BIG DATA ANALYTICS

A PRACTICAL REPORT
ON
BIG DATA ANALYTICS

SUBMITTED BY
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Seat No:

UNDER THE GUIDANCE OF
PROF. AKBER KHAN

Submitted in fulfillment 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

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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 **Shubham Singh** 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.

Course Teacher **Coordinator Dept of I.T.**

External Examiner

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Practical 1

Aim: Implement Decision tree classification technique

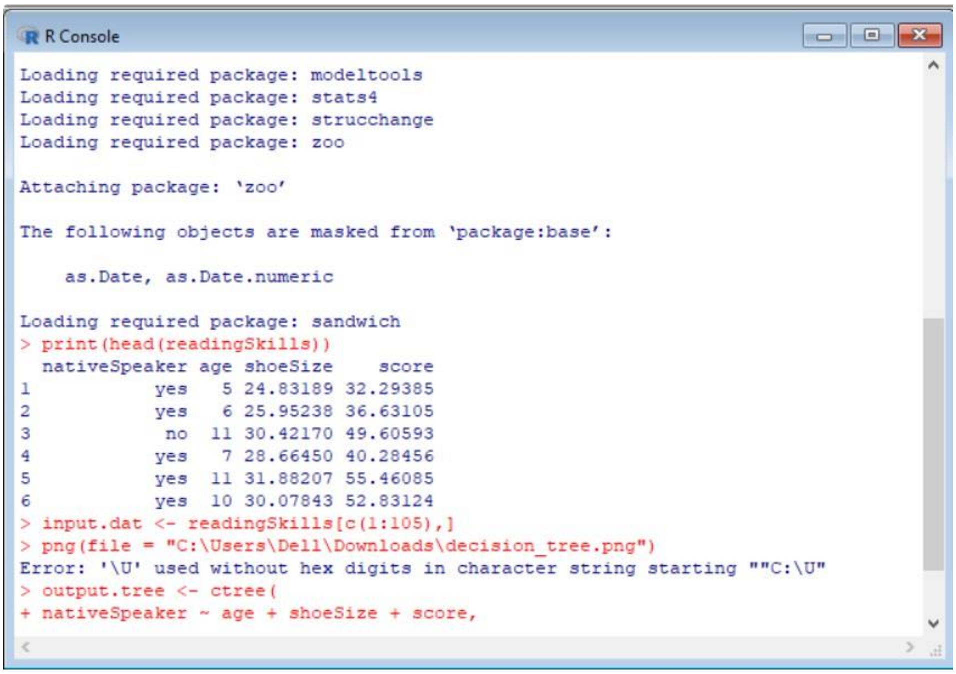
Writeup:

[A]: Implement Decision tree classification technique

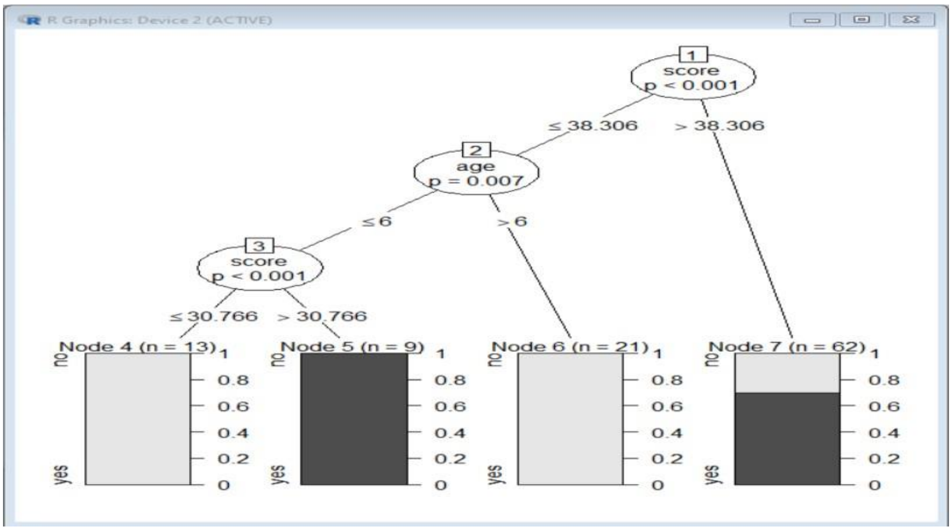
Code:

```
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

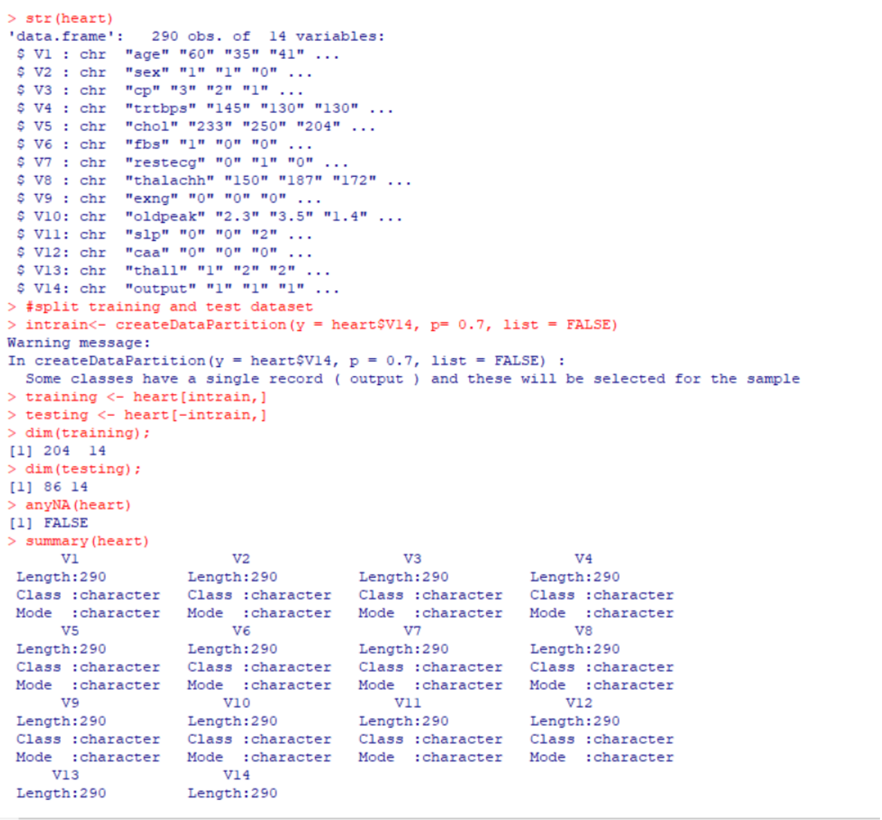
Writeup:

[A]: Implement SVM classification technique

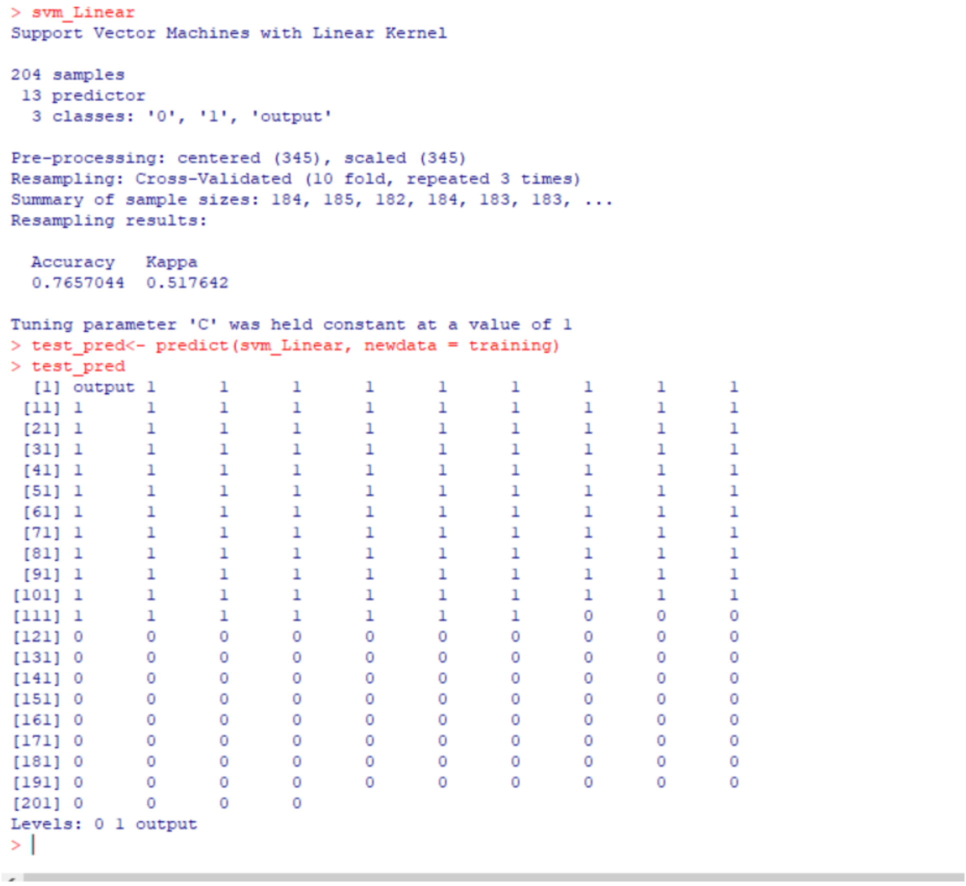
Code:

```
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.

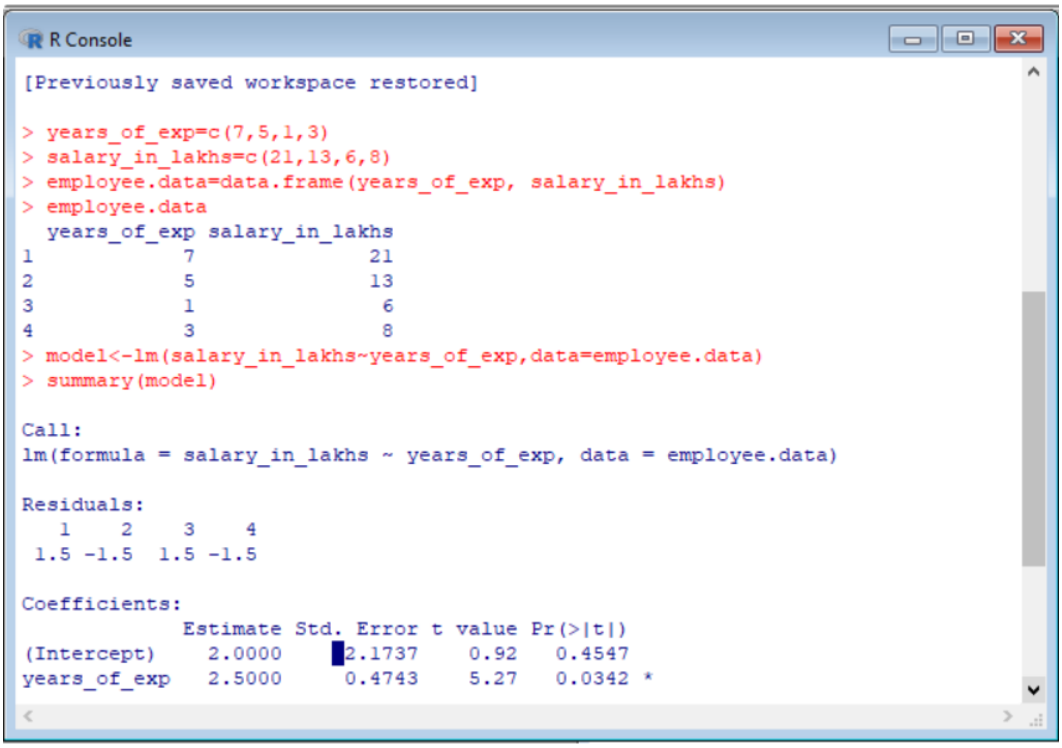
Writeup:

[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.

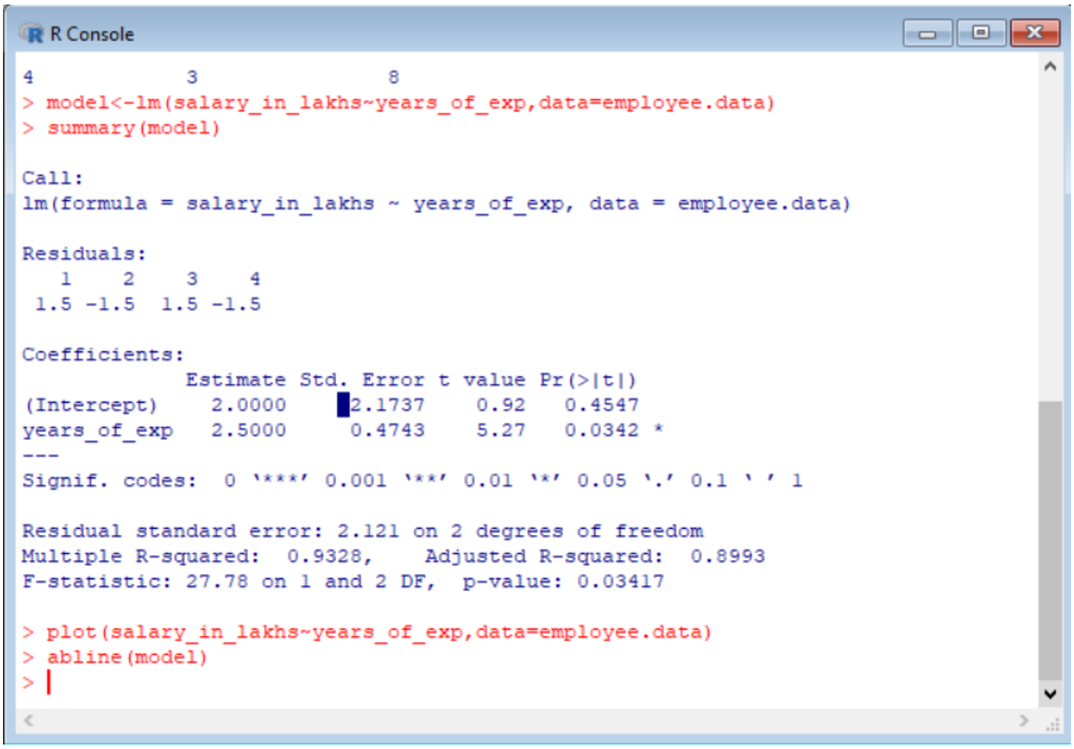
Code:

```
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)
```

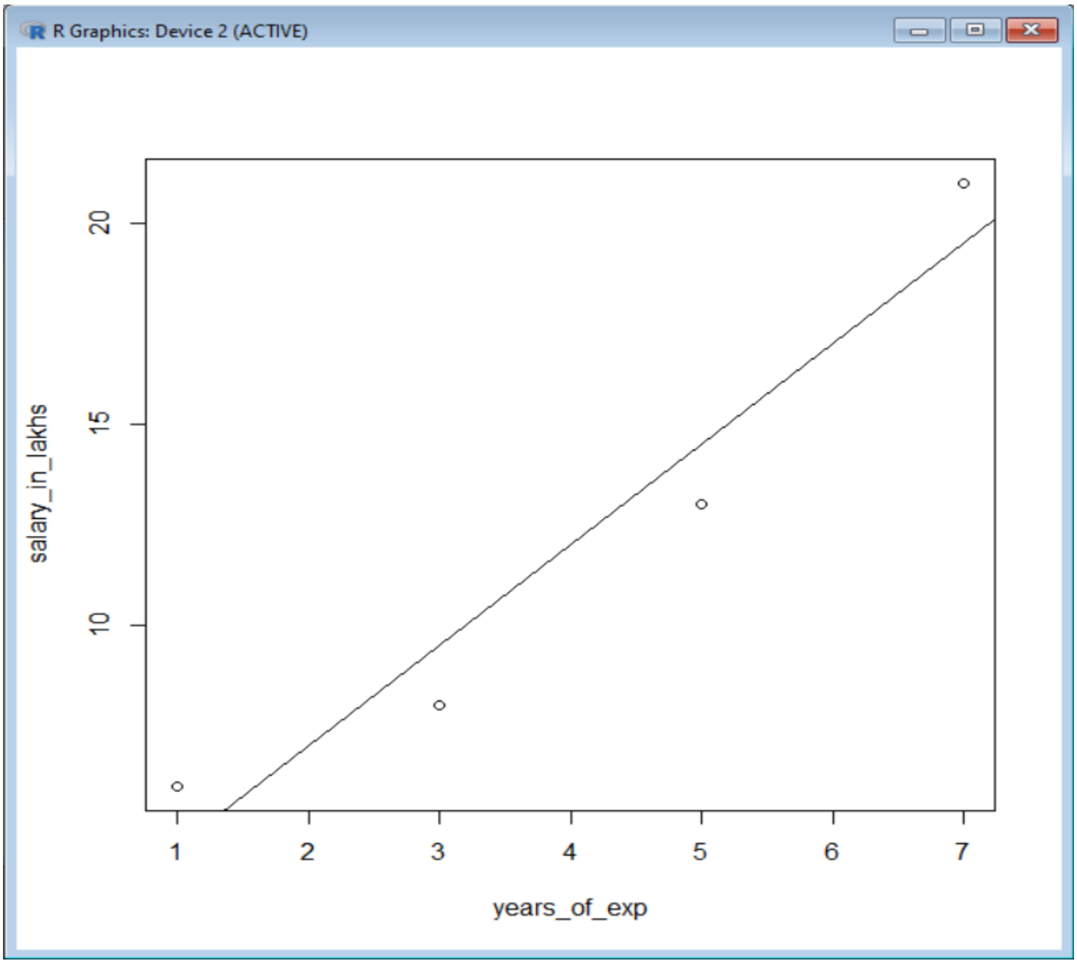
Output:



```
[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.

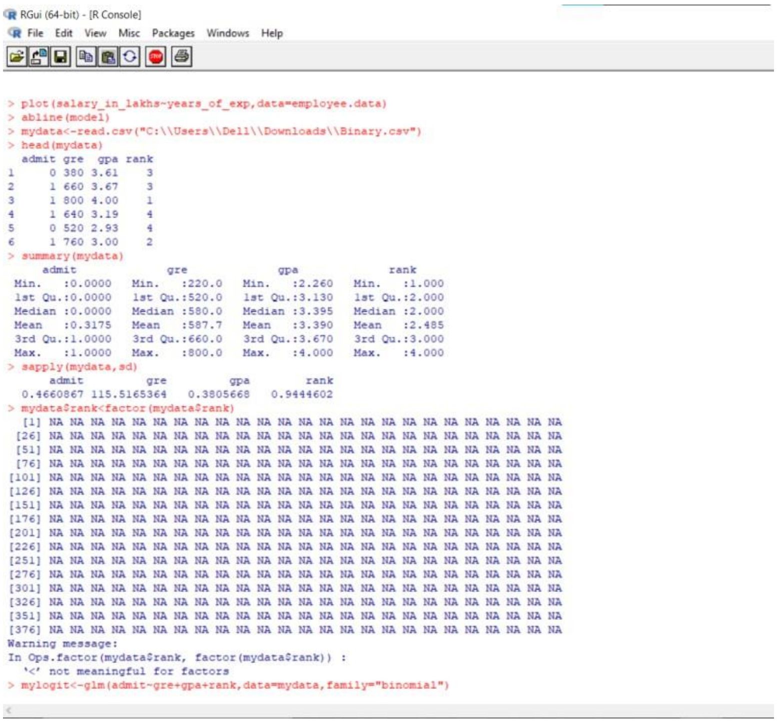
Writeup:

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

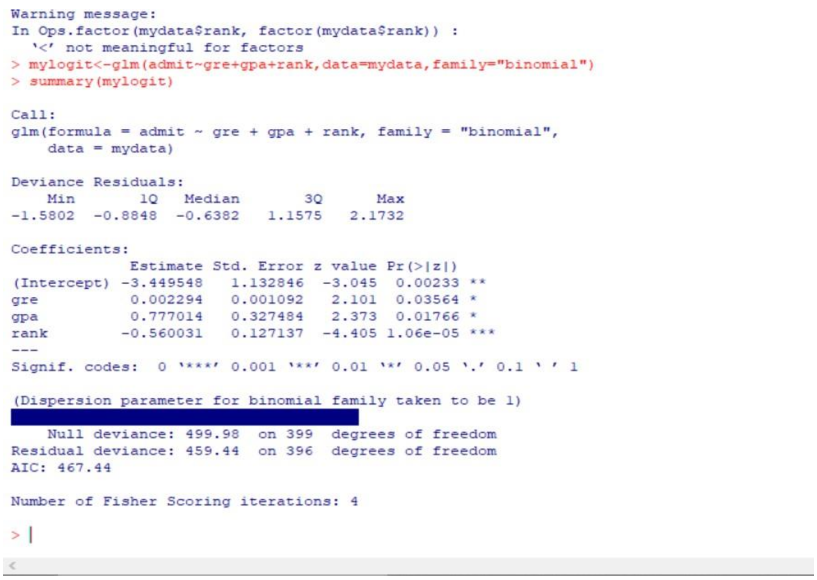
Code:

```
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

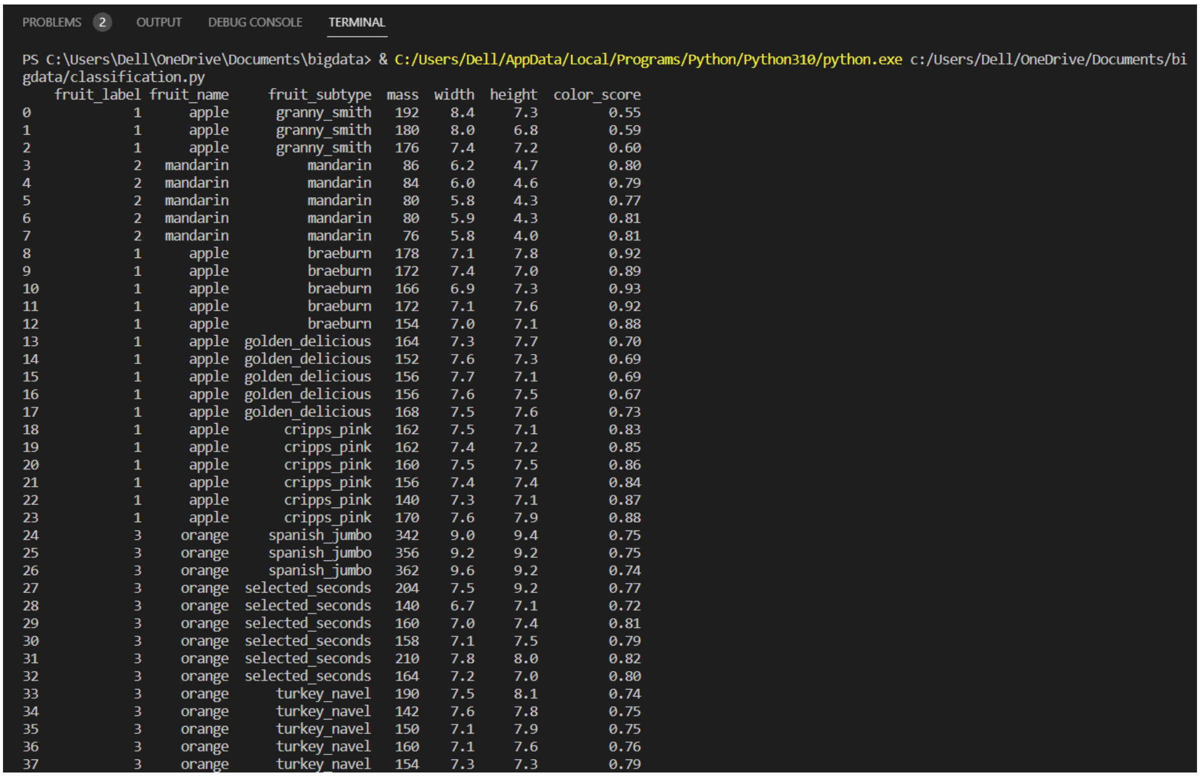
Aim: Build a Classification Model.

Writeup:

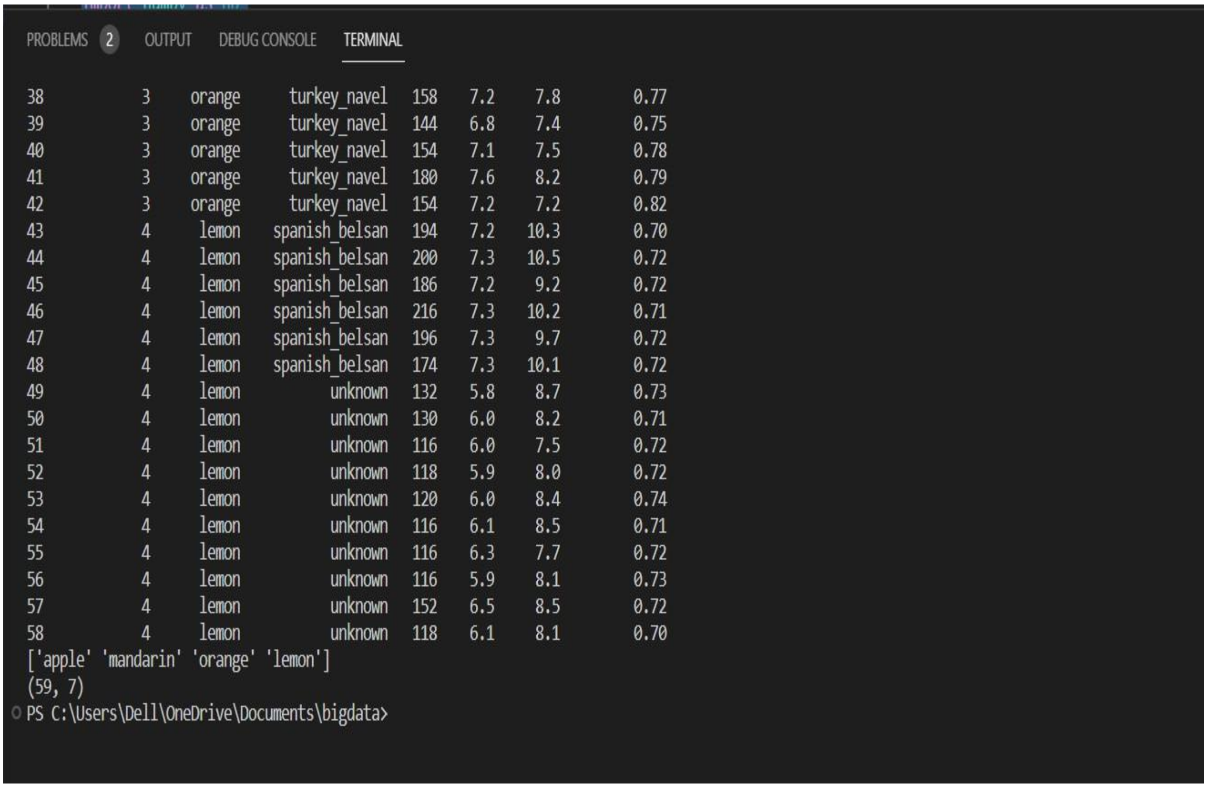
[A]: Build a Classification Model.

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

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

Output:

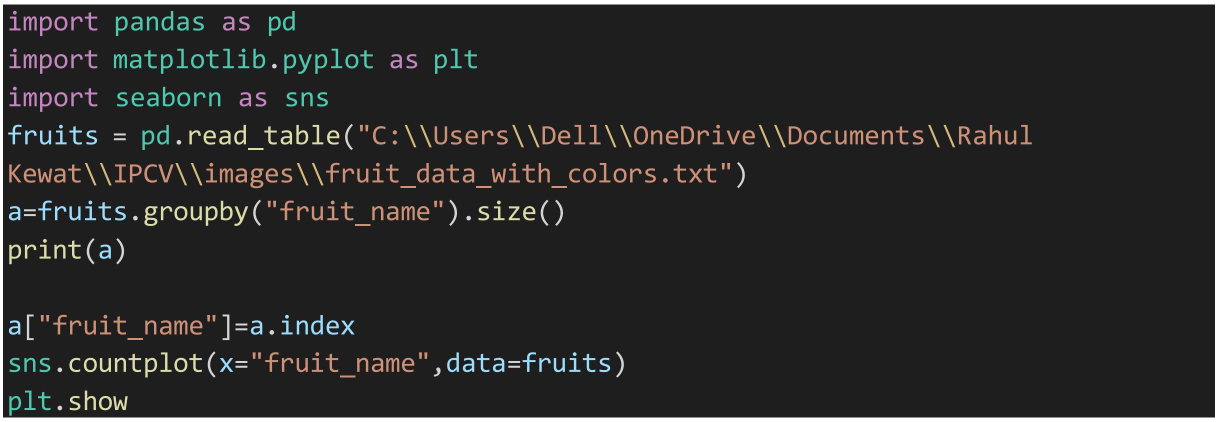


```
PS C:\Users\Dell\OneDrive\Documents\bigdata> & C:/Users/Dell/AppData/Local/Programs/Python/Python310/python.exe c:/Users/Dell/OneDrive/Documents/bi
gdata/classification.py
    fruit_label  fruit_name     fruit_subtype  mass  width  height  color_score
0             1       apple      granny_smith   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
```



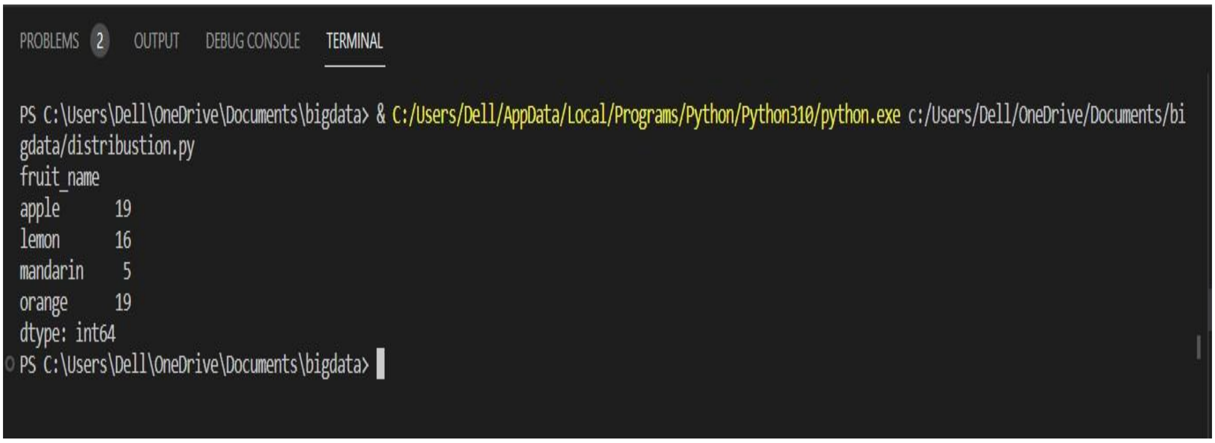
```
38          3    orange     turkey_navel  158   7.2    7.8        0.77
39          3    orange     turkey_navel  144   6.8    7.4        0.75
40          3    orange     turkey_navel  154   7.1    7.5        0.78
41          3    orange     turkey_navel  180   7.6    8.2        0.79
42          3    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

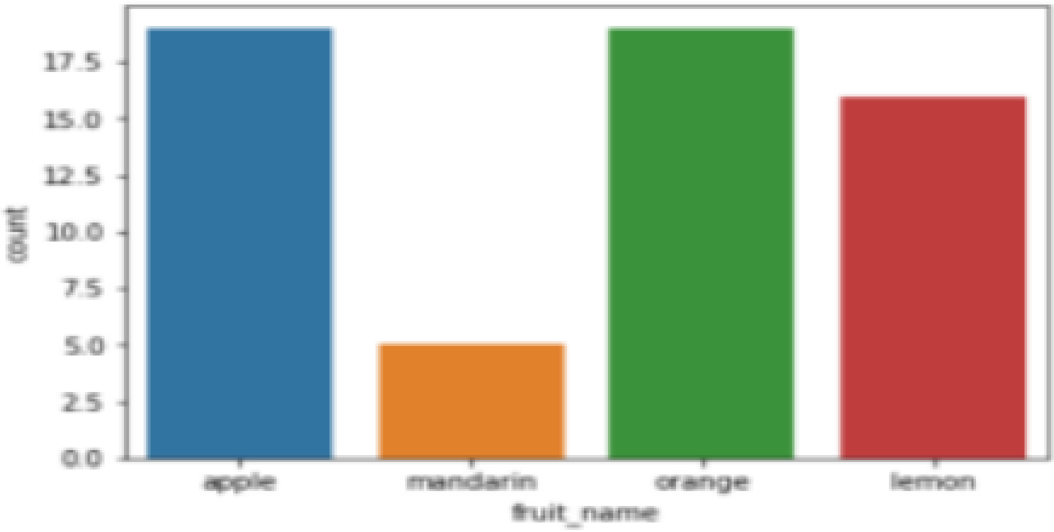


```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
fruits = pd.read_table("C:\\Users\\Dell\\OneDrive\\Documents\\Rahul
Kewat\\IPCV\\images\\fruit_data_with_colors.txt")
a=fruits.groupby("fruit_name").size()
print(a)

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/distribustion.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

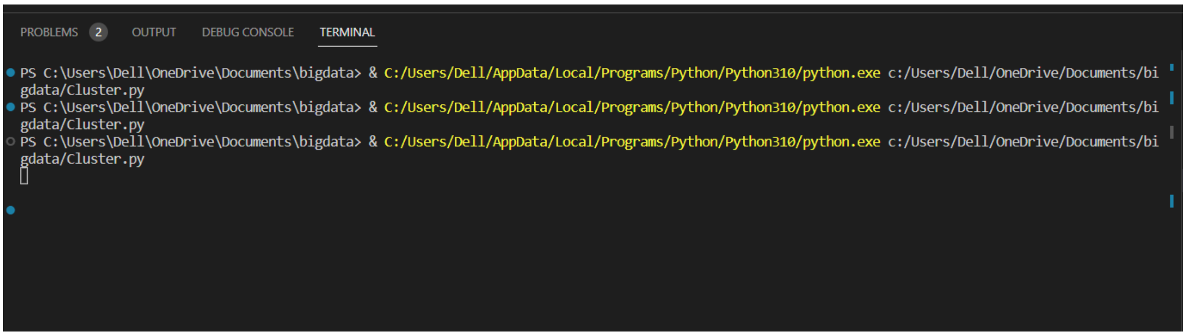
Writeup:

[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
```

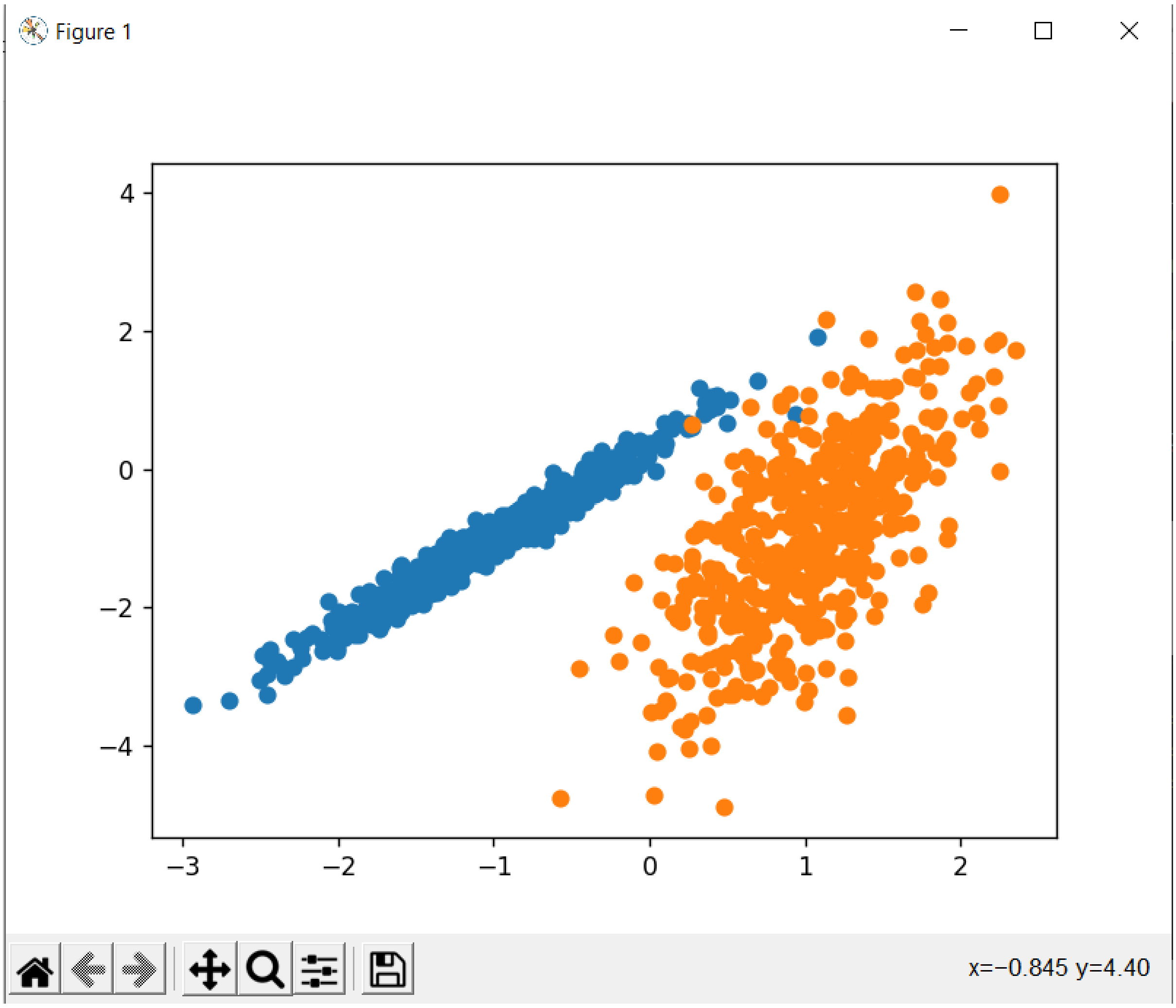


Figure 1
4
2
0
−2
−4
−3
−2
−1
0
1
2
x=−0.845 y=4.40

Practical 7

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

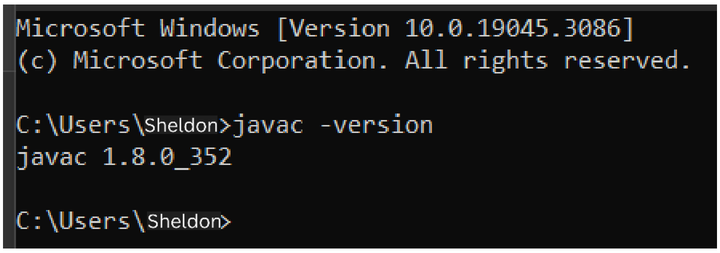
Writeup:

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)**

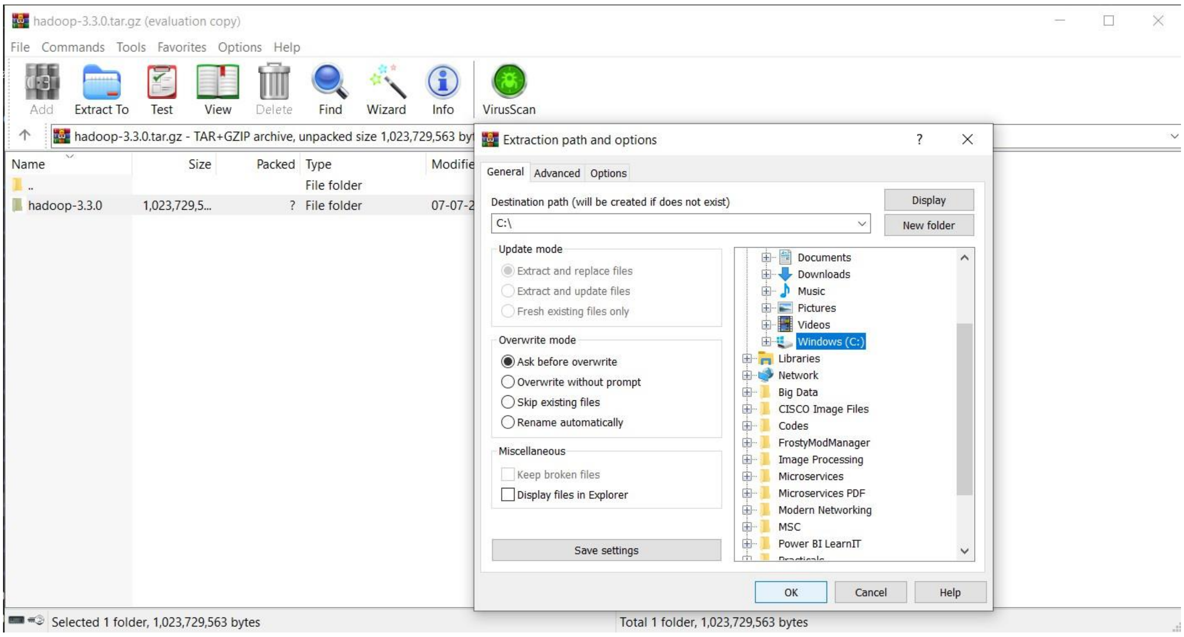
Step 1: Check Java version with command **javac -version.**
Open command prompt and type the above command.

Output:



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

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

C:\Users\Sheldon>
```

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 by

Name	Size	Packed	Type	Modifie
..			File folder	
hadoop-3.3.0	1,023,729,5...	?	File folder	07-07-2

Extraction path and options

Destination path (will be created if does not exist)

C:\

Update mode
○ Extract and replace files
○ Extract and update files
○ Fresh existing files only

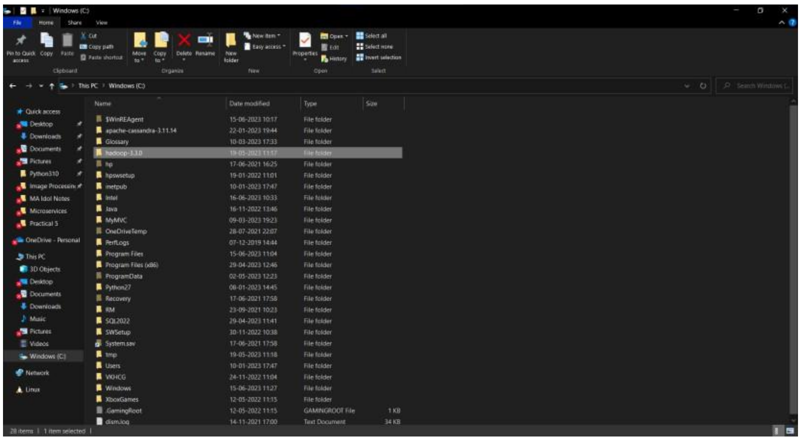
Overwrite mode
● Ask before overwrite
○ Overwrite without prompt
○ Skip existing files
○ Rename automatically

Miscellaneous
□ Keep broken files
□ Display files in Explorer

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.

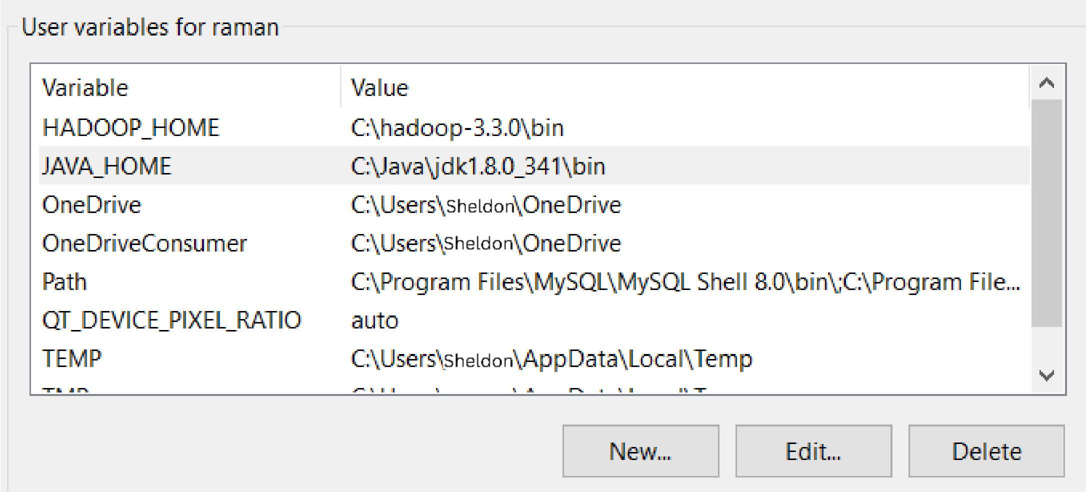


This PC › Windows (C:)

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

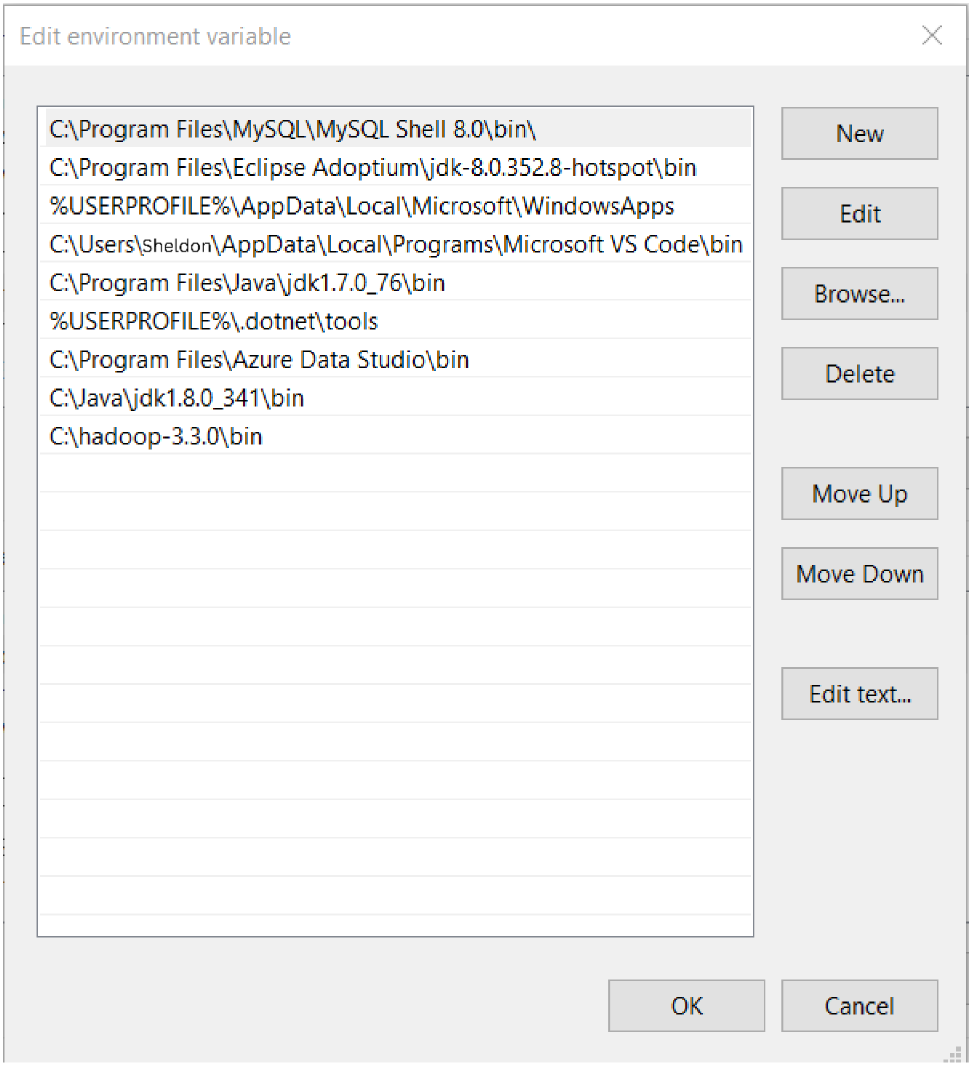
Step 3: Configure the Environment Variables for **JAVA_HOME** and **HADOOP_HOME**.



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\Sheldon\OneDrive
OneDriveConsumer	C:\Users\Sheldon\OneDrive
Path	C:\Program Files\MySQL\MySQL Shell 8.0\bin\;C:\Program File...
QT_DEVICE_PIXEL_RATIO	auto
TEMP	C:\Users\Sheldon\AppData\Local\Temp

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



```
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\Sheldon\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:

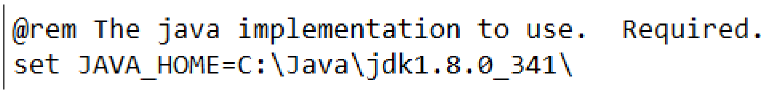
```
<configuration>
        <property>
                <name>yarn.nodemanager.aux-services</name>
                <value>mapreduce_shuffle</value>
        </property>
        <property>
                <name>yarn.nodemanager.auxservices.mapreduce.shuffle.class</name>
                <value>org.apache.hadoop.mapred.ShuffleHandler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

</configuration>

Paste the above code in the configuration file.

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

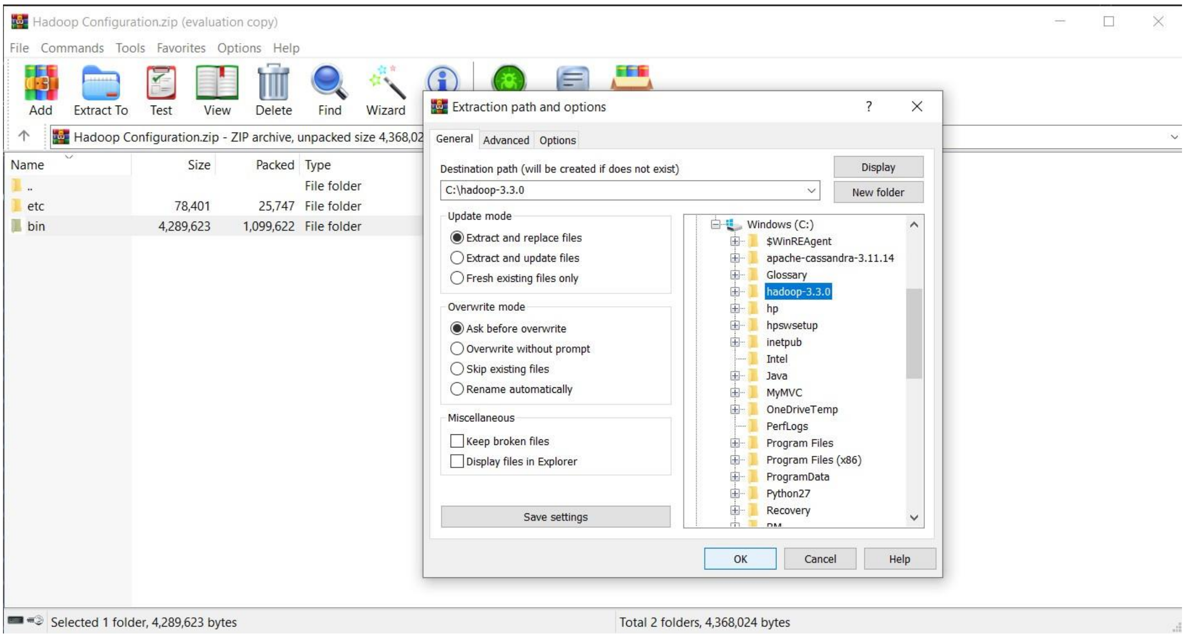
Search for the line:- “**JAVA_HOME=%JAVA_HOME%**” Replace the above line with **set JAVA_HOME = C:\Java\jdk version you have downloaded\”**
It should look like this:



```
@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)
File Commands Tools Favorites Options Help
Add
Extract To
Test
View
Delete
Find
Wizard

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

General | Advanced | 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

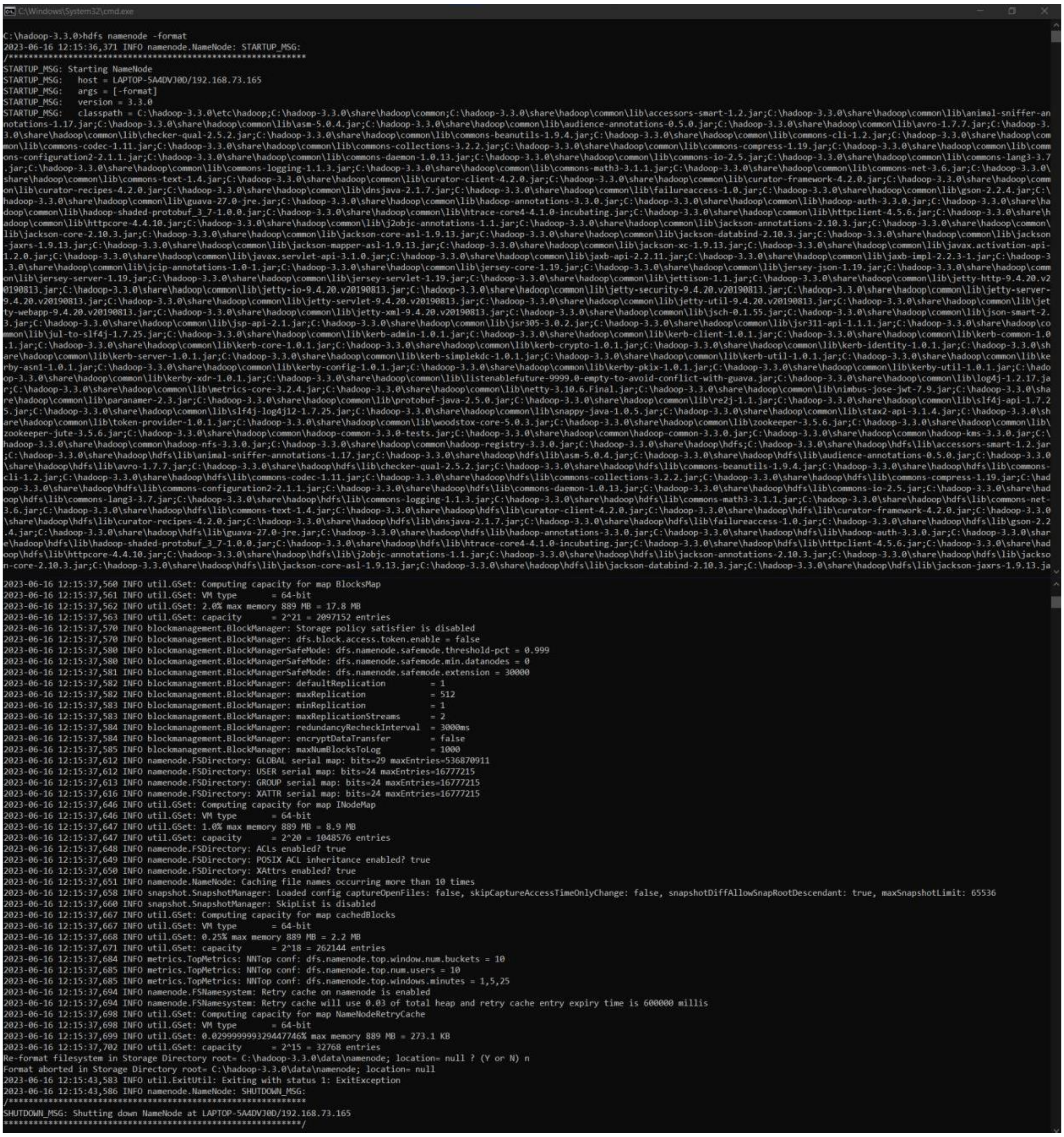
Selected 1 folder, 4,289,623 bytes

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 namenode -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
```

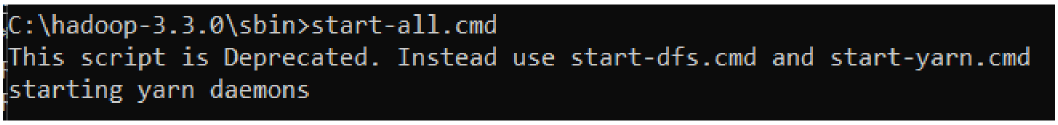
```
2023-06-16 12:15:37,560 INFO util.GSet: Computing capacity for map BlocksMap
2023-06-16 12:15:37,561 INFO util.GSet: VM type       = 64-bit
2023-06-16 12:15:37,562 INFO util.GSet: 2.0% max memory 889 MB = 17.8 MB
2023-06-16 12:15:37,563 INFO util.GSet: capacity      = 2^21 = 2097152 entries
2023-06-16 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

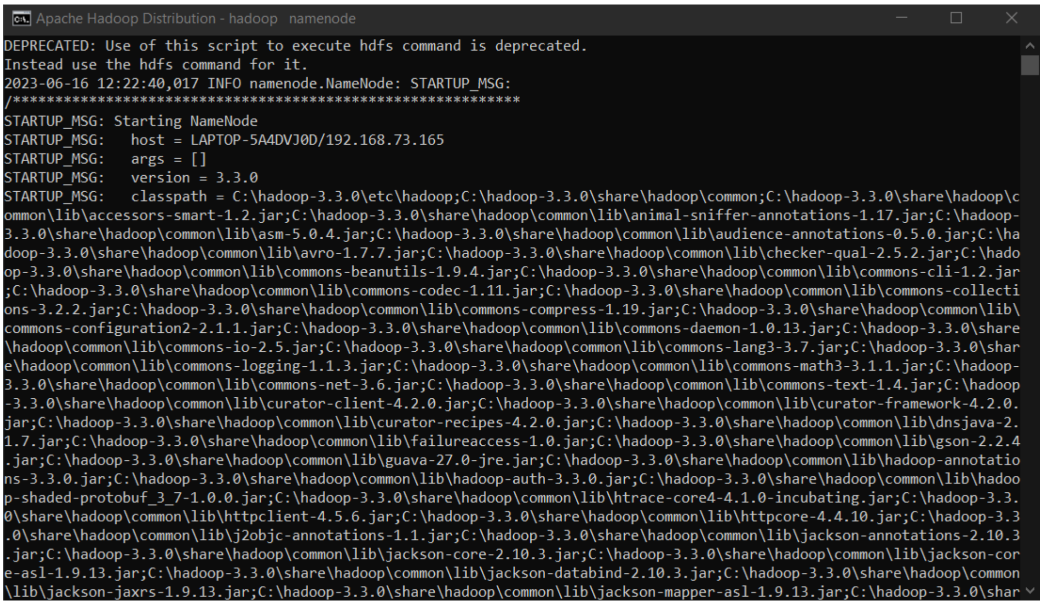
Now within the same cmd created in the previous step change the directory to the **sbin** file within Hadoop.
Type the command: **start-all.cmd**
After execution of the command there should be four instances created:

- **Hadoop Namenode**
- **Hadoop datanode**
- **YARN Resource Manager**
- **YARN Node Manager**

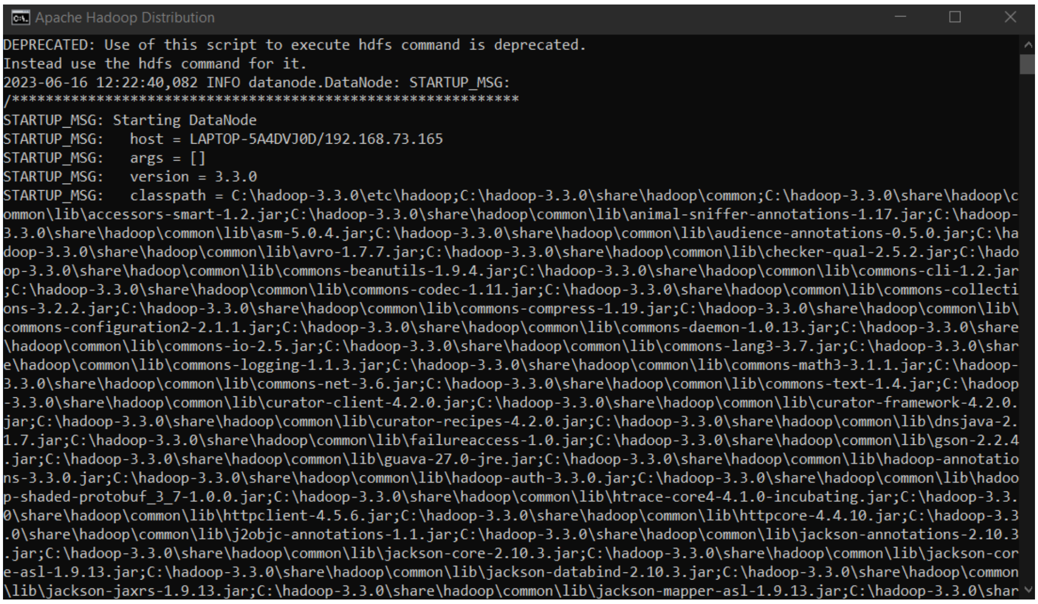
Output:



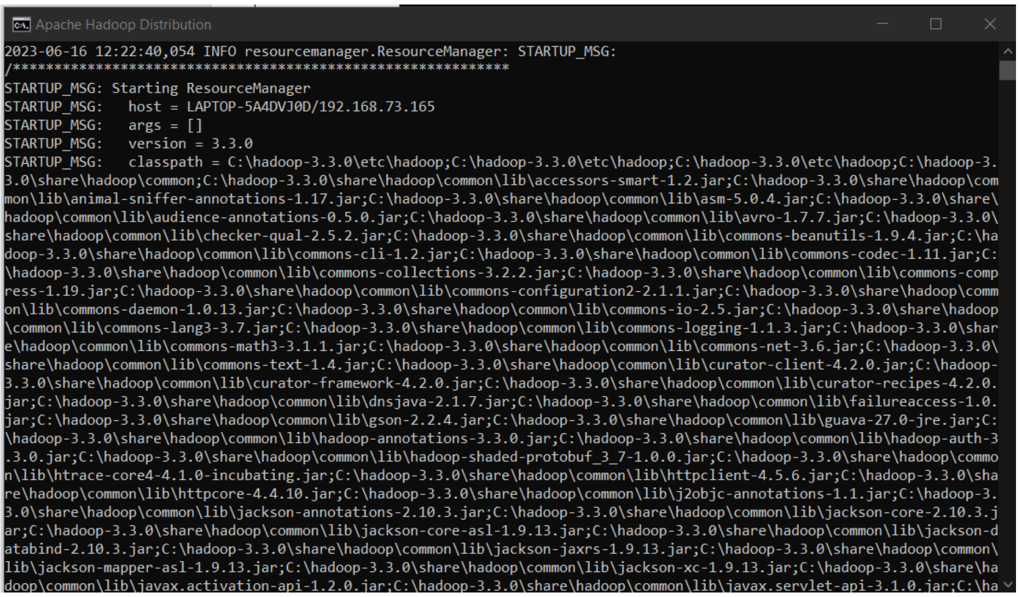
```
C:\hadoop-3.3.0\sbin>start-all.cmd
This script is Deprecated. Instead use start-dfs.cmd and start-yarn.cmd
starting yarn daemons
```



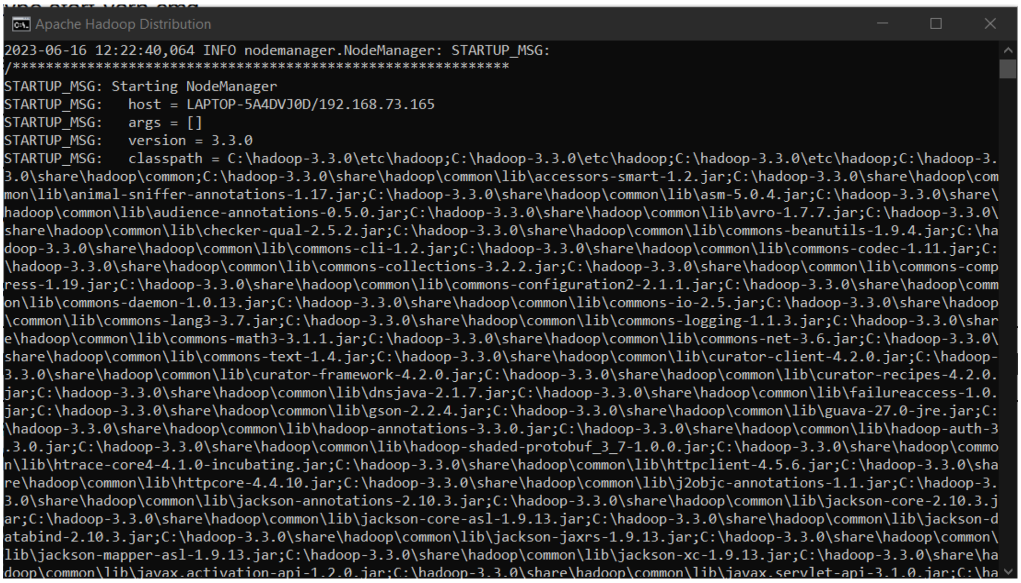
```
DEPRECATED: Use of this script to execute hdfs command is deprecated.
Instead use the hdfs command for it.
2023-06-16 12:22:40,017 INFO namenode.NameNode: STARTUP_MSG:
/************************************************************
STARTUP_MSG: Starting NameNode
STARTUP_MSG:   host = LAPTOP-5A4DVJ0D/192.168.73.165
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
```

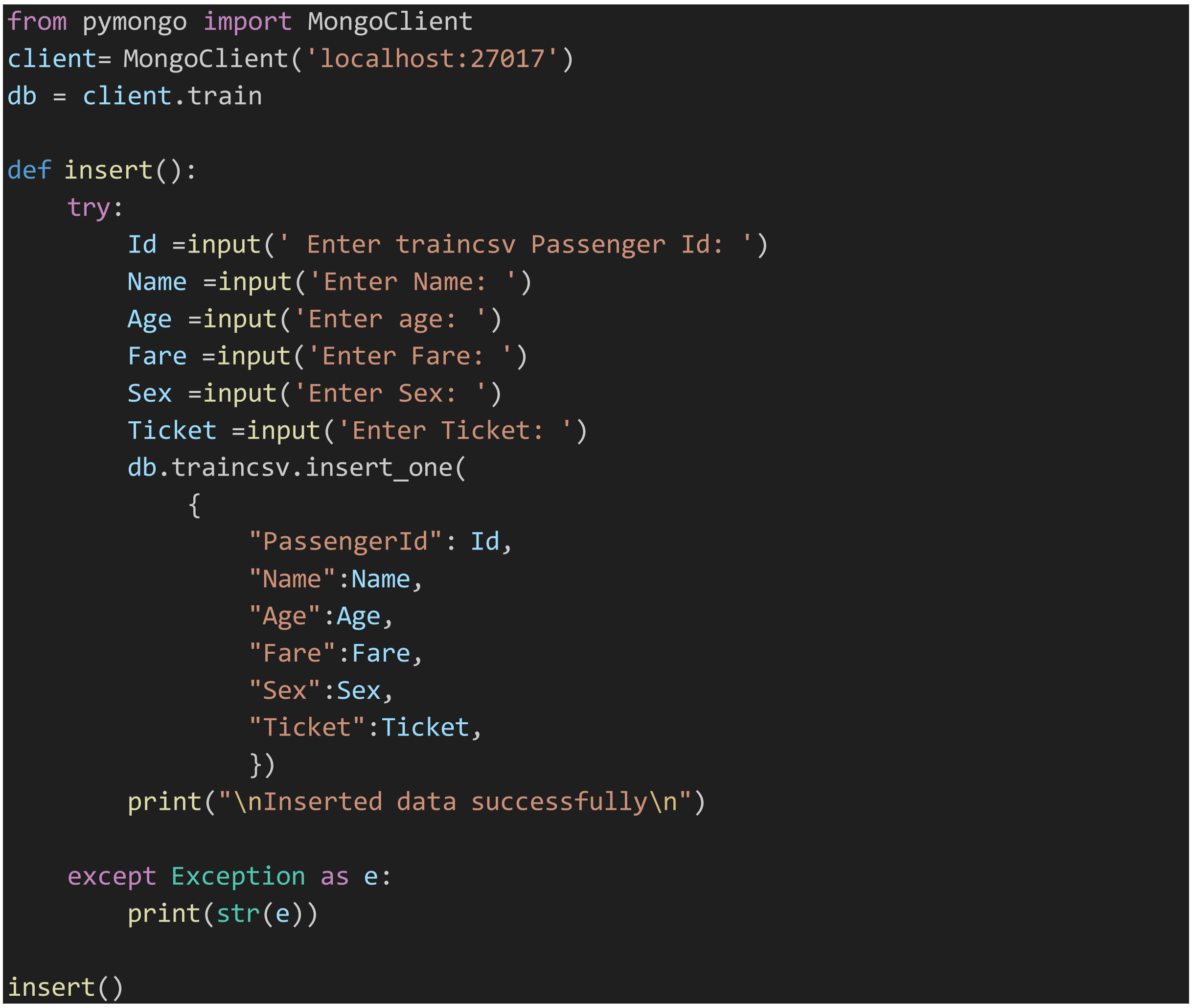
Practical 8

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

Writeup:

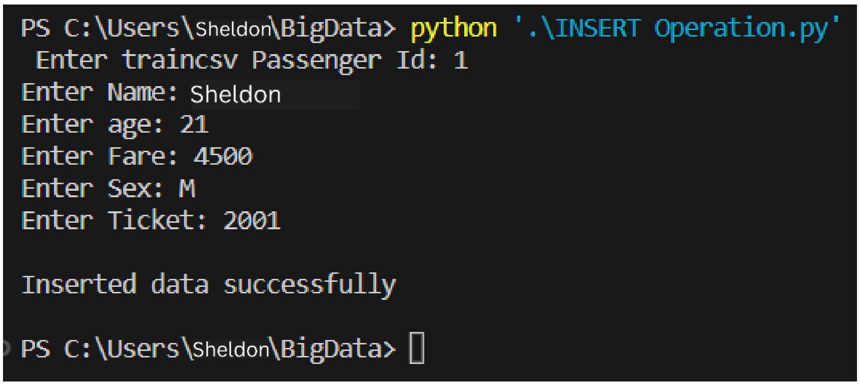
- **Insert data :**

Code:



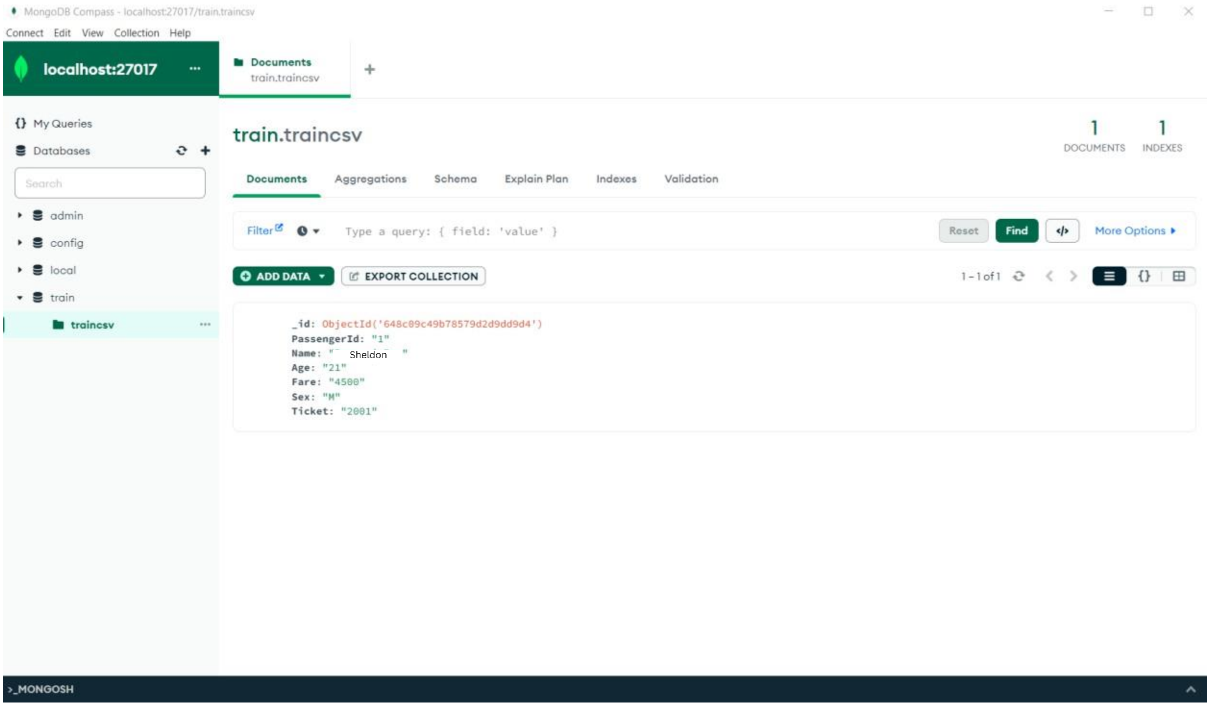
```
from pymongo import MongoClient
client= MongoClient('localhost:27017')
db = client.train

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\Sheldon\BigData> python '.\INSERT Operation.py'
 Enter traincsv Passenger Id: 1
Enter Name: Sheldon
Enter age: 21
Enter Fare: 4500
Enter Sex: M
Enter Ticket: 2001

Inserted data successfully

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

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



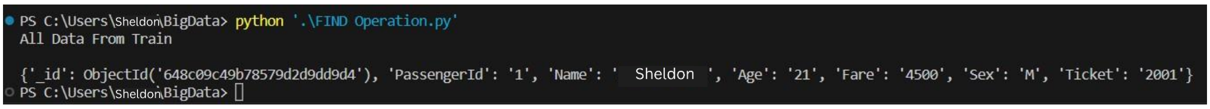
```
_id: ObjectId('648c09c49b78579d2d9dd9d4')
PassengerId: "1"
Name: "   Sheldon   "
Age: "21"
Fare: "4500"
Sex: "M"
Ticket: "2001"
```

- **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()
```

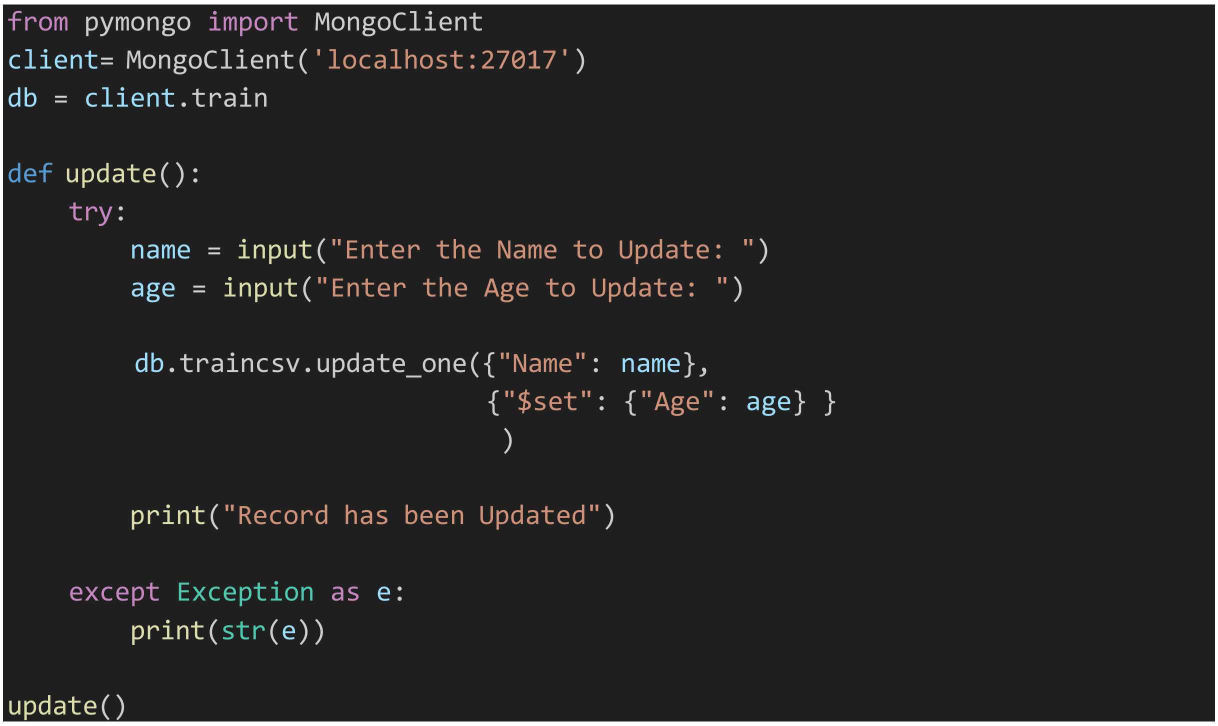
Output:



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

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

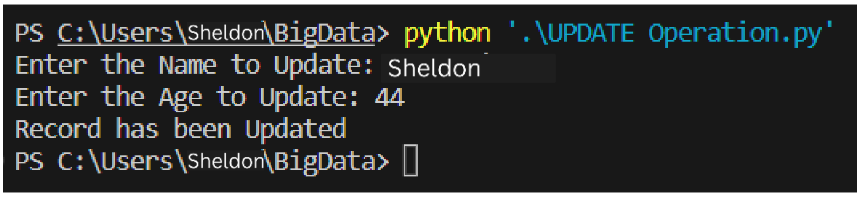
- **Update Data:**

Code:



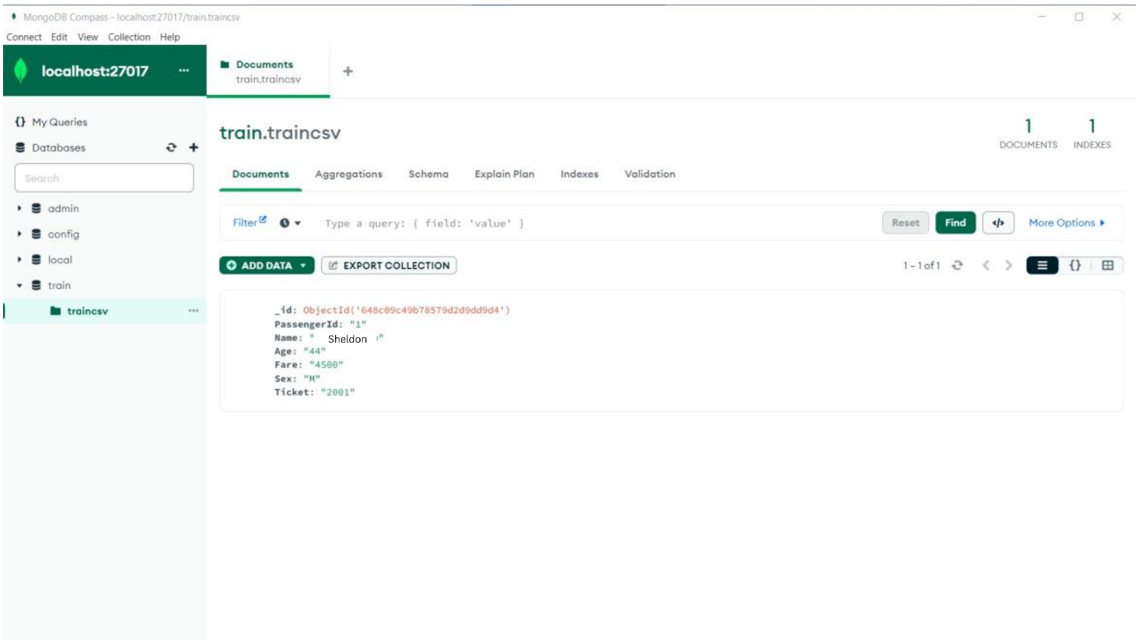
```
from pymongo import MongoClient
client= MongoClient('localhost:27017')
db = client.train

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

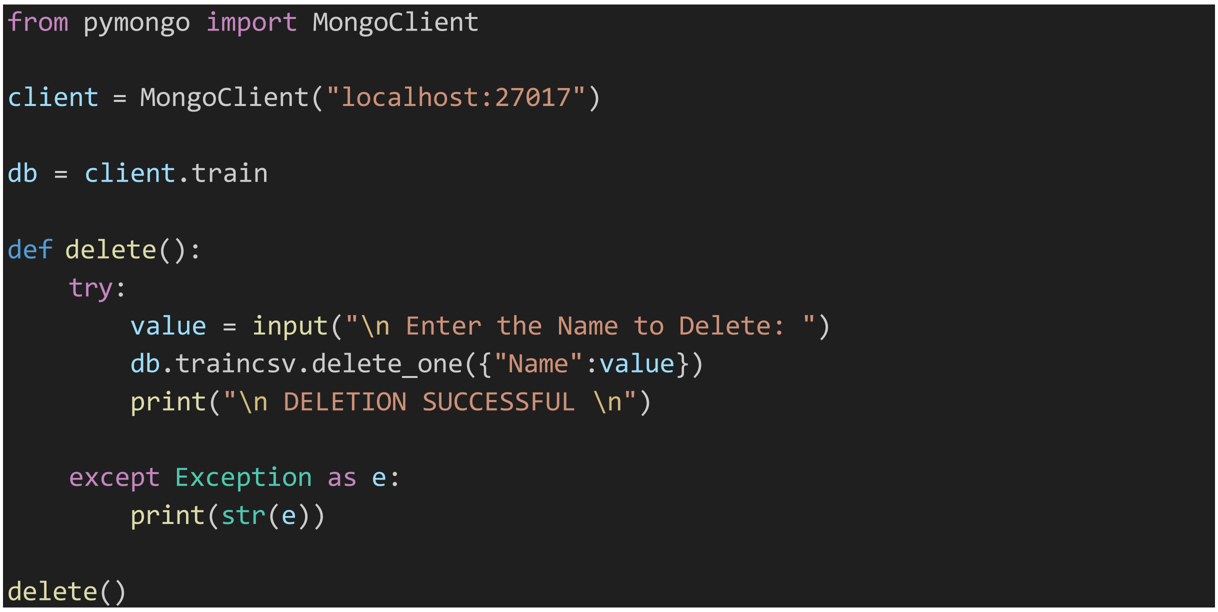
Check on Mongo Compass as well



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

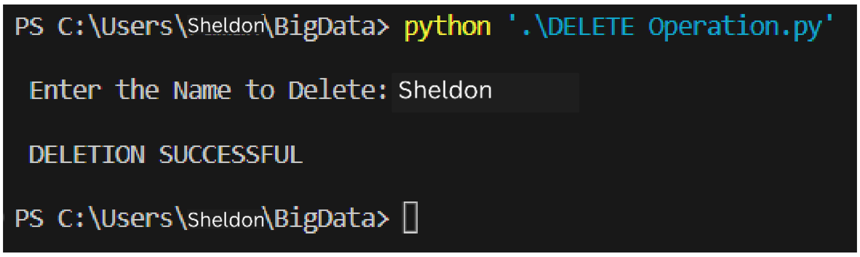
- **Delete Data:**

Code:



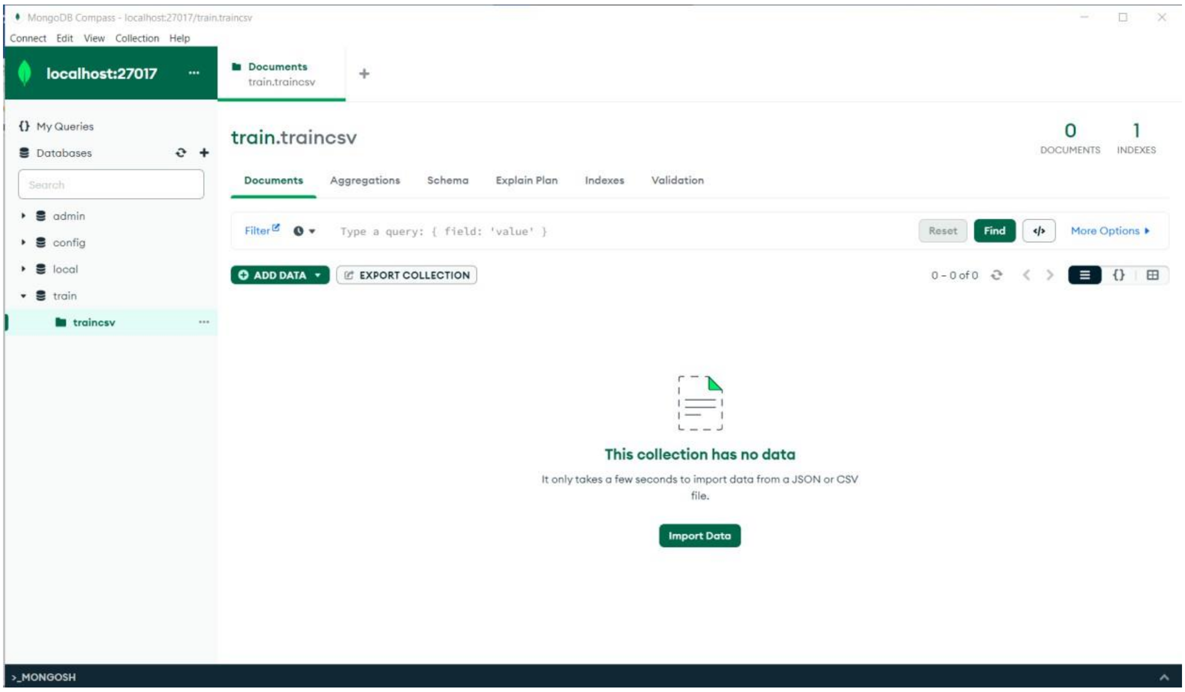
```python
from pymongo import MongoClient

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\Sheldon\BigData> python '.\DELETE Operation.py'

 Enter the Name to Delete: Sheldon

 DELETION SUCCESSFUL

PS C:\Users\Sheldon\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.