```
#GE ASSIGNMENT 2

#1.>Write a program to create a PANDAS Data Series containing names of 10 students

# ⌄ Accept names of 10 students as input from the user and create a Pandas series:

import pandas as pd

print("\nINPUTING NAMES : \n")
students=[]

print("ENTER THE NAME OF STUDENTS: ")
for i in range(1,11):
    a=input()
    students.append(a)
print("\nSTUDENT LIST: \n")
Students_names=pd.Series(students)
print(Students_names)

print(".....")
```

```
INPUTING NAMES :

ENTER THE NAME OF STUDENTS:
HARSH
AKSHAT
MEHUL
DHRUB
JAMEEL
HARDICK
ISHAN
VIKAS
HARSHJEET
KUSH

STUDENT LIST:

0         HARSH
1        AKSHAT
2         MEHUL
3         DHRUB
4        JAMEEL
5       HARDICK
6         ISHAN
7         VIKAS
8     HARSHJEET
9          KUSH
dtype: object
```

```
# ⌄ Rename Index column of Pandas series with 'Student Roll Number' starting from 1001,1002, 1003... and so on

print("\nINDEX ROLL NUMBERS : \n")
RollNumber=[]
L=len(Students_names)
for i in range(0,L):
    RollNumber.append(100+i)
Students_names.index=RollNumber
print(Students_names)

print(".....................................................................................")
```

```
INDEX ROLL NUMBERS :

100          HARSH
101         AKSHAT
102          MEHUL
103          DHRUB
104         JAMEEL
105        HARDICK
106          ISHAN
107          VIKAS
108     HARSHJEET
109           KUSH
dtype: object
```

```
# ↓ Save Pandas data series created in .xlsx file, .csv file and .json file

Students_names.to_excel("StudentSeries.xlsx")
Students_names.to_csv("StudentSeries.csv")
Students_names.to_json("StudentSeries.json")

print(".....")
```

```
#.Extract and display information of a particular student using Roll Number (index):

print("\nDISPLAYING INFORMATION: \n")

print('Details of student with Roll Number: 106')
print(Students_names[102])

print(".....................................................................................")
```

```
DISPLAYING INFORMATION:

Details of student with Roll Number: 106
MEHUL
```

```
# ⌄ Sort Student names in alphabetical order:

print("\nASENDING ORDER NAMES: \n")

Students_names=Students_names.sort_values(ascending=True)
print(Students_names)
```

```
ASENDING ORDER NAMES:

101       AKSHAT
103        DHRUB
105      HARDICK
100        HARSH
108    HARSHJEET
106        ISHAN
104       JAMEEL
109         KUSH
102        MEHUL
107        VIKAS
dtype: object
```

```python
#.Add information of a new student into the Pandas series:

print("\nADDING NEW INFORMATION: \n")
Students_names[111]='ISHAN'
print(Students_names)


print(".....................................................................................")
```

```
ADDING NEW INFORMATION:

101        AKSHAT
103         DHRUB
105       HARDICK
100         HARSH
108     HARSHJEET
106         ISHAN
104        JAMEEL
109          KUSH
102         MEHUL
107         VIKAS
111         ISHAN
dtype: object
```

```
#. ✓ Remove information of a student of a given Roll Number:

print("\nREMOVING INFORMATION: \n")
Students_names=list(Students_names)
Students_names.remove('harsh')
Students_names= pd.Series(Students_names)
print(Students_names)

print(".....")
```

```
REMOVING INFORMATION:

0        AKSHAT
1         DHRUB
2       HARDICK
3     HARSHJEET
4        ISHAN
5        JAMEEL
6          KUSH
7         MEHUL
8         VIKAS
9         ISHAN
dtype: object
```

```python
#Write a program to create a PANDAS Data Series containing values of function Y= e**X
import pandas as pd
import numpy as np


#. Create the above shown Data Series Y=EXP(X)

print("\nSHOWING DATA: \n")
X = np.arange(0, 1.2, 0.2)
Y = np.exp(X)
series = pd.Series(Y)
print(series)

print(".....")
```

```
SHOWING DATA:


0    1.000000
1    1.221403
2    1.491825
3    1.822119
4    2.225541
5    2.718282
dtype: float64
```

```
#. ✓  Rename Index column with value of X
print("\nINDEX COLUMN WITH X: \n")
series = pd.Series(Y,index=X)
print(series)

print("..................................................................................")
```

INDEX COLUMN WITH X:

```
0.0    1.000000
0.2    1.221403
0.4    1.491825
0.6    1.822119
0.8    2.225541
1.0    2.718282
dtype: float64
```

```
#.Save Pandas data series created in .xlsx file, .csv file and .json file

series.to_excel("StudentSeries.xlsx")
series.to_csv("StudentSeries.csv")
series.to_json("StudentSeries.json")'''
```

```
#.Show Y=EXP(X) Vs. X through simple well labelled line plot:

import matplotlib.pyplot as plt

plt.plot(series.index, series.values)

plt.xlabel('X')
plt.ylabel('Y')
plt.title('Y = e^X')

plt.show()
print(".....")
```

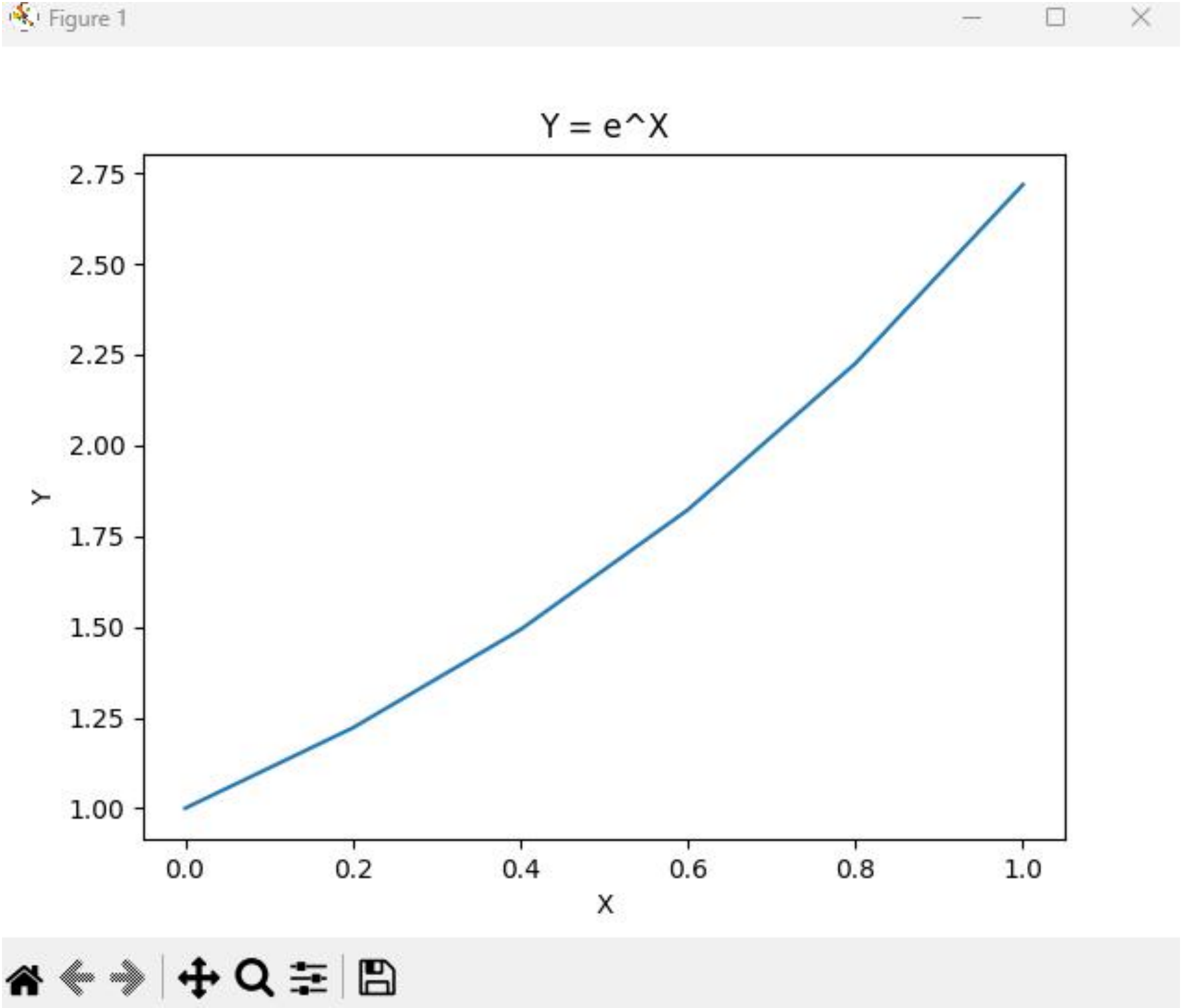
Figure 1
Y = e^X
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
Y
0.0
0.2
0.4
0.6
0.8
1.0
X

```
#.Save XY plot as .png file

series = pd.Series(Y, index=X)
plt.plot(series.index, series.values)

plt.xlabel('X')
plt.ylabel('Y')
plt.title('Y = e^X')
plt.savefig('exp-plot.png', dpi=300, bbox_inches='tight')
plt.show()
print(".....")
```

```python
#3.Write a program to create a PANDAS Data Series containing marks of 10 students in Subject1:
# - Create the above shown Data Series using single-dimensional python list:
print("\nDATA SERIES USING LIST\n")
import pandas as pd
marks = ['80', '78', '95', '72', '97','69', '88', '35', '99', '65',]
students_marks = pd.Series(marks)
print(students_marks)
print(".....")
```

```
DATA SERIES USING LIST

0     80
1     78
2     95
3     72
4     97
5     69
6     88
7     35
8     99
9     65
dtype: object
```

```python
# - Create the above shown Data Series using single-dimensional python dictionary:
print("\nDATA SERIES USING DICTIONARY\n")
import pandas as pd

marks = {'Student 1':'80','Student 2':'78', 'Student 3':'95', 'Student 4':'72','Student 5':'97','Student 6':'85','Stud

students_marks = pd.Series(marks)

students_marks.name = 'MARKS OF STUDENTS'

print('Marks of Students')
print(students_marks)

print(".....")
```

DATA SERIES USING DICTIONARY

```
Marks of Students
Student 1      80
Student 2      78
Student 3      95
Student 4      72
Student 5      97
Student 6      85
Student 7      79
Student 8      99
Student 9      75
Student 10     45
Name: MARKS OF STUDENTS, dtype: object
```

```python
#.Rename Index column with Student Names:
import pandas as pd
import numpy as np

marks = np.array(['80', '78', '95', '72', '97','69', '88', '35', '99', '65',])
student_names=['HARSH','MEHUL','AKSHAT','JAMEEL','DHRUB','ROHAN','HARDICK','ABHINAV','ISHAN','HARSHJEET']

students_marks = pd.Series(marks, index=student_names)

students_marks.index.name="NAMES"

print('\nMARKS OF STUDENTS\n')
print(students_marks)

print(".....................................................................................")
```

MARKS OF STUDENTS

NAMES	
HARSH	80
MEHUL	78
AKSHAT	95
JAMEEL	72
DHRUB	97
ROHAN	69
HARDICK	88
ABHINAV	35
ISHAN	99
HARSHJEET	65

dtype: object

```
# ⌄ Save Pandas data series created in .xlsx file, .csv file and .json file:

'''Students_marks.to_excel("StudentSeries.xlsx")
Students_marks.to_csv("StudentSeries.csv")
Students_marks.to_json("StudentSeries.json")
```

```
#. - Sort marks in SUBJECT1 in descending order:
print("\nSORTING MARKS\n")

students_marks=students_marks.sort_values(ascending=False)
print(students_marks)

print(".....")
```

SORTING MARKS

NAMES	
ISHAN	99
DHRUB	97
AKSHAT	95
HARDICK	88
HARSH	80
MEHUL	78
JAMEEL	72
ROHAN	69
HARSHJEET	65
ABHINAV	35

dtype: object

```
# ⬇ Draw a Bar plot comparing marks in SUBJECT1 scored by the students:

import matplotlib.pyplot as plt
marks = np.array(['80', '78', '95', '72', '97','69', '88', '35', '99', '65',])
students_marks = pd.Series(marks, index=student_names)
students_marks=students_marks.sort_values(ascending=True)
student_names=['HARSH','MEHUL','AKSHAT','JAMEEL','DHRUB','ROHAN','HARDICK','ABHINAV','ISHAN','HARSHJEET']


plt.bar(students_marks, student_names)

plt.title("MARKS OF STUDENTS")
plt.xlabel("MARKS OBTAINED")
plt.ylabel("NAME")

# Show the graph
plt.show()
```

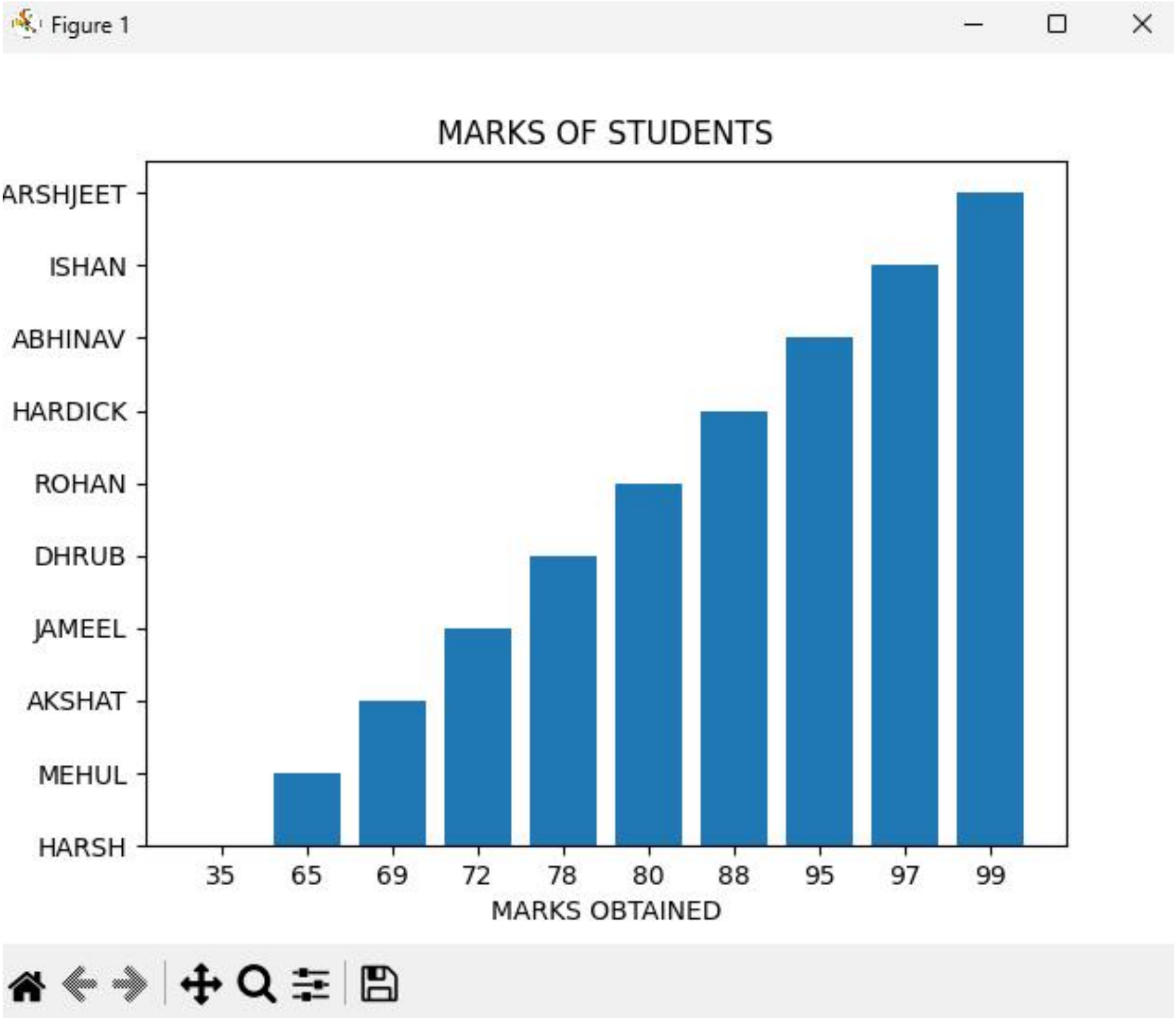
Figure 1
MARKS OF STUDENTS
ARSHJEET
ISHAN
ABHINAV
HARDICK
ROHAN
DHRUB
JAMEEL
AKSHAT
MEHUL
HARSH
35
65
69
72
78
80
88
95
97
99
MARKS OBTAINED