CSV DATA:

EMPNO	ENAME	DESIGNA	SALARY	HRA	DA	TOT_SAL
E001	Robert	Manager	20000	5000	3000	28000
E002	Scarlett	Clerk	14000	4000	2000	20000
E003	Chris	Clerk	14000	4000	2000	20000
E004	Mark	Manager	20000	5000	3000	28000
E005	Jeremy	Analyst	16000	6000	2000	24000
E006	Elizabeth	Analyst	16000	6000	2000	24000
E007	Tom	President	14000	10000	4000	28000
E008	Chadwick	Manager	20000	5000	3000	28000
E009	Emma	Clerk	14000	4000	2000	20000
E010	Benedict	Clerk	14000	4000	2000	20000

Coding:

```
import pandas as pd
import matplotlib.pyplot as plt
# Main Menu
while(True):
print("Main Menu")
print("1. Fetch data")
print("2. Dataframe Statistics")
print("3. Display Records")
print("4. Working on Records")
print("5. Working on Columns")
   print("6. Search specific row/column")
print("7. Data Visualization")
print("8. Data analystics")
print("9. Exit")
ch=int(input("Enter your choice"))
if ch==1:
      embase=pd.read_csv("C:/Users/Desktop/Work/Book2.csv",
      index_col=0)
elif ch==2:
while (True):
print("Dataframe Statistics Menu")
print("1. Display the Transpose")
         print("2. Display all column names")
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 print("3. Display the indexes")
print("4. Display the shape")
print("5. Display the dimension")
print("6. Display the data types of all columns")
print("7. Display the size")
print("8. Exit")
ch2=int(input("Enter choice"))
if ch2==1:
print(embase.T)
elif ch2==2:
print(embase.columns)
elif ch2==3:
print(embase.index)
elif ch2==4:
print(embase.shape)
elif ch2==5:
print(embase.ndim)
elif ch2==6:
print(embase.dtypes)
elif ch2==7:
print(embase.size)
elif ch2==8:
break
elif ch==3:
while(True):
print("Display Records Menu")
print("1. Top 5 Resords")
print("2. Bottom 5 Records")
print("3. Specific number of records from the top")
print("4. Specific number of records from the bottom")
print("5. Details of a specific Employee Code")
print("6. Display details of all Employees")
print("7. Exit")
ch3=int(input("Enter choice"))
if ch3==1:
print(embase.head())
elif ch3==2:
print(embase.tail())
elif ch3==3:
n=int(input("Enter how many records you want to display from the top"))
print(embase.head(n))
elif ch3==4:
        n=int(input("Enter how many records you want to display from the bottom"))
print(embase.tail(n))
elif ch3==5:
st=input("Enter the employee Code for which you want to see the details")
print(embase.loc[st])
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 elif ch3==6:
print("Employee Management of HCL.ltd of year 2023-2024")
print(embase)
elif ch3==7:
break
elif ch==4:
while(True):
print("Working on Records Menu")
print("1. Insert a specific Employee record")
print("2. Delete a specific Employee record")
print("3. Update a specific Employee record")
print("4. Exit")
ch4=int(input("Enter choice"))
if ch4==1:
a=input("Enter Employee Code")
b=eval(input("Enter Employee Name"))
c=eval(input("Enter Employee Designation"))
d=eval(input("Enter Employee Salary"))
e=eval(input("Enter Employee's HRA amount"))
f=eval(input("Enter Employee's DA amount"))
embase.loc[a]=[b,c,d,e,f]
print("Data successfully inserted")
elif ch4==2:
a=input("Enter EMPNO whose record is to be deleted")
embase.drop([a],inplace=True)
print("Data successfully deleted")
elif ch4==3:
        a=input("Enter Employee Code whose data needs to be updated")
b=eval(input("Enter Employee Name"))
c=eval(input("Enter Employee Designation"))
d=eval(input("Enter Employee Salary"))
e=eval(input("Enter Employee's HRA amount"))
f=eval(input("Enter Employee's DA amount"))
embase.loc[a]=[b,c,d,e,f]
print("Data successfully updated")
elif ch4==4:
break
elif ch==5:
while(True):
print("Working on Columns Menu")
print("1. Insert a new column data")
print("2. Delete a specific column")
print("3. Exit")
ch5=int(input("Enter choice"))
if ch5==1:
print("Enter details")
h=input("Enter column/heading name")
```

```
 det=eval(input("Enter details corresponding to all Employees:(enclosed in [ ])"))
embase[h]=pd.Series(data=det,index=embase.index)
print("Column inserted")
elif ch5==2:
a=input("Enter column name which needs to be deleted")
embase.drop([a],axis=1,inplace=False)
print("Column Temporary deleted")
elif ch5==3:
break
elif ch==6:
while(True):
print("Search Menu")
print("1. Search for the details of a specific Employee")
print("2. Search details of a specific as per a specific column heading")
print("3. Exit")
ch6=int(input("Enter choice"))
if ch6==1:
st=input("Enter the code of the Employee whose details you want to see")
print(embase.loc[st])
elif ch6==2:
col=input("Enter column/heading name whose details you want to see")
print(embase[col])
elif ch6==3:
break
elif ch==7:
while(True):
print("Data Visualization Menu")
print("1. Line Plot")
print("2. Vertical Bar Plot")
print("3. Horizontal Bar Plot")
print("4. Histogram")
print("5. Exit")
ch7=int(input("Enter choice"))
if ch7==1:
while(True):
print("Line Plot Sub Menu")
print("1. Employee Code Wise Highest Salary")
print("2. Employee Code Wise Highest HRA")
print("3. Employee Code Wise DA")
print("4. Exit")
chline=int(input("Enter choice"))
if chline==1:
plt.plot(embase.index,embase['SALARY'],label="Highest Salary")
plt.title("ECODE WISE HIGHEST SALARY")
plt.xlabel("ECODE")
plt.ylabel("SALARY")
plt.xticks(rotation=30)
```

```
 plt.legend()
plt.grid(True)
plt.show()
elif chline==2:
                    plt.plot(embase.index,embase['HRA'],label="Highest Allowance")
plt.title("ECODE WISE HIGHEST HRA")
plt.xlabel("ECODE")
plt.ylabel("HRA")
plt.xticks(rotation=30)
plt.legend()
plt.grid(True)
plt.show()
elif chline==3:
plt.plot(embase.index,embase['DA'],label="Highest DA")
plt.title("ECODE WISE HIGHEST DA")
plt.xlabel("ECODE")
plt.ylabel("DA")
plt.xticks(rotation=30)
plt.legend()
plt.grid(True)
plt.show()
elif chline==4:
break
elif ch7==2:
while(True):
print("Vertical Bar Plot Sub Menu")
print("1. Employee Code Wise Highest Salary")
print("2. Employee Code Wise Highest HRA")
print("3. Employee Code Wise Highest DA")
print("4. Exit")
chbar=int(input("Enter choice"))
if chbar==1:
plt.bar(embase.index,embase['SALARY'],label="Highest Salary")
plt.title("ECODE WISE HIGHEST SALARY")
plt.xlabel("ECODE")
plt.ylabel("SALARY")
plt.xticks(rotation=30)
plt.legend()
plt.grid(True)
plt.show()
elif chbar==2:
plt.bar(embase.index,embase['HRA'],label="Highest HRA")
plt.title("ECODE WISE HIGHEST HRA")
plt.xlabel("ECODE")
plt.ylabel("HRA")
plt.xticks(rotation=30)
plt.legend()
```

```
 plt.grid(True)
plt.show()
elif chbar==3:
plt.bar(embase.index,embase['DA'],label="Highest DA")
plt.title("ECODE WISE HIGHEST DA")
plt.xlabel("ECODE")
plt.ylabel("DA")
plt.xticks(rotation=30)
plt.legend()
plt.grid(True)
plt.show()
elif chbar==4:
break
elif ch7==3:
while(True):
print("Horizontal Bar Plot Sub Menu")
print("1. Employee Code wise Highest Salary")
print("2. Employee Code wise Highest HRA")
print("3. Employee Code wise Highest DA")
print("4. Exit")
chbar=int(input("Enter choice"))
if chbar==1:
                plt.barh(embase.index,embase['SALARY'],label="Highest Salary")
plt.title("ECODE WISE HIGHEST SALARY")
plt.xlabel("ECODE")
plt.ylabel("SALARY")
plt.xticks(rotation=30)
plt.legend()
plt.grid(True)
plt.show()
elif chbar==2:
plt.barh(embase.index,embase['HRA'],label="Highest HRA")
plt.title("ECODE WISE HIGHEST HRA")
plt.xlabel("ECODE")
plt.ylabel("HRA")
plt.xticks(rotation=30)
plt.legend()
plt.grid(True)
plt.show()
elif chbar==3:
plt.barh(embase.index,embase['DA'],label="Highest DA")
plt.title("ECODE WISE HIGHEST DA")
plt.xlabel("ECODE")
plt.ylabel("DA")
plt.xticks(rotation=30)
plt.legend()
plt.grid(True)
```

```
 plt.show()
elif chbar==4:
break
elif ch7==4:
while(True):
print("Histogram Sub Menu [Showing 5 bins] ")
print("1. Salary")
print("2. HRA")
print("3. DA")
print("4. Exit")
chgram=int(input("Enter choice"))
if chgram==1:
plt.hist(embase['SALARY'],bins=5,label="Highest
Salary",color="cyan",edgecolor="black")
plt.title("COUNT OF EMPLOYEES FOR DIFFERENT RANGE OF SALARY ")
plt.xlabel("HIGHEST SALARY")
plt.ylabel("FREQUENCY")
plt.legend()
plt.show()
elif chgram==2:
                    plt.hist(embase['HRA'],bins=5,label="HRA",color="red",edgecolor="black")
plt.title("COUNT OF EMPLOYEES FOR DIFFERENT RANGE OF HRA")
plt.xlabel("HRA")
plt.ylabel("FREQUENCY")
plt.legend()
plt.show()
elif chgram==3:
                  plt.hist(embase['DA'],bins=5,label="DA",color="orange",edgecolor="black")
plt.title("COUNT OF EMPLOYEES FOR DIFFERENT RANGE OF DA")
plt.xlabel("DA")
plt.ylabel("FREQUENCY")
plt.legend()
plt.show()
elif chgram==4:
break
elif ch7==5:
break
elif ch==8:
while(True):
print("Data Analytics Menu")
print("1. Employee with maximum salary")
print("2. Employee with minimum salary")
print("3. Employee with maximum HRA")
print("4. Employee with minimum HRA")
print("5. Employee with maximum DA")
print("6. Employee with minimum DA")
print("7. Exit")
```

```
 chan=int(input("Enter choice:"))
if chan==1:
m=embase['SALARY'].max()
s=embase.loc[embase.SALARY==m]
            print("Employee with maximum Salary of ",m," is\n ",s.index)
elif chan==2:
m=embase['SALARY'].min()
s=embase.loc[embase.SALARY==m]
             print("Employee with minimum Salary of ",m," is\n ",s.index)
elif chan==3:
m=embase['HRA'].max()
s=embase.loc[embase.HRA==m]
print("Employee with maximum HRA of ",m," is\n ",s.index)
elif chan==4:
m=embase['HRA'].min()
s=embase.loc[embase.HRA==m]
print("Employee with minimum HRA of ",m," is\n ",s.index)
elif chan==5:
m=embase['DA'].min()
s=embase.loc[embase.DA==m]
print("Employee with minimum DA of ",m," is\n ",s.index)
elif chan==6:
m=embase['DA'].min()
s=embase.loc[embase.DA==m]
print("Employee with minimum DA of ",m," is\n ",s.index)
elif chan==7:
break
elif ch==9:
break
```

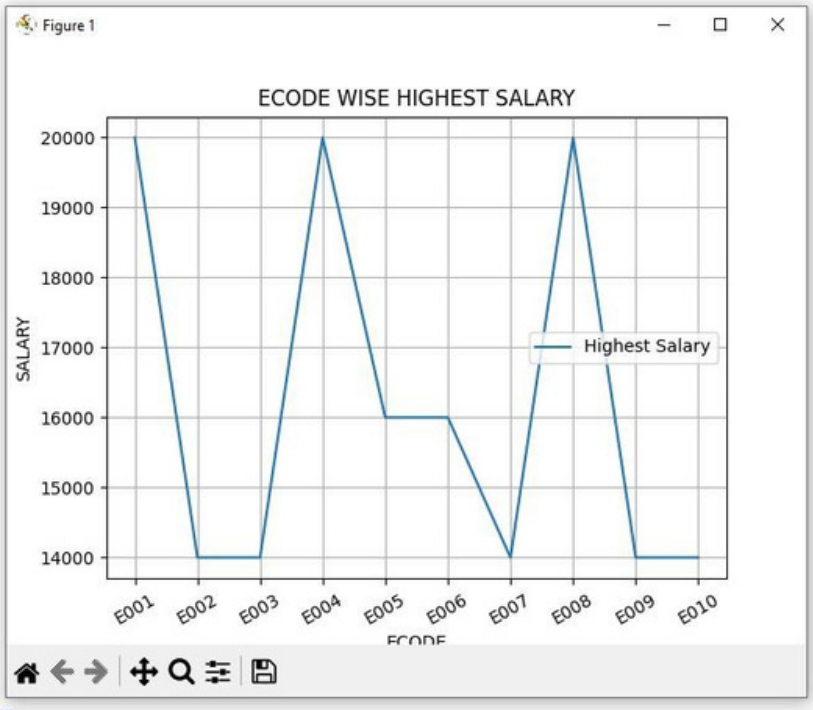
SAMPLE SCREENSHOTS WITH OUTPUTS

Data Visualization Menu:

Line Plot Graph:

- **First Option of Line Plot**

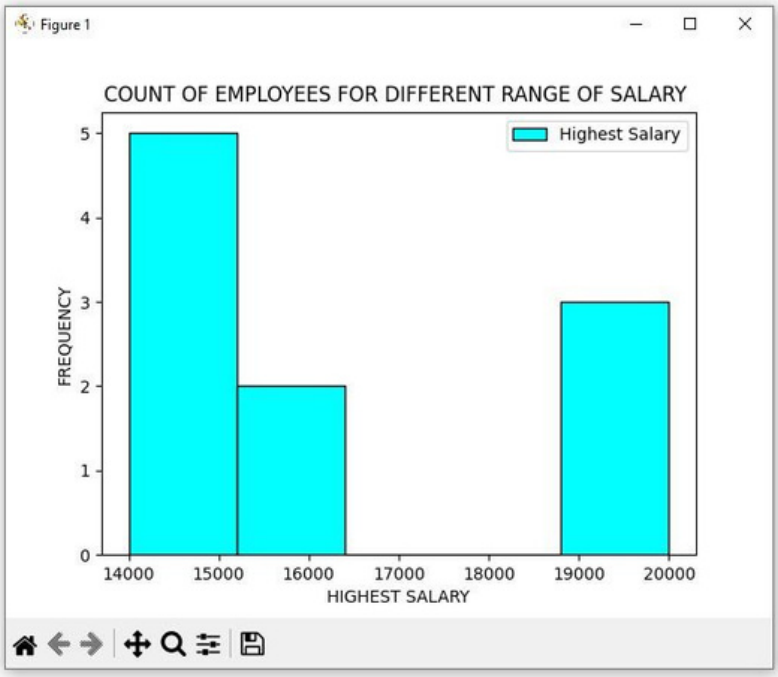
```
Enter choice:7
Main Menu
1. Fetch data
2. Dataframe Statistics
3. Display Records
4. Working on Records
5. Working on Columns
6. Search specific row/column
7. Data Visualization
8. Data analystics
9. Exit
Enter your choice8
Data Analytics Menu
1. Employee with maximum salary
2. Employee with minimum salary
3. Employee with maximum HRA
4. Employee with minimum HRA
5. Employee with maximum DA
6. Employee with minimum DA
7. Exit
Enter choice:7
Main Menu
1. Fetch data
2. Dataframe Statistics
3. Display Records
4. Working on Records
5. Working on Columns
6. Search specific row/column
7. Data Visualization
8. Data analystics
9. Exit
Enter your choice7
Data Visualization Menu
1. Line Plot
2. Vertical Bar Plot
3. Horizontal Bar Plot
4. Histogram
5. Exit
Enter choice1
Line Plot Sub Menu
1. Employee Code Wise Highest Salary
2. Employee Code Wise Highest HRA
3. Employee Code Wise DA
4. Exit
Enter choice1
```



Histogram Graph:

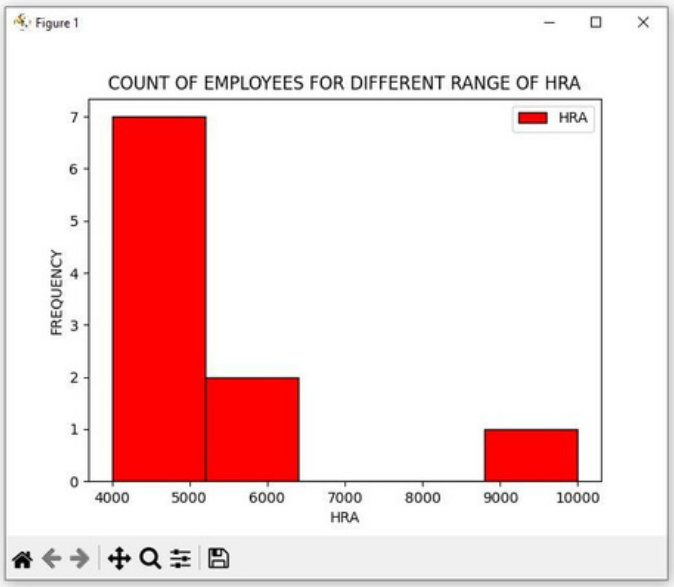
- **Frequency of Employees across Salary Range**

```
7. Exit
Enter choice:7
Main Menu
1. Fetch data
2. Dataframe Statistics
3. Display Records
4. Working on Records
5. Working on Columns
6. Search specific row/column
7. Data Visualization
8. Data analystics
9. Exit
Enter your choice7
Data Visualization Menu
1. Line Plot
2. Vertical Bar Plot
3. Horizontal Bar Plot
4. Histogram
5. Exit
Enter choice1
Line Plot Sub Menu
1. Employee Code Wise Highest Salary
2. Employee Code Wise Highest HRA
3. Employee Code Wise DA
4. Exit
Enter choice1
Line Plot Sub Menu
1. Employee Code Wise Highest Salary
2. Employee Code Wise Highest HRA
3. Employee Code Wise DA
4. Exit
Enter choice4
Data Visualization Menu
1. Line Plot
2. Vertical Bar Plot
3. Horizontal Bar Plot
4. Histogram
5. Exit
Enter choice4
Histogram Sub Menu [Showing 5 bins]
1. Salary
2. HRA
3. DA
4. Exit
Enter choice1
```



- **Frequency of Employees across HRA Range**

```
4. Working on Records
5. Working on Columns
6. Search specific row/column
7. Data Visualization
8. Data analystics
9. Exit
Enter your choice7
Data Visualization Menu
1. Line Plot
2. Vertical Bar Plot
3. Horizontal Bar Plot
4. Histogram
5. Exit
Enter choice1
Line Plot Sub Menu
1. Employee Code Wise Highest Salary
2. Employee Code Wise Highest HRA
3. Employee Code Wise DA
4. Exit
Enter choice1
Line Plot Sub Menu
1. Employee Code Wise Highest Salary
2. Employee Code Wise Highest HRA
3. Employee Code Wise DA
4. Exit
Enter choice4
Data Visualization Menu
1. Line Plot
2. Vertical Bar Plot
3. Horizontal Bar Plot
4. Histogram
5. Exit
Enter choice4
Histogram Sub Menu [Showing 5 bins]
1. Salary
2. HRA
3. DA
4. Exit
Enter choice1
Histogram Sub Menu [Showing 5 bins]
1. Salary
2. HRA
3. DA
4. Exit
Enter choice2
```



- **Frequency of Employees across DA Range**

```
Enter your choice7
Data Visualization Menu
1. Line Plot
2. Vertical Bar Plot
3. Horizontal Bar Plot
4. Histogram
5. Exit
Enter choice1
Line Plot Sub Menu
1. Employee Code Wise Highest Salary
2. Employee Code Wise Highest HRA
3. Employee Code Wise DA
4. Exit
Enter choice1
Line Plot Sub Menu
1. Employee Code Wise Highest Salary
2. Employee Code Wise Highest HRA
3. Employee Code Wise DA
4. Exit
Enter choice4
Data Visualization Menu
1. Line Plot
2. Vertical Bar Plot
3. Horizontal Bar Plot
4. Histogram
5. Exit
Enter choice4
Histogram Sub Menu [Showing 5 bins]
1. Salary
2. HRA
3. DA
4. Exit
Enter choice1
Histogram Sub Menu [Showing 5 bins]
1. Salary
2. HRA
3. DA
4. Exit
Enter choice2
Histogram Sub Menu [Showing 5 bins]
1. Salary
2. HRA
3. DA
4. Exit
Enter choice3
```