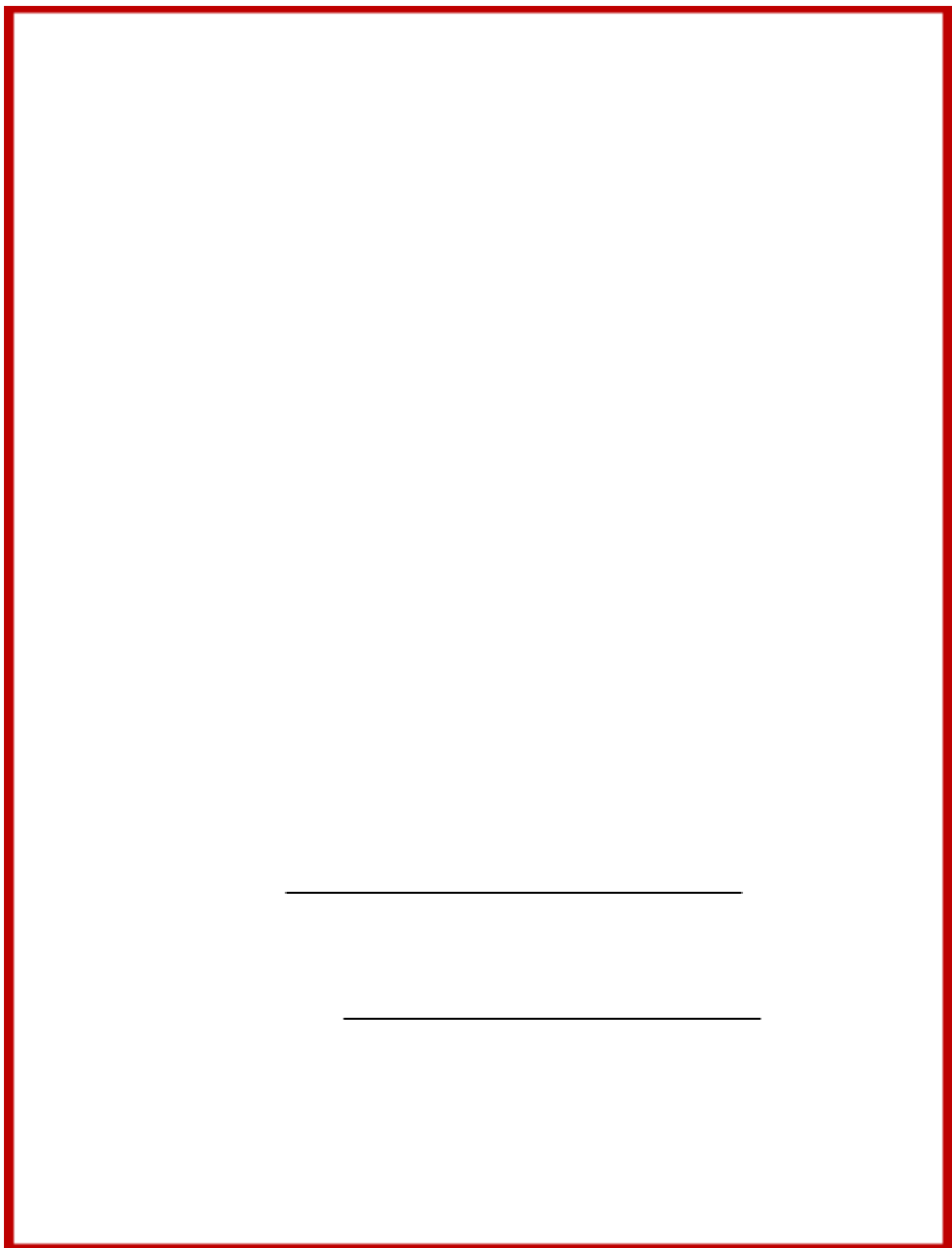
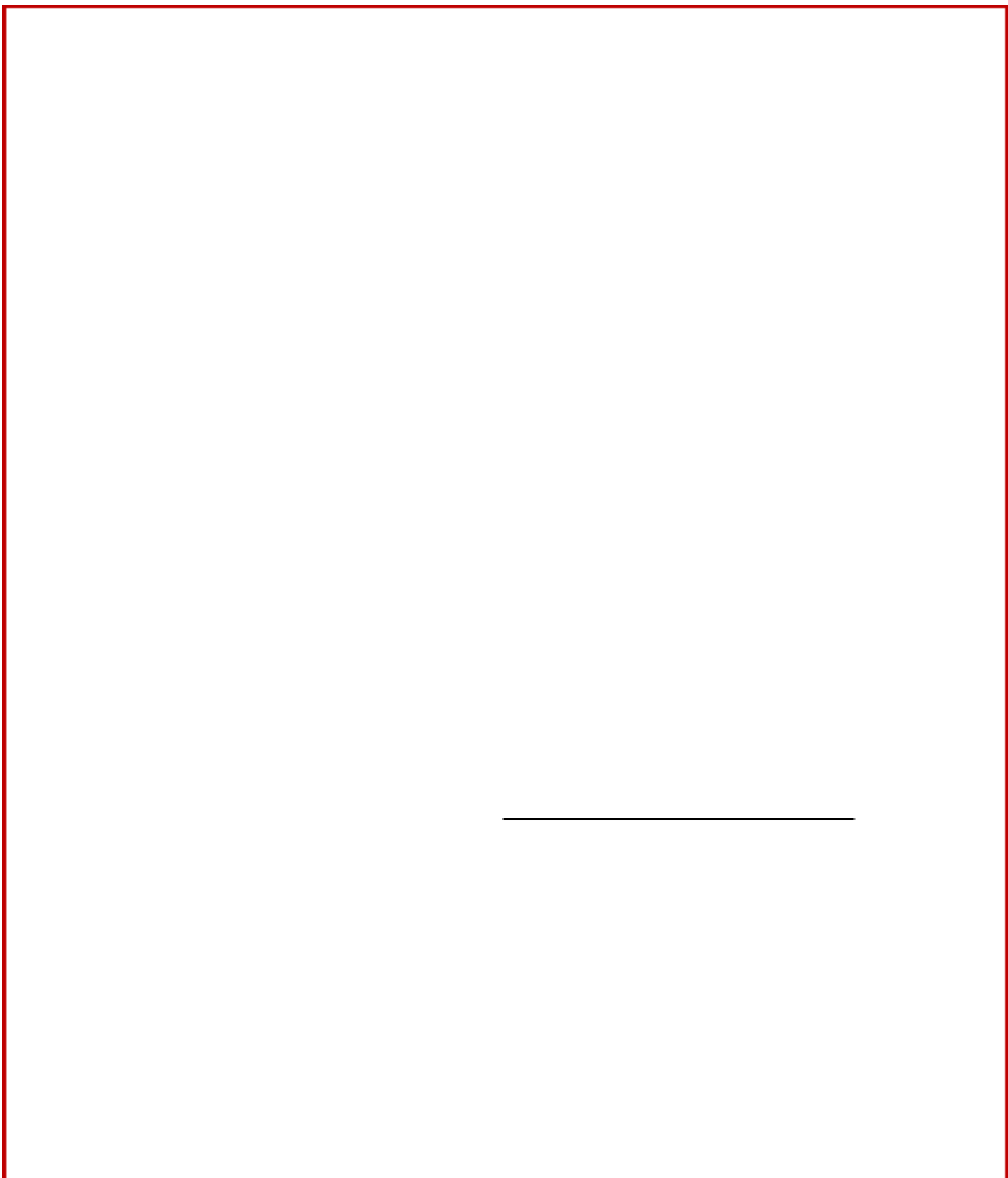




ALAKNANDA, NEW DELHI



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INTRODUCTION

HARDWARE & SOFTWARE REQUIREMENT

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SOURCE CODE

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Hardware & Software Requirement

Hardware Requirement

PC/Laptop/MacBook with
Intel core/i3/i5/i7 or any equivalent
With at least 2 GB RAM
10 MB free space on Hard Disk
LCD/LED

Operating System & Compiler

MS Windows/Ubuntu/MacOS

Python IDLE 3.x
OR
colab.research.google.com (gmail account)

and/or
MS- EXCEL
OR
OPEN OFFICE CALC

EMPLOYEE.CSV

EMPNO	NAME	GENDER	BASIC	DA	HRA	CCA	PF	TOTAL	NET
1	JOHN	M	5000	2500	1500	500	600	10100	9500
2	MOHAN	M	3000	1500	900	300	360	6060	5700
3	SOHAN	M	2000	1000	600	200	240	4040	3800
4	RADHA	F	5000	2500	1500	500	600	10100	9500
5	GEETA	F	6000	3000	1800	600	720	12120	11400
6	SIMRAN	F	2500	1250	750	250	300	5050	4750
7	PRIYA	F	3500	1750	1050	350	420	7070	6650
8	SIMMI	F	8000	4000	2400	800	960	16160	15200
9	PREM	M	5000	2500	1500	500	600	10100	9500
10	ASHWIN	M	6000	3000	1800	600	720	12120	11400


```

import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from tabulate import tabulate

while True:
    username=input("Enter User Name : ")
    password=input("\nEnter Password : ")
    if username == "deepak" and password== "sharma":
        print("\nWelcome to EMPLOYEES MANAGEMENT SYSTEM\n")
        break
    else:
        print("Invalid Username or Password")

while True:
    print('\t\t *** Employees Data Analysis Project *** ')
    print('\n\t\t\t1. Data Analysis')
    print('\n\t\t\t2. Data Visualization')
    print('\n\t\t\t3. Data Operations')
    print('\n\t\t\t4. Exit\n')
    choice=int(input('Select your Choice [1-4] : '))
    if choice==1:
        while True:
            print('\t*** EMPLOYEES MANAGEMENT SYSTEM ***\n')
            print('*'*50)
            print("\n\t\t1. Show Employees Data")
            print("\n\t\t2. Show Data Name-Wise")
            print("\n\t\t3. Show first nth records")
            print("\n\t\t4. Show last nth records")
            print("\n\t\t5. Display employee with highest Salary")
            print("\n\t\t6. Display employee with lowest Salary")

```



```

print("\n\t\t7. For Exit the program\n\n")
choice = int(input("Enter Your Choice [1-7] : "))
if choice == 1:
    print("\nEmployees Data :\n\n")
    df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv')

print(tabulate(df,showindex=False,headers=['EMPNO','NAME','GENDER','BASIC','DA','
HRA','CCA','PF','TOTAL','NET'],tablefmt='pretty'))

    elif choice == 2:
        print("\nEmployees Data Name - Wise :\n\n")
        df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv',usecols =
['NAME','GENDER','BASIC','DA','HRA','CCA','PF','TOTAL','NET'])
        df = df.sort_values(by='NAME')
print(tabulate(df,showindex=False,headers=['NAME','GENDER','BASIC','DA','HRA','CC
A','PF','TOTAL','NET'],tablefmt='pretty'))

    elif choice == 3:
        print("\nFirst N Rows \n\n")
        df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv')
        df = df.sort_values(by='EMPNO')
        nth = int(input("How many rows to display? : "))

print(tabulate(df.head(nth),showindex=False,headers=['EMPNO','NAME','GENDER','BAS
IC','DA','HRA','CCA','PF','TOTAL','NET'],tablefmt='pretty'))

    elif choice == 4:
        print("\nLast N Rows \n\n")

```

```

df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv')
df = df.sort_values(by='EMPNO')
nth = int(input("How many rows to display? : "))
print(tabulate(df.tail(nth),showindex=False,headers=['EMPNO','NAME','GENDER','BASI
C','DA','HRA','CCA','PF','TOTAL','NET'],tablefmt='pretty'))
elif choice == 5:
    print("\nDisplay employee with highest Salary :\n\n")
    df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv')
    df = df.sort_values(by='NET')
    print(tabulate(df.tail(1),showindex=False,headers=['EMPNO','NAME','GENDER','BASIC',
'DA','HRA','CCA','PF','TOTAL','NET'],tablefmt='pretty'))
elif choice==6:
    print("\nDisplay employee with highest Salary :\n\n")
    df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv')
    df = df.sort_values(by='NET')

print(tabulate(df.head(1),showindex=False,headers=['EMPNO','NAME','GENDER','BASI
C','DA','HRA','CCA','PF','TOTAL','NET'],tablefmt='pretty'))
elif choice==7:
    print('Exit to main menu.....')
    break
else:
    print('Invalid Choice, Retry 1/2/3/4/5/6/7')
elif choice==2:
    while True:
        print('Data Visualization')

```

```

print('\n\t1. Plot Line Chart (Name and Basic Salary)')
print('\n\t2. Plot Bar Chart Vertical(Name and Basic Salary)')
print('\n\t3. Plot Bar Horizontal Chart (Name and Basic Salary)')
print('\n\t4. Plot Histogram (Basic Salary)')
print('\n\t5. Exit\n')
choic=int(input('Select your Choice [1-4] : '))

if choic==1:
    print('Line Chart')
    df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv')
    df['NAME'] =
['JOHN','MOHAN','SOHAN','RADHA','GEETA','SIMRAN','PRIYA','SIMMI','PREM','AS
HWIN']

    NAME=df["NAME"]
    BASIC=df["BASIC"]
    plt.ylabel("Basic Salary ----->")
    plt.xlabel("Name ----->")
    plt.title("*** Name and Basic Salary ***")
    plt.plot(NAME,BASIC, color='r')
    plt.grid()
    plt.savefig('emp_line.pdf')
    plt.show()
elif choic==2:
    print('Bar Chart')
    df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv')

```

```
df['NAME'] =  
['JOHN','MOHAN','SOHAN','RADHA','GEETA','SIMRAN','PRIYA','SIMMI','PREM','AS  
HWIN']
```

```
NAME=df["NAME"]  
BASIC=df["BASIC"]  
plt.ylabel("BASIC")  
plt.title("*** Name and Basic Salary ***")  
plt.bar(NAME,BASIC, color='r')  
plt.grid()  
plt.savefig('emp_bar.pdf')  
plt.show()
```

```
elif choic==3:
```

```
print('Bar Chart')  
df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
```

```
IP\\aastha_employees.csv')
```

```
df['NAME'] =  
['JOHN','MOHAN','SOHAN','RADHA','GEETA','SIMRAN','PRIYA','SIMMI','PREM','AS  
HWIN']
```

```
NAME=df["NAME"]  
BASIC=df["BASIC"]  
plt.xlabel("Basic Salary")  
plt.title("Name and Basic Salary")  
plt.barh(NAME,BASIC, color='r')  
plt.grid()  
plt.savefig('emp_barh.pdf')  
plt.show()
```

```
elif choic==4:
```

```
print('Histogram')
```

```

df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv')
df['NAME'] = ['JOHN', 'MOHAN','SOHAN','RADHA','GEETA',
'SIMRAN','PRIYA','SIMMI','PREM','ASHWIN']
NAME=df["NAME"]
BASIC=df["BASIC"]
plt.title("Name and Basic Salary")
plt.hist(BASIC, color='r')
plt.grid()
plt.savefig('emp_hist.pdf')
plt.show()

```

```

elif choic==5:
    print('Exit to main menu.....')
    break
else:
    print('Invalid choice')

```

```

elif choice==3:
    while True:
        print('Data Operations')
        print('\n\t1. Add a row to Dataframe')
        print('\n\t2. Remove a row to Dataframe')
        print('\n\t3. Add a Column to Dataframe')
        print('\n\t4. Remove a Column to Dataframe')
        print('\n\t5. Exit\n')
        choic=int(input('Select your Choice [1-5] : '))
        if choic==1:

```

```

df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv')

```

```

EMPNO = int(input('Employee No : '))
NAME= input('Employee Name : ')
GENDER = input('Gender [M/F/T] : ')
BASIC= int(input('Basic Salary : '))
DA=.50*BASIC
HRA=.30*BASIC
CCA=.10*BASIC
PF=.12*BASIC
TOTAL=BASIC + DA + CCA + PF
NET = TOTAL - PF
cr=df['EMPNO'].count()
df1=pd.DataFrame({"EMPNO":EMPNO,"NAME":NAME,"GENDER":GENDER,
"BASIC":BASIC,"DA":DA,"HRA":HRA, "CCA":CCA,"PF":PF,"TOTAL":TOTAL,
"NET":NET}, index=[cr])
df=df.append(df1)
print(tabulate(df,showindex=False,headers=['EMPNO','NAME','GENDER','BASIC','DA','
HRA','CCA','PF','TOTAL','NET'],tablefmt='pretty'))
print('Record added Successfully.....')

elif choic==2:
df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv')

print(tabulate(df,showindex=False,headers=['EMPNO','NAME','GENDER','BASIC','DA','
HRA','CCA','PF','TOTAL','NET'],tablefmt='pretty'))
r=int(input("Enter the Employee Number to be removed : "))
df= df.drop(r-1)
print(tabulate(df,showindex=False,headers=['EMPNO','NAME','GENDER','BASIC','DA','
HRA','CCA','PF','TOTAL','NET'],tablefmt='pretty'))

```

```

        print('Record deleted Successfully.....')
    elif choic==3:
        print('Add a Column')
        df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv')
        print("Add Column DEPARTMENT : ")
        df['DEPARTMENT']=['HR','SALES','FINANCE','HR','SALES','FINANCE','HR','SALES','
FINANCE','SALES']
        print(tabulate(df,headers=['EMPNO','NAME','GENDER','BASIC','DA','HRA','CCA','PF','T
OTAL','NET','DEPARTMENT'],tablefmt='pretty'))
        print('Column added Successfully.....')
    elif choic==4:
        print('Remove a Column')
        df=pd.read_csv('D:\\Deepak\\2023-24\\XII IP\\Projects
IP\\aastha_employees.csv')
        C=input("Enter the Column Name to remove : ")
        C=C.upper()
        df=df.drop(C,axis=1)
        print(tabulate(df,tablefmt='pretty'))
        print('Column removed Successfully.....')
    elif choic==5:
        print('Exit to main menu.....')
        break
    else:
        print('Invalid choice')
elif choice==4:
    print('Exit from menu.....')
    break
else:

```

```
print('Invalid choice')
```


OUTPUT SCREENS

Enter User Name : deepak

Enter Password : sharma

Welcome to EMPLOYEES MANAGEMENT SYSTEM

*** Employees Data Analysis Project ***

1. Data Analysis
2. Data Visualization
3. Data Operations
4. Exit

Select your Choice [1-4] : 1

*** EMPLOYEES MANAGEMENT SYSTEM ***

1. Show Employees Data
2. Show Data Name-Wise
3. Show first nth records
4. Show last nth records
5. Display employee with highest Salary
6. Display employee with lowest Salary
7. For Exit the program

Enter Your Choice [1-7] : 1

Employees Data :

EMPNO	NAME	GENDER	BASIC	DA	HRA	CCA	PF	TOTAL	NET
1	JOHN	M	5000	2500	1500	500	600	10100	9500
2	MOHAN	M	3000	1500	900	300	360	6060	5700
3	SOHAN	M	2000	1000	600	200	240	4040	3800
4	RADHA	F	5000	2500	1500	500	600	10100	9500
5	GEETA	F	6000	3000	1800	600	720	12120	11400
6	SIMRAN	F	2500	1250	750	250	300	5050	4750
7	PRIYA	F	3500	1750	1050	350	420	7070	6650
8	SIMMI	F	8000	4000	2400	800	960	16160	15200
9	PREM	M	5000	2500	1500	500	600	10100	9500
10	ASHWIN	M	6000	3000	1800	600	720	12120	11400

*** EMPLOYEES MANAGEMENT SYSTEM ***

1. Show Employees Data
2. Show Data Name-Wise
3. Show first nth records
4. Show last nth records
5. Display employee with highest Salary
6. Display employee with lowest Salary
7. For Exit the program

Enter Your Choice [1-8] : 2

Employees Data Name - Wise :

NAME	GENDER	BASIC	DA	HRA	CCA	PF	TOTAL	NET
ASHWIN	M	6000	3000	1800	600	720	12120	11400
GEETA	F	6000	3000	1800	600	720	12120	11400
JOHN	M	5000	2500	1500	500	600	10100	9500
MOHAN	M	3000	1500	900	300	360	6060	5700
PREM	M	5000	2500	1500	500	600	10100	9500
PRIYA	F	3500	1750	1050	350	420	7070	6650
RADHA	F	5000	2500	1500	500	600	10100	9500
SIMMI	F	8000	4000	2400	800	960	16160	15200
SIMRAN	F	2500	1250	750	250	300	5050	4750
SOHAN	M	2000	1000	600	200	240	4040	3800

EMPNO	NAME	GENDER	BASIC	DA	HRA	CCA	PF	TOTAL	NET
1	JOHN	M	5000	2500	1500	500	600	10100	9500
2	MOHAN	M	3000	1500	900	300	360	6060	5700
3	SOHAN	M	2000	1000	600	200	240	4040	3800
4	RADHA	F	5000	2500	1500	500	600	10100	9500

EMPNO	NAME	GENDER	BASIC	DA	HRA	CCA	PF	TOTAL	NET
8	SIMMI	F	8000	4000	2400	800	960	16160	15200
9	PREM	M	5000	2500	1500	500	600	10100	9500
10	ASHWIN	M	6000	3000	1800	600	720	12120	11400

*** EMPLOYEES MANAGEMENT SYSTEM ***

1. Show Employees Data
2. Show Data Name-Wise
3. Show first nth records
4. Show last nth records
5. Display employee with highest Salary
6. Display employee with lowest Salary
7. For Exit the program

Enter Your Choice [1-8] : 5

Display employee with highest Salary :

EMPNO	NAME	GENDER	BASIC	DA	HRA	CCA	PF	TOTAL	NET
8	SIMMI	F	8000	4000	2400	800	960	16160	15200

*** EMPLOYEES MANAGEMENT SYSTEM ***

1. Show Employees Data
2. Show Data Name-Wise
3. Show first nth records
4. Show last nth records
5. Display employee with highest Salary
6. Display employee with lowest Salary
7. For Exit the program

Enter Your Choice [1-8] : 6

Display employee with lowest Salary :

EMPNO	NAME	GENDER	BASIC	DA	HRA	CCA	PF	TOTAL	NET
3	SOHAN	M	2000	1000	600	200	240	4040	3800

*** EMPLOYEES MANAGEMENT SYSTEM ***

1. Show Employees Data
2. Show Data Name-Wise
3. Show first nth records
4. Show last nth records
5. Display employee with highest Salary
6. Display employee with lowest Salary
7. For Exit the program

Enter Your Choice [1-8] : 7

Exit to Main Menu.....

*** Employees Data Analysis Project ***

1. Data Analysis
2. Data Visualization
3. Data Operations
4. Exit

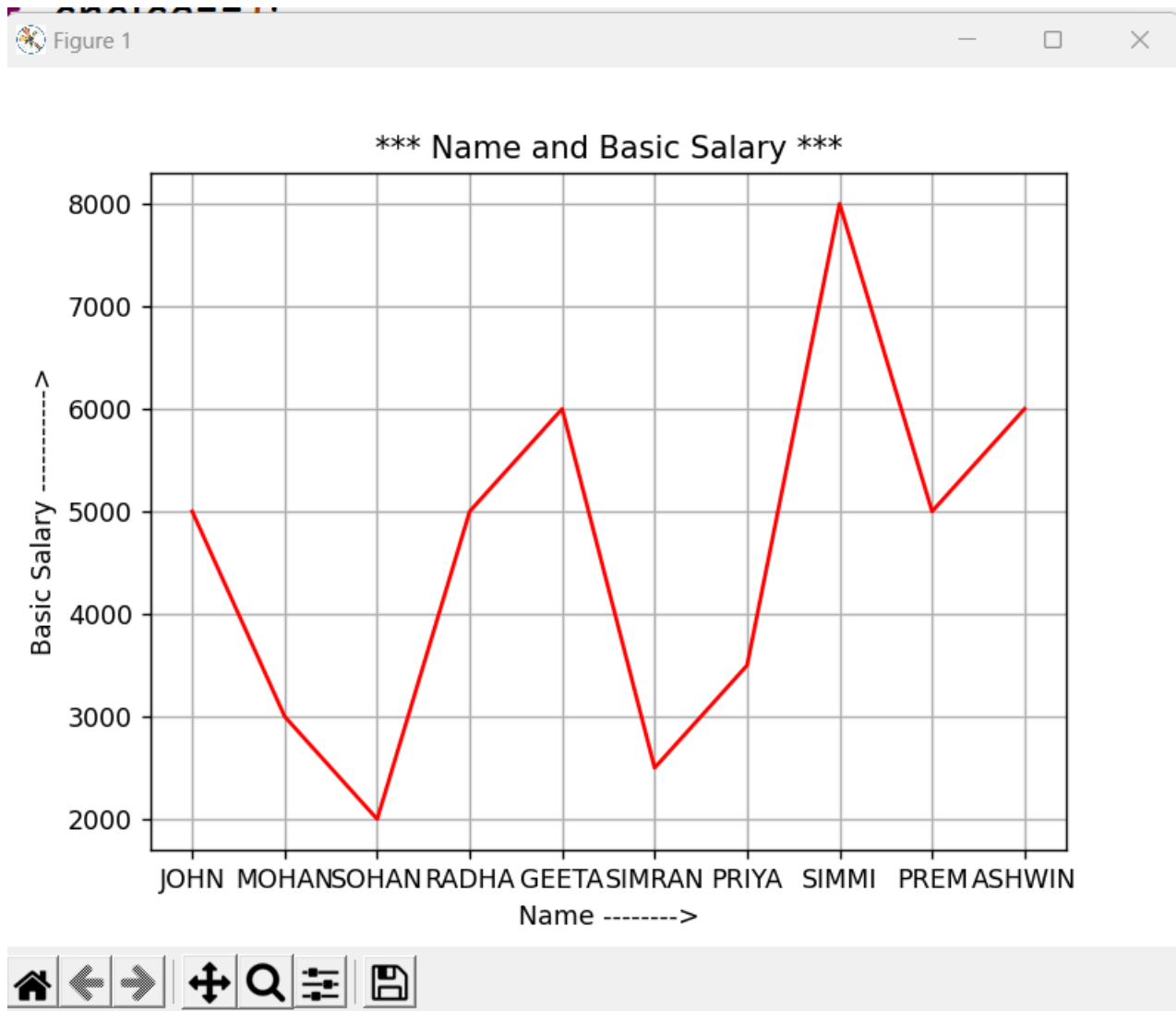
Select your Choice [1-4] : 2

Data Visualization

1. Plot Line Chart (Name and Basic Salary)
2. Plot Bar Chart Vertical (Name and Basic Salary)
3. Plot Bar Horizontal Chart (Name and Basic Salary)
4. Plot Histogram (Basic Salary)
5. Exit

Select your Choice [1-4] : 1

Line Chart

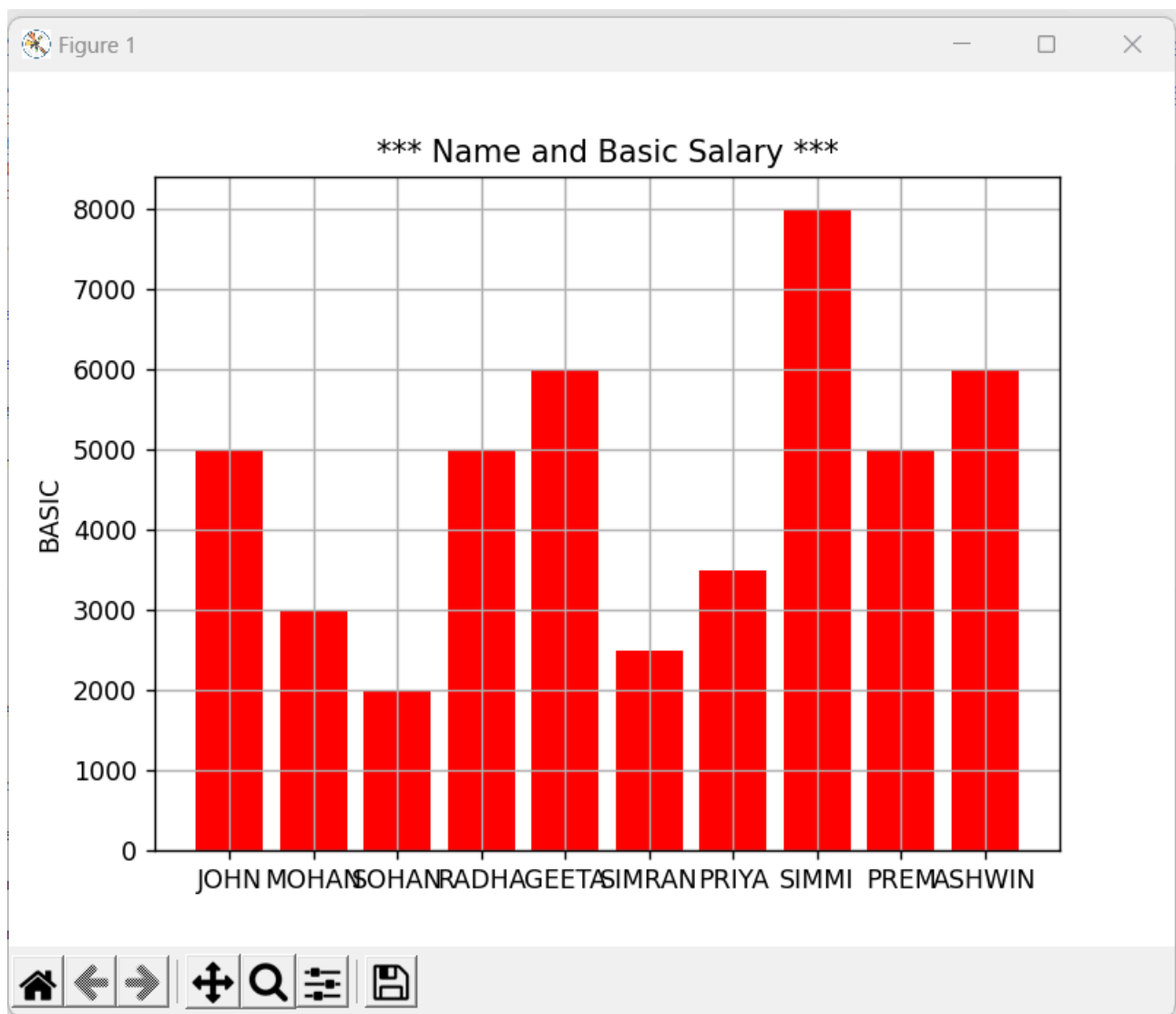


Data Visualization

1. Plot Line Chart (Name and Basic Salary)
2. Plot Bar Chart Vertical (Name and Basic Salary)
3. Plot Bar Horizontal Chart (Name and Basic Salary)
4. Plot Histogram (Basic Salary)
5. Exit

Select your Choice [1-4] : 2

Bar Chart

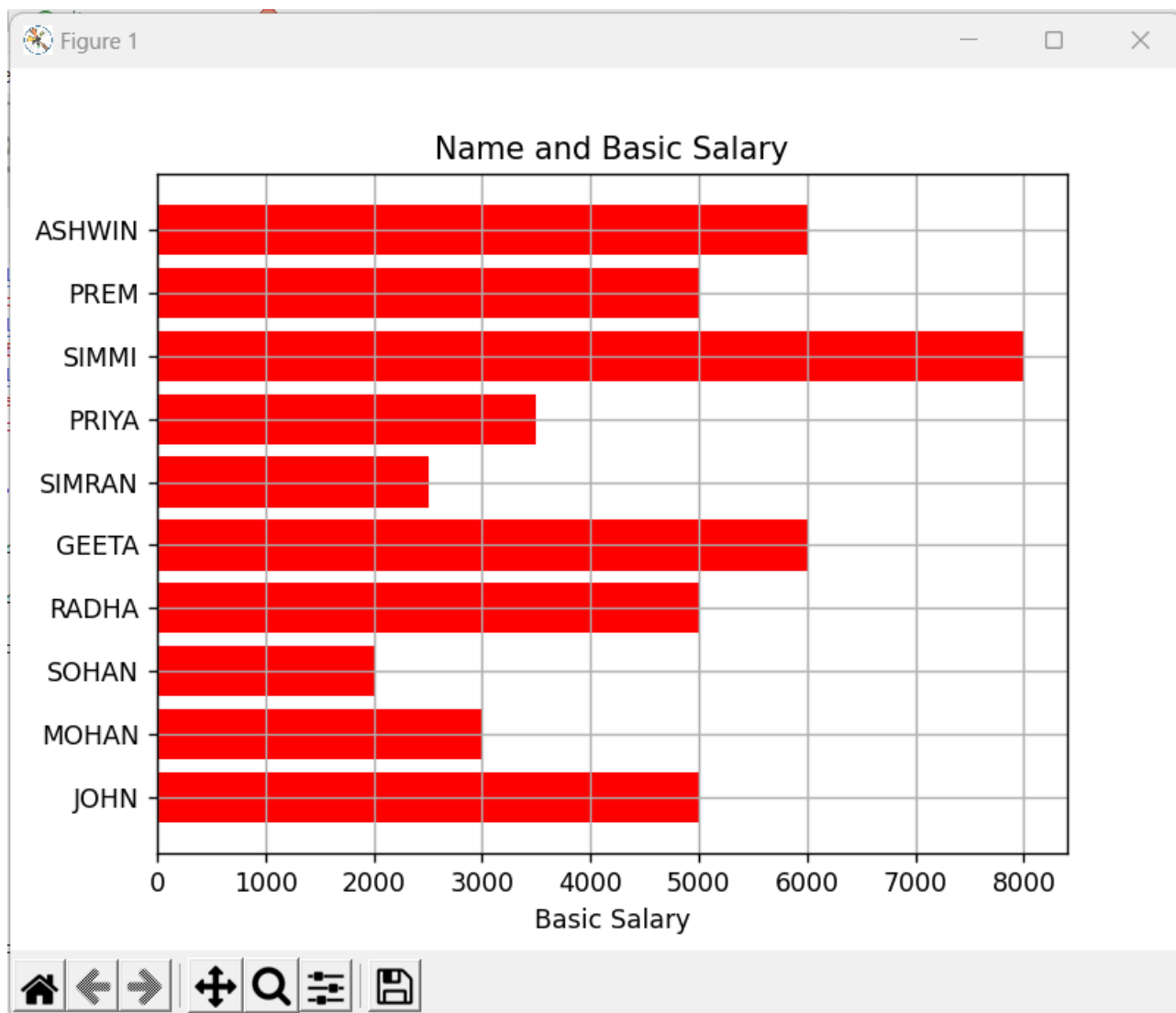


Data Visualization

1. Plot Line Chart (Name and Basic Salary)
2. Plot Bar Chart Vertical (Name and Basic Salary)
3. Plot Bar Horizontal Chart (Name and Basic Salary)
4. Plot Histogram (Basic Salary)
5. Exit

Select your Choice [1-4] : 3

Bar Chart

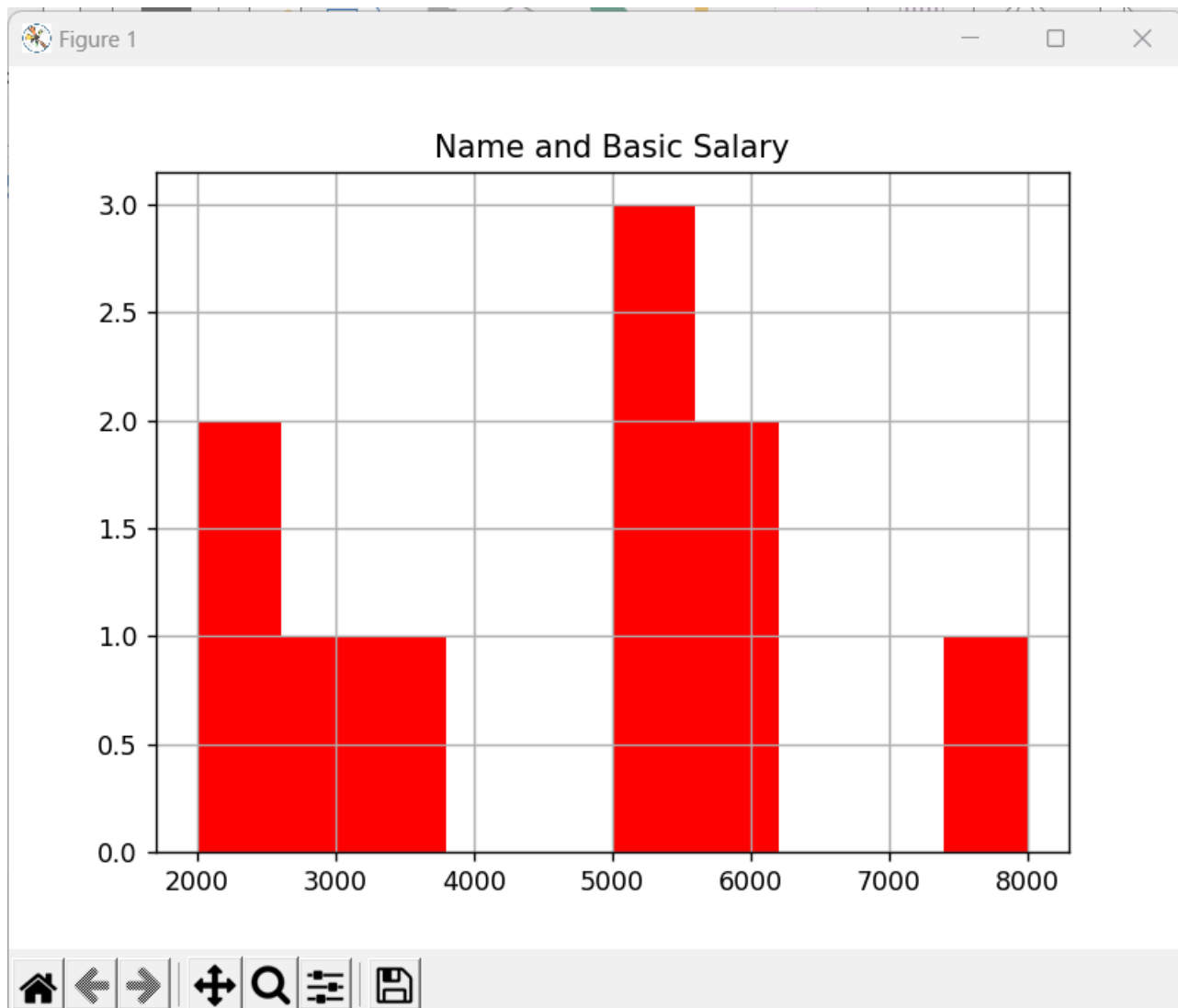


Data Visualization

1. Plot Line Chart (Name and Basic Salary)
2. Plot Bar Chart Vertical (Name and Basic Salary)
3. Plot Bar Horizontal Chart (Name and Basic Salary)
4. Plot Histogram (Basic Salary)
5. Exit

Select your Choice [1-4]: 4

Histogram



Welcome to EMPLOYEES MANAGEMENT SYSTEM

*** Employees Data Analysis Project ***

1. Data Analysis
2. Data Visualization
3. Data Operations
4. Exit

Select your Choice [1-4] : 3

Data Operations

1. Add a row to Dataframe
2. Remove a row to Dataframe
3. Add a Column to Dataframe
4. Remove a Column to Dataframe
5. Exit

Select your Choice [1-5] : 1

Employee No : 101

Employee Name : Rajesh

Gender [M/F/T] : M

Basic Salary : 60000

EMPNO	NAME	GENDER	BASIC	DA	HRA	CCA	PF	TOTAL	NET
1	JOHN	M	5000	2500.0	1500.0	500.0	600.0	10100.0	9500.0
2	MOHAN	M	3000	1500.0	900.0	300.0	360.0	6060.0	5700.0
3	SOHAN	M	2000	1000.0	600.0	200.0	240.0	4040.0	3800.0
4	RADHA	F	5000	2500.0	1500.0	500.0	600.0	10100.0	9500.0
5	GEETA	F	6000	3000.0	1800.0	600.0	720.0	12120.0	11400.0
6	SIMRAN	F	2500	1250.0	750.0	250.0	300.0	5050.0	4750.0
7	PRIYA	F	3500	1750.0	1050.0	350.0	420.0	7070.0	6650.0
8	SIMMI	F	8000	4000.0	2400.0	800.0	960.0	16160.0	15200.0
9	PREM	M	5000	2500.0	1500.0	500.0	600.0	10100.0	9500.0
10	ASHWIN	M	6000	3000.0	1800.0	600.0	720.0	12120.0	11400.0
101	Rajesh	M	60000	30000.0	18000.0	6000.0	7200.0	103200.0	96000.0

Record added Successfully.....

Data Operations

1. Add a row to Dataframe
2. Remove a row to Dataframe
3. Add a Column to Dataframe
4. Remove a Column to Dataframe
5. Exit

Select your Choice [1-5] : 2

EMPNO	NAME	GENDER	BASIC	DA	HRA	CCA	PF	TOTAL	NET
1	JOHN	M	5000	2500	1500	500	600	10100	9500
2	MOHAN	M	3000	1500	900	300	360	6060	5700
3	SOHAN	M	2000	1000	600	200	240	4040	3800
4	RADHA	F	5000	2500	1500	500	600	10100	9500
5	GEETA	F	6000	3000	1800	600	720	12120	11400
6	SIMRAN	F	2500	1250	750	250	300	5050	4750
7	PRIYA	F	3500	1750	1050	350	420	7070	6650
8	SIMMI	F	8000	4000	2400	800	960	16160	15200
9	PREM	M	5000	2500	1500	500	600	10100	9500
10	ASHWIN	M	6000	3000	1800	600	720	12120	11400

Enter the Employee Number to be removed : 3

EMPNO	NAME	GENDER	BASIC	DA	HRA	CCA	PF	TOTAL	NET
1	JOHN	M	5000	2500	1500	500	600	10100	9500
2	MOHAN	M	3000	1500	900	300	360	6060	5700
4	RADHA	F	5000	2500	1500	500	600	10100	9500
5	GEETA	F	6000	3000	1800	600	720	12120	11400
6	SIMRAN	F	2500	1250	750	250	300	5050	4750
7	PRIYA	F	3500	1750	1050	350	420	7070	6650
8	SIMMI	F	8000	4000	2400	800	960	16160	15200
9	PREM	M	5000	2500	1500	500	600	10100	9500
10	ASHWIN	M	6000	3000	1800	600	720	12120	11400

Record deleted Successfully.....

Add a Column

Add Column DEPARTMENT :

+---+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+												
EMPNO	NAME	GENDER	BASIC	DA	HRA	CCA	PF	TOTAL	NET	DEPARTMENT		
0	1	JOHN	M	5000	2500	1500	500	600	10100	9500	HR	
1	2	MOHAN	M	3000	1500	900	300	360	6060	5700	SALES	
2	3	SOHAN	M	2000	1000	600	200	240	4040	3800	FINANCE	
3	4	RADHA	F	5000	2500	1500	500	600	10100	9500	HR	
4	5	GEETA	F	6000	3000	1800	600	720	12120	11400	SALES	
5	6	SIMRAN	F	2500	1250	750	250	300	5050	4750	FINANCE	
6	7	PRIYA	F	3500	1750	1050	350	420	7070	6650	HR	
7	8	SIMMI	F	8000	4000	2400	800	960	16160	15200	SALES	
8	9	PREM	M	5000	2500	1500	500	600	10100	9500	FINANCE	
9	10	ASHWIN	M	6000	3000	1800	600	720	12120	11400	SALES	
+---+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+												

Column added Successfully.....

Data Operations

1. Add a row to Dataframe
2. Remove a row to Dataframe
3. Add a Column to Dataframe
4. Remove a Column to Dataframe
5. Exit

Select your Choice [1-5] : 4

Remove a Column

Enter the Column Name to remove : GENDER

+---+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+												
0	1	JOHN	5000	2500	1500	500	600	10100	9500			
1	2	MOHAN	3000	1500	900	300	360	6060	5700			

2	3	SOHAN	2000	1000	600	200	240	4040	3800
3	4	RADHA	5000	2500	1500	500	600	10100	9500
4	5	GEETA	6000	3000	1800	600	720	12120	11400
5	6	SIMRAN	2500	1250	750	250	300	5050	4750
6	7	PRIYA	3500	1750	1050	350	420	7070	6650
7	8	SIMMI	8000	4000	2400	800	960	16160	15200
8	9	PREM	5000	2500	1500	500	600	10100	9500
9	10	ASHWIN	6000	3000	1800	600	720	12120	11400

+---+---+-----+-----+-----+-----+-----+-----+-----+-----+

Column removed Successfully.....

Data Operations

1. Add a row to Dataframe
2. Remove a row to Dataframe
3. Add a Column to Dataframe
4. Remove a Column to Dataframe
5. Exit

Select your Choice [1-5] : 5

Exit to main menu.....

*** Employees Data Analysis Project ***

1. Data Analysis
2. Data Visualization
3. Data Operations
4. Exit

Select your Choice [1-4] : 4

Exit from menu.....

We took the information for our project report from the following sources:

Reference books:

1. Informatics Practices by Sumita Arora.
2. Complete reference with Python
3. Data Analysis-Python
4. NCERT Text Book

Websites:

<https://www.python.org.in>

<https://www.google.com>

<https://www.cbseacademic.nic.in>

<https://www.Kaggle.com>