LAB EXPERIMENTIONS

DSA 0412 – FUNDAMENTALS OF DATA SCIENCE

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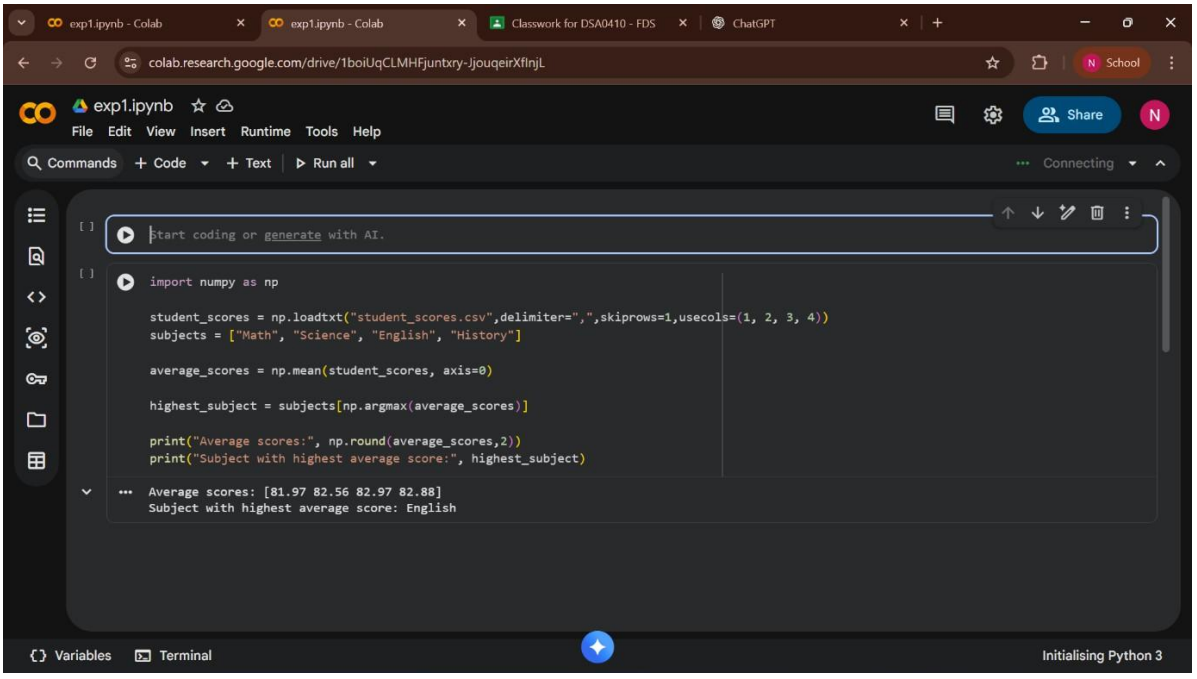
EXP 1 :

PROGRAM :

```
import numpy as np
student_scores = np.loadtxt("Students_data.csv",delimiter=",",skiprows=1,usecols=(1, 2, 3, 4))
subjects = ["Math", "Science", "English", "History"]
average_scores = np.mean(student_scores, axis=0)
highest_subject = subjects[np.argmax(average_scores)]
print("Average scores:", np.round(average_scores,2))
print("Subject with highest average score:", highest_subject)
```

OUTPUT :

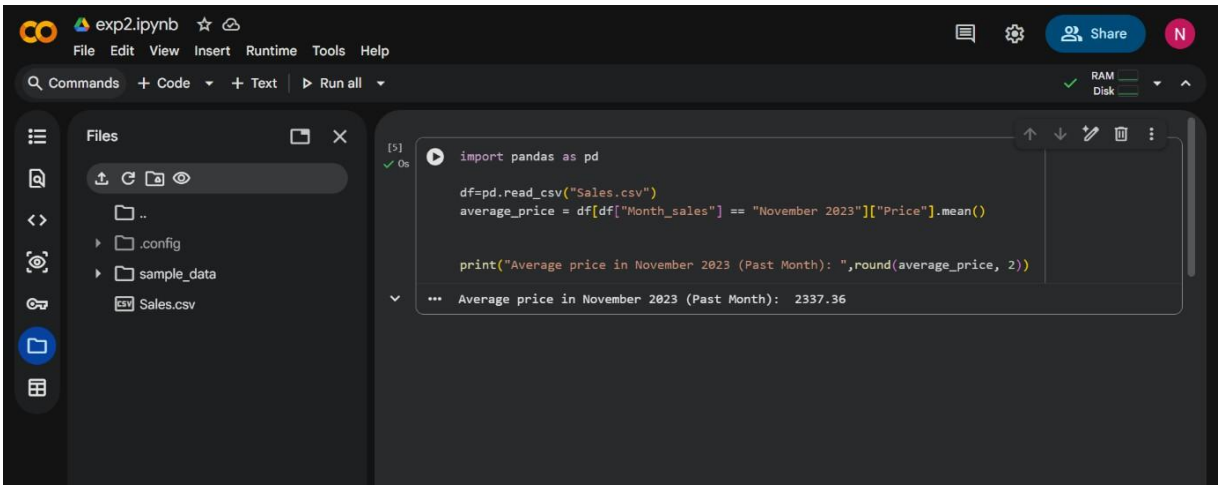


EXP 2 :

PROGRAM:

```
import pandas as pd

df=pd.read_csv("Sales_data.csv")


average_price = df[df["Month_sales"]==" November 2023"]["Price"].mean()

print("Average price in November 2023 (Past Month): ",round(average_price, 2))
```

OUTPUT:

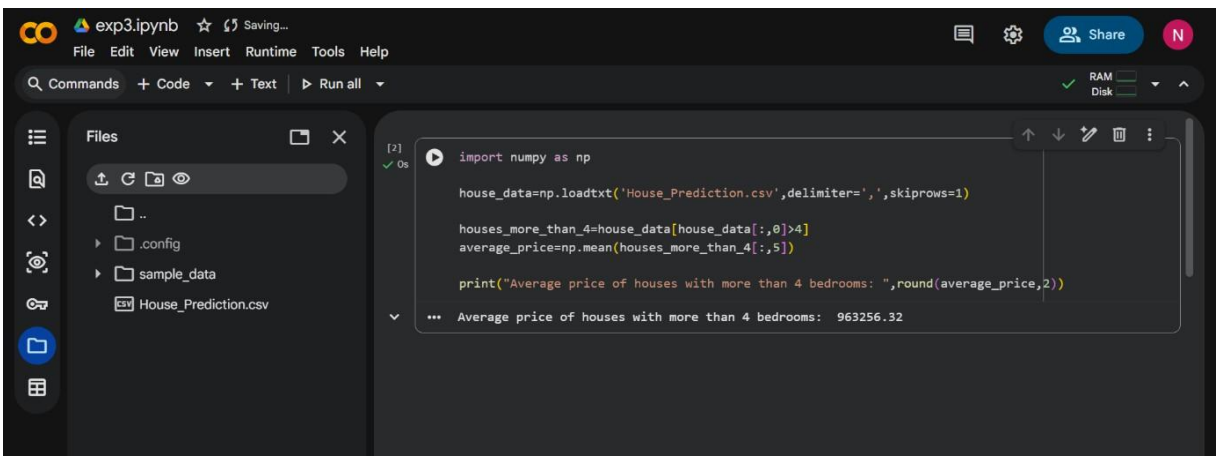


EXP 3:

PROGRAM :

```
import numpy as np

house_data=np.loadtxt('House_Data.csv',delimiter=',',skiprows=1)

houses_more_than_4=house_data[house_data[:,0]>4]

average_price=np.mean(houses_more_than_4[:,5])

print("Average price of houses with more than 4 bedrooms: ",round(average_price,2))
```

OUTPUT:

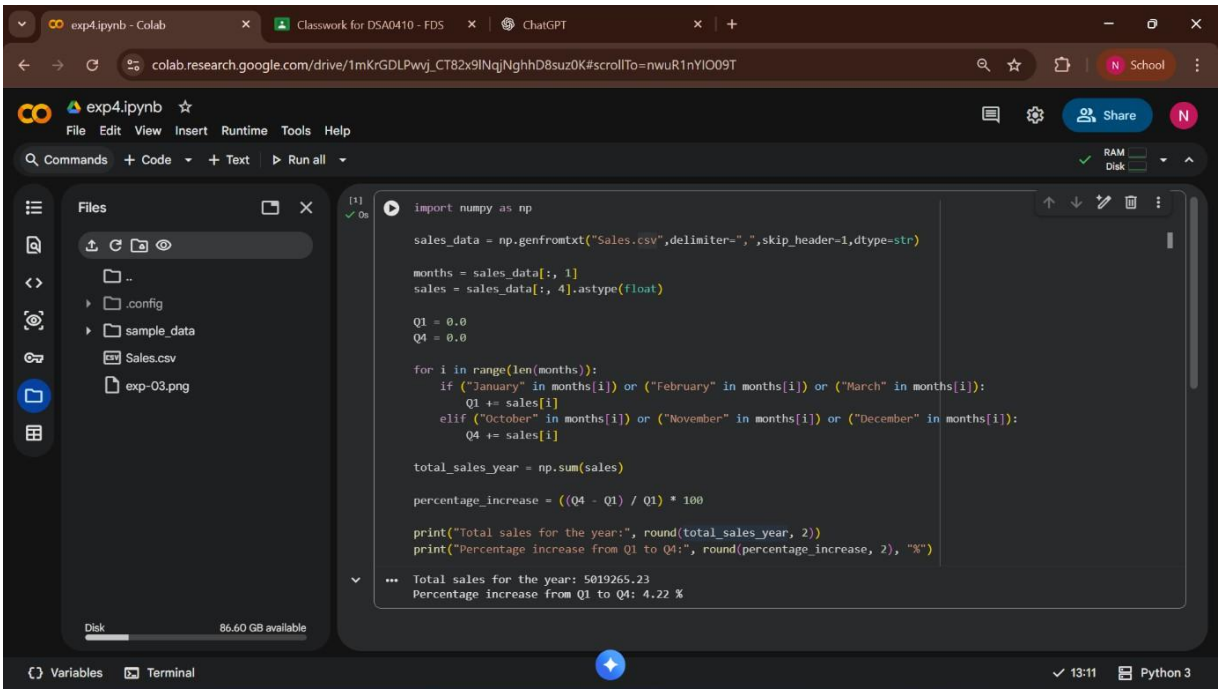


EXP 4:

PROGRAM :

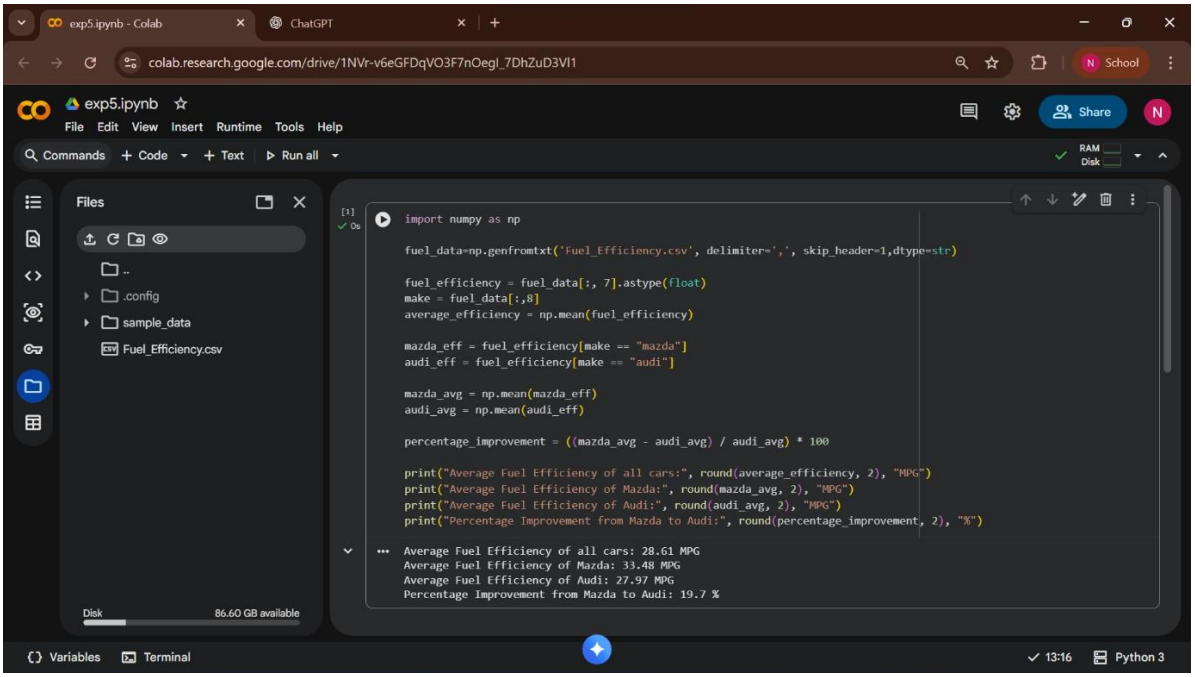
```
import numpy as np

sales_data = np.genfromtxt("Sales_data.csv",delimiter=",",skip_header=1,dtype=str)

months = sales_data[:, 1]

sales = sales_data[:, 4].astype(float)

Q1 = 0.0

Q4 = 0.0

for i in range(len(months)):
    if ("January" in months[i]) or ("February" in months[i]) or ("March" in months[i]):
        Q1 += sales[i]
    elif ("October" in months[i]) or ("November" in months[i]) or ("December" in months[i]):
        Q4 += sales[i]

total_sales_year = np.sum(sales)

percentage_increase = ((Q4 - Q1) / Q1) * 100

print("Total sales for the year:", round(total_sales_year, 2))

print("Percentage increase from Q1 to Q4:", round(percentage_increase, 2), "%")
```

OUTPUT:



EXP 5:

PROGRAM :

```
import numpy as np

fuel_data=np.genfromtxt('Fuel_data.csv', delimiter=',', skip_header=1,dtype=str)

fuel_efficiency = fuel_data[:, 7].astype(float)

make = fuel_data[:,8]

average_efficiency = np.mean(fuel_efficiency)

mazda_eff = fuel_efficiency[make == "mazda"]

audi_eff = fuel_efficiency[make == "audi"]

mazda_avg = np.mean(mazda_eff)

audi_avg = np.mean(audi_eff)

percentage_improvement = ((mazda_avg - audi_avg) / audi_avg) * 100

print("Average Fuel Efficiency of all cars:", round(average_efficiency, 2), "MPG")

print("Average Fuel Efficiency of Mazda:", round(mazda_avg, 2), "MPG")

print("Average Fuel Efficiency of Audi:", round(audi_avg, 2), "MPG")

print("Percentage Improvement from Mazda to Audi:", round(percentage_improvement, 2), "%")
```

OUTPUT: