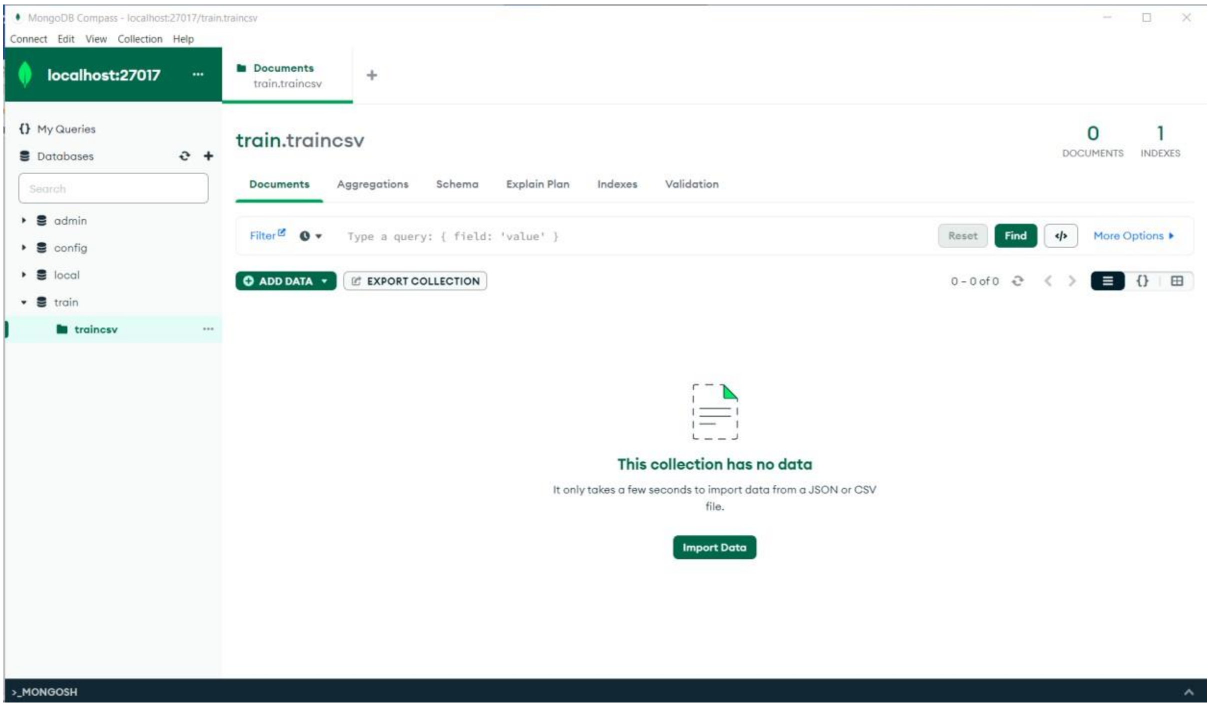
```
from pymongo import MongoClient
 client =
MongoClient("localhost:27017")
 db =
client.train
 def
delete():
try:
        value = input("\n Enter the Name to Delete: ")
db.traincsv.delete_one({"Name":value})         print("\n
DELETION SUCCESSFUL \n")
     except Exception as
e:
        print(str(e))

delete()
```

Output:



```
PS C:\Users\raman\BigData> python '.\DELETE Operation.py'

 Enter the Name to Delete: Ramanuj Rao

 DELETION SUCCESSFUL

PS C:\Users\raman\BigData> 
```

Check on Mongo Compass as well

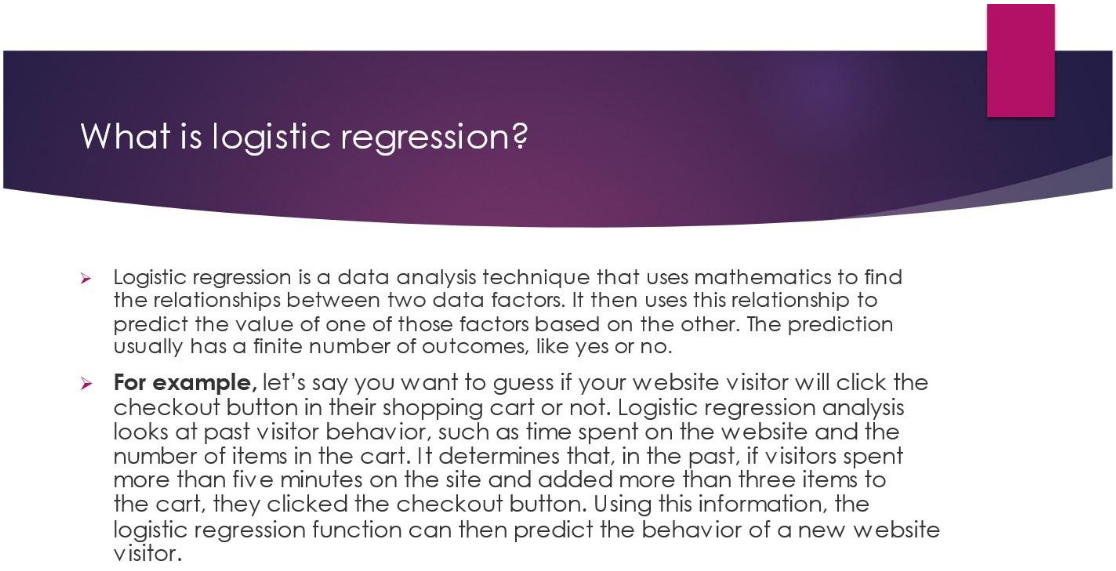


This collection has no data

It only takes a few seconds to import data from a JSON or CSV file.

PRESENTATION

Logistic Regression



What is logistic regression?

- Logistic regression is a data analysis technique that uses mathematics to find the relationships between two data factors. It then uses this relationship to predict the value of one of those factors based on the other. The prediction usually has a finite number of outcomes, like yes or no.
- **For example,** let's say you want to guess if your website visitor will click the checkout button in their shopping cart or not. Logistic regression analysis looks at past visitor behavior, such as time spent on the website and the number of items in the cart. It determines that, in the past, if visitors spent more than five minutes on the site and added more than three items to the cart, they clicked the checkout button. Using this information, the logistic regression function can then predict the behavior of a new website visitor.

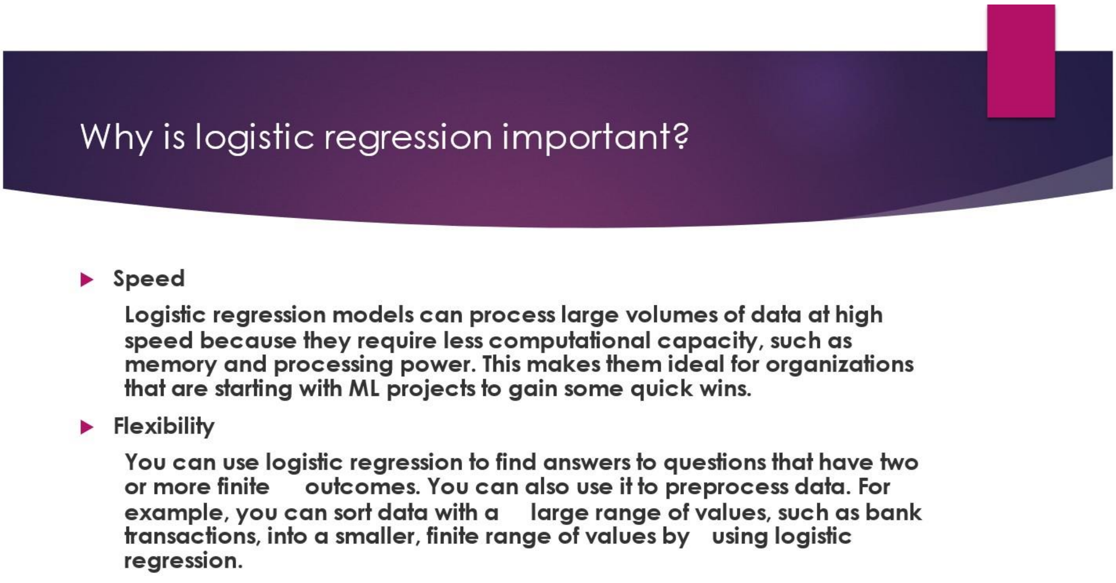
Why is logistic regression important?

- Logistic regression is an important technique in the field of artificial intelligence and machine learning (AI/ML). ML models are software programs that you can train to perform complex data processing tasks without human intervention.

  Below, we list some benefits of using logistic regression over other ML techniques.

- **Simplicity**

  Logistic regression models are mathematically less complex than other ML methods. Therefore, you can implement them even if no one on your team has in-depth ML expertise.



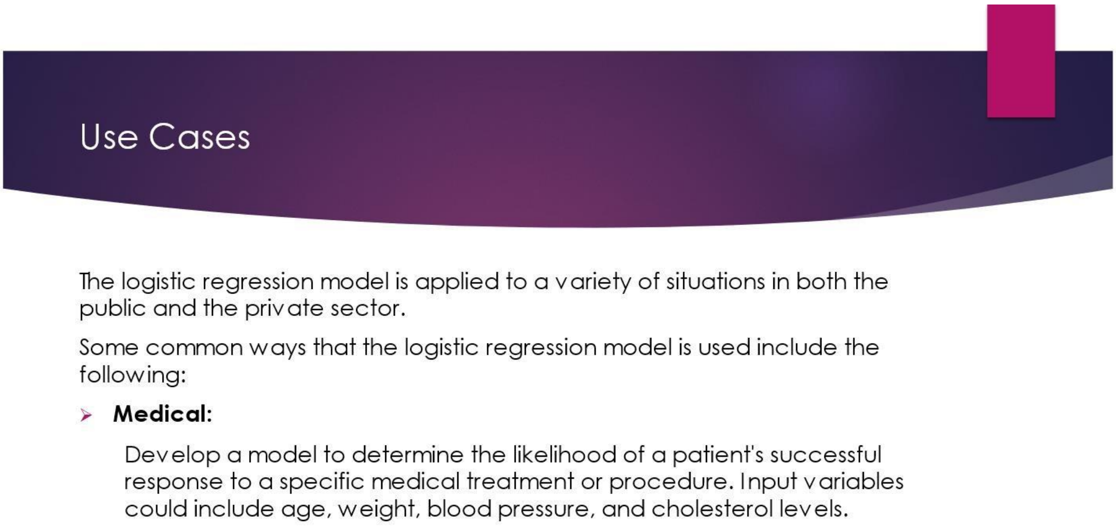
Why is logistic regression important?

- **Speed**

  Logistic regression models can process large volumes of data at high speed because they require less computational capacity, such as memory and processing power. This makes them ideal for organizations that are starting with ML projects to gain some quick wins.

- **Flexibility**

  You can use logistic regression to find answers to questions that have two or more finite outcomes. You can also use it to preprocess data. For example, you can sort data with a large range of values, such as bank transactions, into a smaller, finite range of values by using logistic regression.



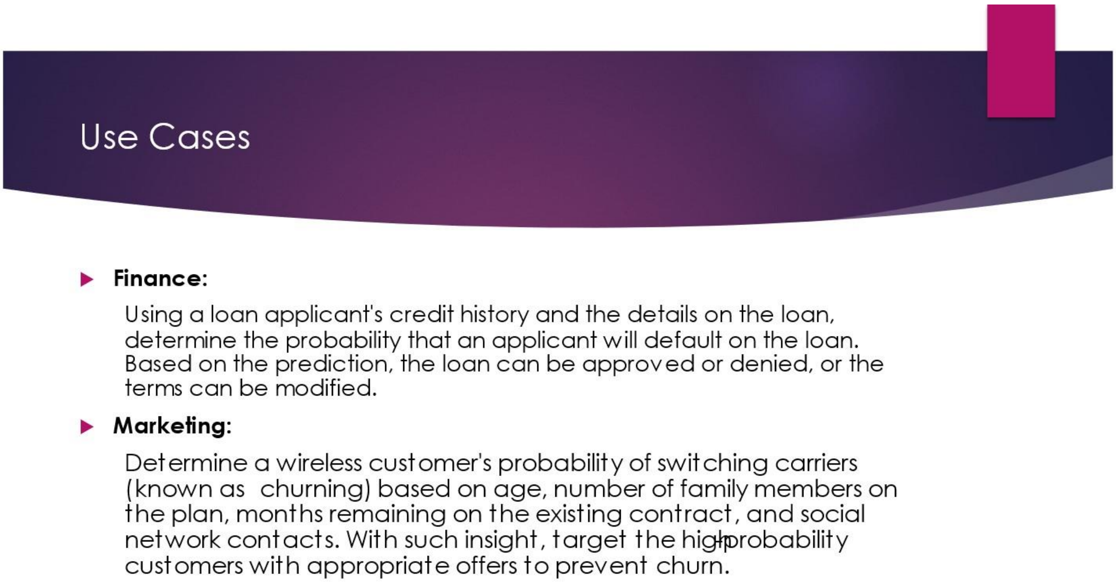
Use Cases

The logistic regression model is applied to a variety of situations in both the public and the private sector.

Some common ways that the logistic regression model is used include the following:

- **Medical:**

  Develop a model to determine the likelihood of a patient's successful response to a specific medical treatment or procedure. Input variables could include age, weight, blood pressure, and cholesterol levels.



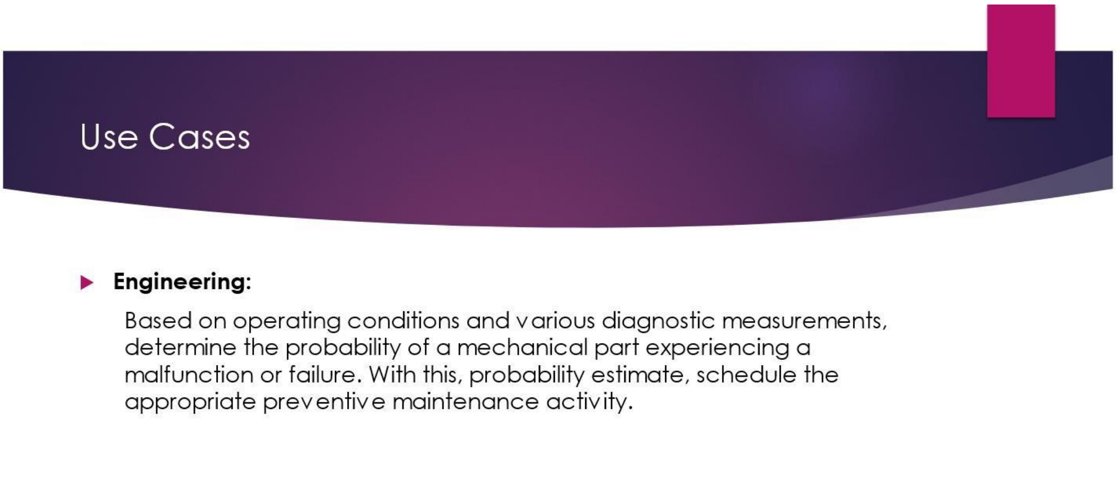
Use Cases

- **Finance:**

  Using a loan applicant's credit history and the details on the loan, determine the probability that an applicant will default on the loan. Based on the prediction, the loan can be approved or denied, or the terms can be modified.

- **Marketing:**

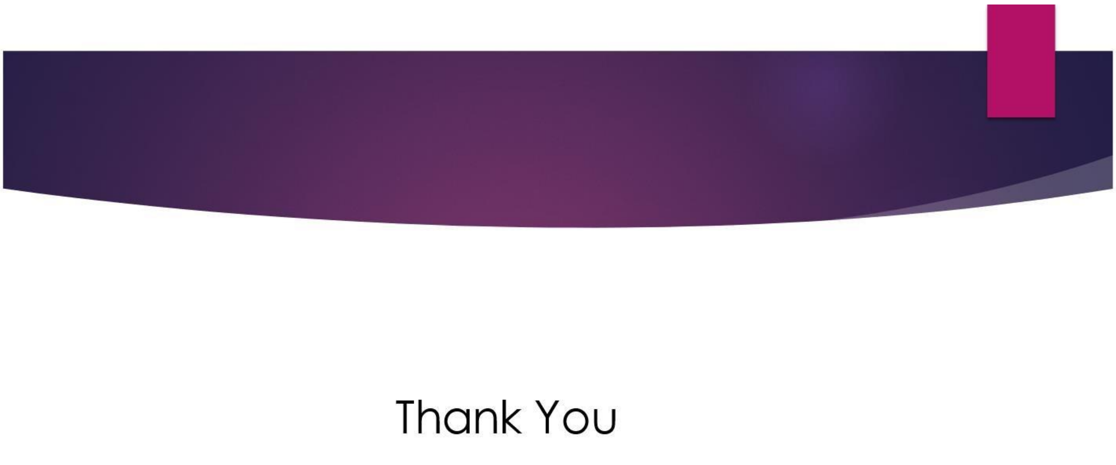
  Determine a wireless customer's probability of switching carriers (known as churning) based on age, number of family members on the plan, months remaining on the existing contract, and social network contacts. With such insight, target the high-probability customers with appropriate offers to prevent churn.



Use Cases

- **Engineering:**

  Based on operating conditions and various diagnostic measurements, determine the probability of a mechanical part experiencing a malfunction or failure. With this, probability estimate, schedule the appropriate preventive maintenance activity.



Thank You