```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)

#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()
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```python
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)
```

OUTPUT

```
[Running] python -u "d:\Ayush\MIT\Python\tempCodeRunnerFile.python"
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
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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
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
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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
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

[Done] exited with code=0 in 4.218 seconds
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