NAME – ARPAN ARUN BANDIWADEKAR
ROLL NUMBER – 407
DIVISION – D
BATCH – D1
PRN – 202201090062

EDS ASSINMENT 4

PANDAS OPERATIONS

```python
import pandas as pd

df = pd.read_csv("dataset4.csv")
print("Original DataFrame:")
print(df)

#Filter employees from Pune
pune_employees = df[df['City'] == 'Pune']
print("Employees from Pune:")
print(pune_employees)

#Calculate the average salary
average_salary = df['Salary'].mean()
print("Average Salary:", average_salary)

#Count employees by gender
gender_counts = df['Gender'].value_counts()
print("Employee Gender Counts:")
print(gender_counts)

#Sort employees by salary in descending order
sorted_df = df.sort_values('Salary', ascending=False)
print("Employees Sorted by Salary:")
print(sorted_df)

#Group employees by designation and calculate the average salary for each group
designation_salary = df.groupby('Designation')['Salary'].mean()
print("Average Salary by Designation:")
print(designation_salary)

#Add a new column 'Age' with default value 0
df['Age'] = 0
print("DataFrame with 'Age' Column:")
print(df)
```

```python
#Select only the 'Name' and 'Salary' columns
selected_columns = df[['Name', 'Salary']]
print("Selected Columns:")
print(selected_columns)

#Filter employees with a salary greater than 100,000
high_salary_employees = df[df['Salary'] > 100000]
print("Employees with High Salary:")
print(high_salary_employees)

# Calculate the total salary for each city
city_salary_total = df.groupby('City')['Salary'].sum()
print("Total Salary by City:")
print(city_salary_total)

# Calculate the age based on the current year and assuming all employees are born
in 1980
current_year = 2023
df['Age'] = current_year - 1980
print("DataFrame with Age Column:")
print(df)
```

Dataset:

ID	Name	City	Designatio	Salary	Gender	Marital Status		
1	Sanvi	Pune	Manager	100000	female	single		
2	Mrunmaye	Pune	Sr. Manage	150000	male	married		
3	Jayesh	Nashik	Manager	90500	male	single		
4	Gouri	Nashik	Sr. Manage	100500	female	married		
5	Mahesh	Pune	Supervisor	85000	male	single		
6	Pranav	Pune	Manager	100000	male	divorced		
7	Saksham	Pune	Sr. Manage	150000	male	single		
8	Raja	Nashik	Manager	90500	male	married		
9	Sunil	Nashik	Sr. Manage	100500	male	single		
10	Radha	Pune	Supervisor	85000	female	divorced		

OUTPUT:

```
[Running] python -u "e:\_school\sem 2\EDS\assign_4.py"
Original DataFrame:
   ID        Name    City  Designation  Salary  Gender Marital Status
0   1       Sanvi    Pune      Manager   100000  female         single
1   2   Mrunmayee    Pune  Sr. Manager   150000    male        married
2   3      Jayesh  Nashik      Manager    90500    male         single
3   4       Gouri  Nashik  Sr. Manager   100500  female        married
4   5      Mahesh    Pune   Supervisor    85000    male         single
5   6      Pranav    Pune      Manager   100000    male        divorced
6   7     Saksham    Pune  Sr. Manager   150000    male         single
7   8        Raja  Nashik      Manager    90500    male        married
8   9       Sunil  Nashik  Sr. Manager   100500    male         single
9  10       Radha    Pune   Supervisor    85000  female        divorced
Employees from Pune:
   ID        Name  City  Designation  Salary  Gender Marital Status
0   1       Sanvi  Pune      Manager   100000  female         single
1   2   Mrunmayee  Pune  Sr. Manager   150000    male        married
4   5      Mahesh  Pune   Supervisor    85000    male         single
5   6      Pranav  Pune      Manager   100000    male        divorced
6   7     Saksham  Pune  Sr. Manager   150000    male         single
9  10       Radha  Pune   Supervisor    85000  female        divorced
Average Salary: 105200.0
Employee Gender Counts:
Gender
male      7
female    3
Name: count, dtype: int64
Employees Sorted by Salary:
   ID        Name    City  Designation  Salary  Gender Marital Status
1   2   Mrunmayee    Pune  Sr. Manager   150000    male        married
6   7     Saksham    Pune  Sr. Manager   150000    male         single
3   4       Gouri  Nashik  Sr. Manager   100500  female        married
8   9       Sunil  Nashik  Sr. Manager   100500    male         single
0   1       Sanvi    Pune      Manager   100000  female         single
5   6      Pranav    Pune      Manager   100000    male        divorced
2   3      Jayesh  Nashik      Manager    90500    male         single
7   8        Raja  Nashik      Manager    90500    male        married
4   5      Mahesh    Pune   Supervisor    85000    male         single
9  10       Radha    Pune   Supervisor    85000  female        divorced
Average Salary by Designation:
Designation
Manager         95250.0
Sr. Manager    125250.0
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```
Supervisor      85000.0
Name: Salary, dtype: float64
DataFrame with 'Age' Column:
   ID       Name    City  Designation  Salary  Gender Marital Status  Age
0   1      Sanvi    Pune      Manager  100000  female         single    0
1   2  Mrunmayee    Pune  Sr. Manager  150000    male        married    0
2   3     Jayesh  Nashik      Manager   90500    male         single    0
3   4      Gouri  Nashik  Sr. Manager  100500  female        married    0
4   5     Mahesh    Pune   Supervisor   85000    male         single    0
5   6     Pranav    Pune      Manager  100000    male       divorced    0
6   7    Saksham    Pune  Sr. Manager  150000    male         single    0
7   8       Raja  Nashik      Manager   90500    male        married    0
8   9      Sunil  Nashik  Sr. Manager  100500    male         single    0
9  10      Radha    Pune   Supervisor   85000  female       divorced    0
Selected Columns:
        Name  Salary
0      Sanvi  100000
1  Mrunmayee  150000
2     Jayesh   90500
3      Gouri  100500
4     Mahesh   85000
5     Pranav  100000
6    Saksham  150000
7       Raja   90500
8      Sunil  100500
9      Radha   85000
Employees with High Salary:
   ID       Name    City  Designation  Salary  Gender Marital Status  Age
1   2  Mrunmayee    Pune  Sr. Manager  150000    male        married    0
3   4      Gouri  Nashik  Sr. Manager  100500  female        married    0
6   7    Saksham    Pune  Sr. Manager  150000    male         single    0
8   9      Sunil  Nashik  Sr. Manager  100500    male         single    0
Total Salary by City:
City
Nashik    382000
Pune      670000
Name: Salary, dtype: int64
DataFrame with Age Column:
   ID       Name    City  Designation  Salary  Gender Marital Status  Age
0   1      Sanvi    Pune      Manager  100000  female         single   43
1   2  Mrunmayee    Pune  Sr. Manager  150000    male        married   43
2   3     Jayesh  Nashik      Manager   90500    male         single   43
3   4      Gouri  Nashik  Sr. Manager  100500  female        married   43
4   5     Mahesh    Pune   Supervisor   85000    male         single   43
5   6     Pranav    Pune      Manager  100000    male       divorced   43
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6	7	Saksham	Pune	Sr. Manager	150000	male	single	43
7	8	Raja	Nashik	Manager	90500	male	married	43
8	9	Sunil	Nashik	Sr. Manager	100500	male	single	43
9	10	Radha	Pune	Supervisor	85000	female	divorced	43

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