Entertainment Analysis

```
#importing Libraries

import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt

#importing files

ent_basic = pd.read_csv('https://raw.githubusercontent.com/NikhilM-632/ik-files/main/Entertainer%20-%20Basic%20Info.csv')
ent_break = pd.read_csv('https://raw.githubusercontent.com/NikhilM-632/ik-files/main/Entertainer%20-%20Breakthrough%20Info.csv')
ent_last = pd.read_csv('https://raw.githubusercontent.com/NikhilM-632/ik-files/main/Entertainer%20-%20Last%20work%20Info.csv')

ent_basic.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 70 entries, 0 to 69
Data columns (total 3 columns):
 #   Column                Non-Null Count  Dtype 
---  ------                --------------  ----- 
 0   Entertainer           70 non-null     object
 1   Gender (traditional)  70 non-null     object
 2   Birth Year            70 non-null     int64 
dtypes: int64(1), object(2)
memory usage: 1.8+ KB
```

```
ent_basic.head()
```

```
       Entertainer Gender (traditional)  Birth Year
0            Adele                    F        1988
1   Angelina Jolie                    F        1975
2  Aretha Franklin                    F        1942
3      Bette Davis                    F        1908
4      Betty White                    F        1922
```

```
ent_break.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 70 entries, 0 to 69
Data columns (total 4 columns):
 #   Column                                          Non-Null Count
Dtype 
---  ------                                          --------------
-----
```

```
 0   Entertainer                                    70 non-null
object
 1   Year of Breakthrough/#1 Hit/Award Nomination  70 non-null
int64
 2   Breakthrough Name                              70 non-null
object
 3   Year of First Oscar/Grammy/Emmy                64 non-null
float64
dtypes: float64(1), int64(1), object(2)
memory usage: 2.3+ KB
```

```
ent_break.head()
```

```
       Entertainer  Year of Breakthrough/#1 Hit/Award Nomination  \
0            Adele                                           2008
1   Angelina Jolie                                           1999
2  Aretha Franklin                                           1967
3      Bette Davis                                           1934
4      Betty White                                           1952

                           Breakthrough Name  Year of First
Oscar/Grammy/Emmy
0                                         19
2009.0
1                         Girl, Interrupted
1999.0
2  I Never Loved a Man (The Way I Love You)
1968.0
3                          Of Human Bondage
1935.0
4                      Life with Elilzabeth
1976.0
```

```
ent_last.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 70 entries, 0 to 69
Data columns (total 3 columns):
 #   Column                              Non-Null Count  Dtype
---  ------                              --------------  -----
 0   Entertainer                         70 non-null     object
 1   Year of Last Major Work (arguable)  70 non-null     int64
 2   Year of Death                       30 non-null     float64
dtypes: float64(1), int64(1), object(1)
memory usage: 1.8+ KB
```

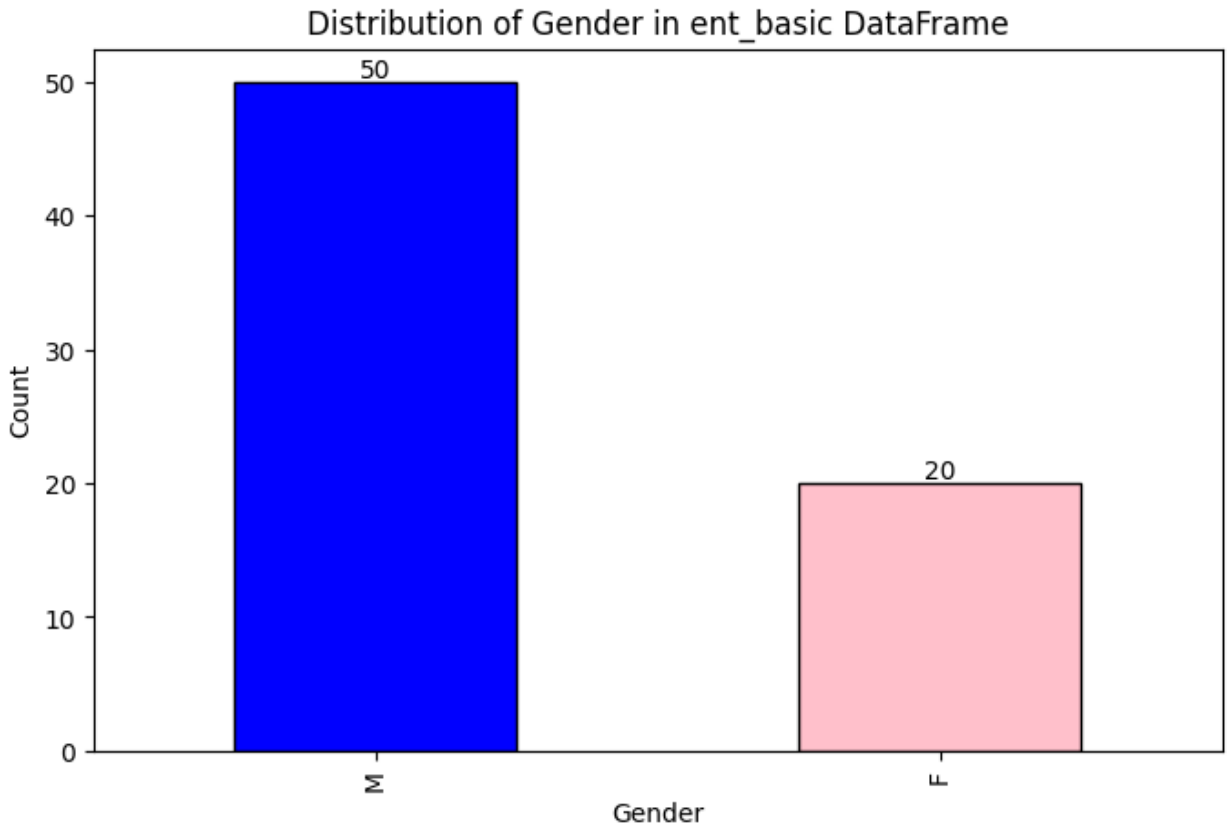
```
ent_last.head()
```

```
       Entertainer  Year of Last Major Work (arguable)  Year of Death
0            Adele                                2016            NaN
1   Angelina Jolie                                2016            NaN
```

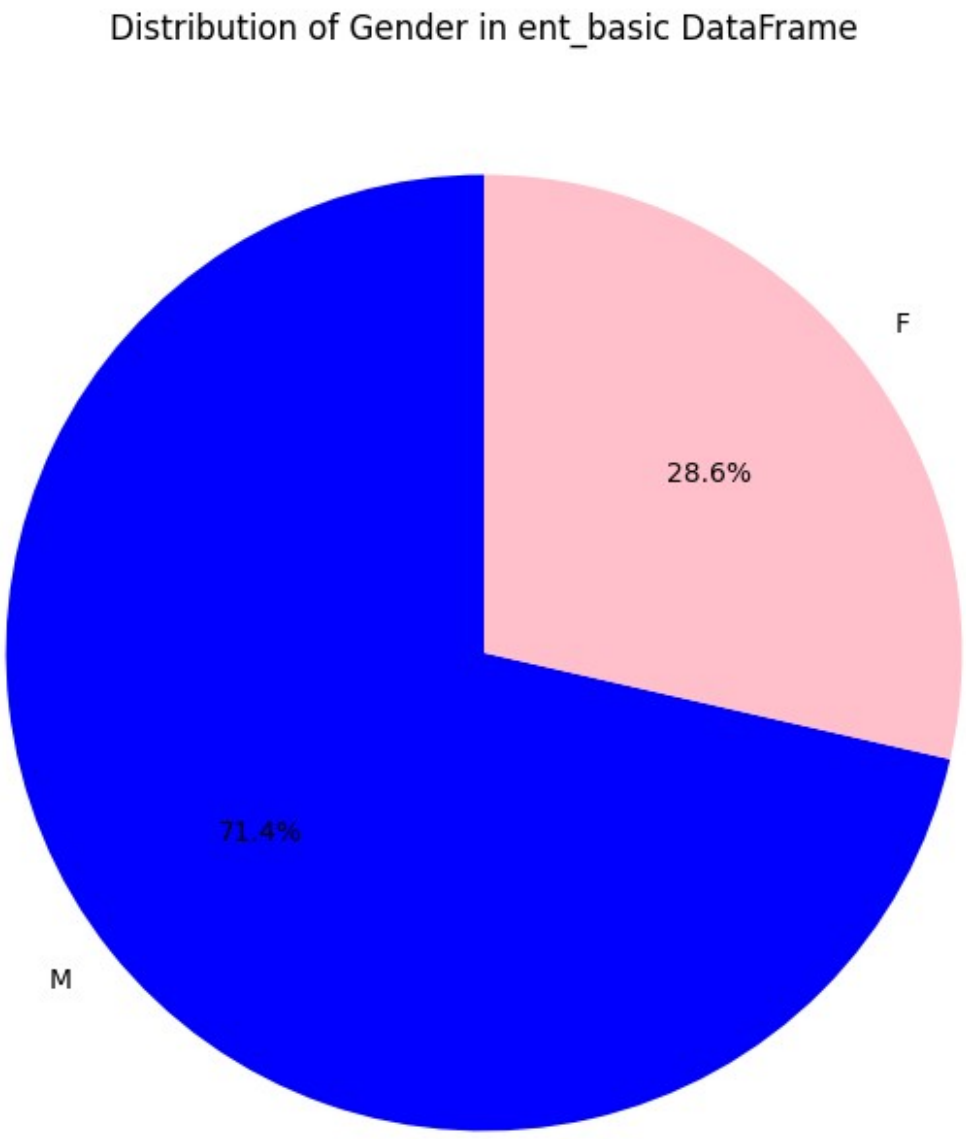
```
2  Aretha Franklin                                  2014            NaN
3      Bette Davis                                  1989         1989.0
4      Betty White                                  2016            NaN
```

EDA - Entertainer Basic Data

```
# Count the occurrences of each gender
gender_distribution = ent_basic['Gender (traditional)'].value_counts()

# Plotting the bar chart
plt.figure(figsize=(8, 5))

# Plotting the bars
bars = gender_distribution.plot(kind='bar', color=['blue', 'pink'],
edgecolor='black')

# Adding total count annotations on top of the bars
for bar in bars.patches:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width()/2, yval + 0.02, round(yval,
1), ha='center', va='bottom', color='black', fontsize=10)

# Adding labels and title
plt.xlabel('Gender')
plt.ylabel('Count')
plt.title('Distribution of Gender in ent_basic DataFrame')

# Display the plot
plt.show()
```

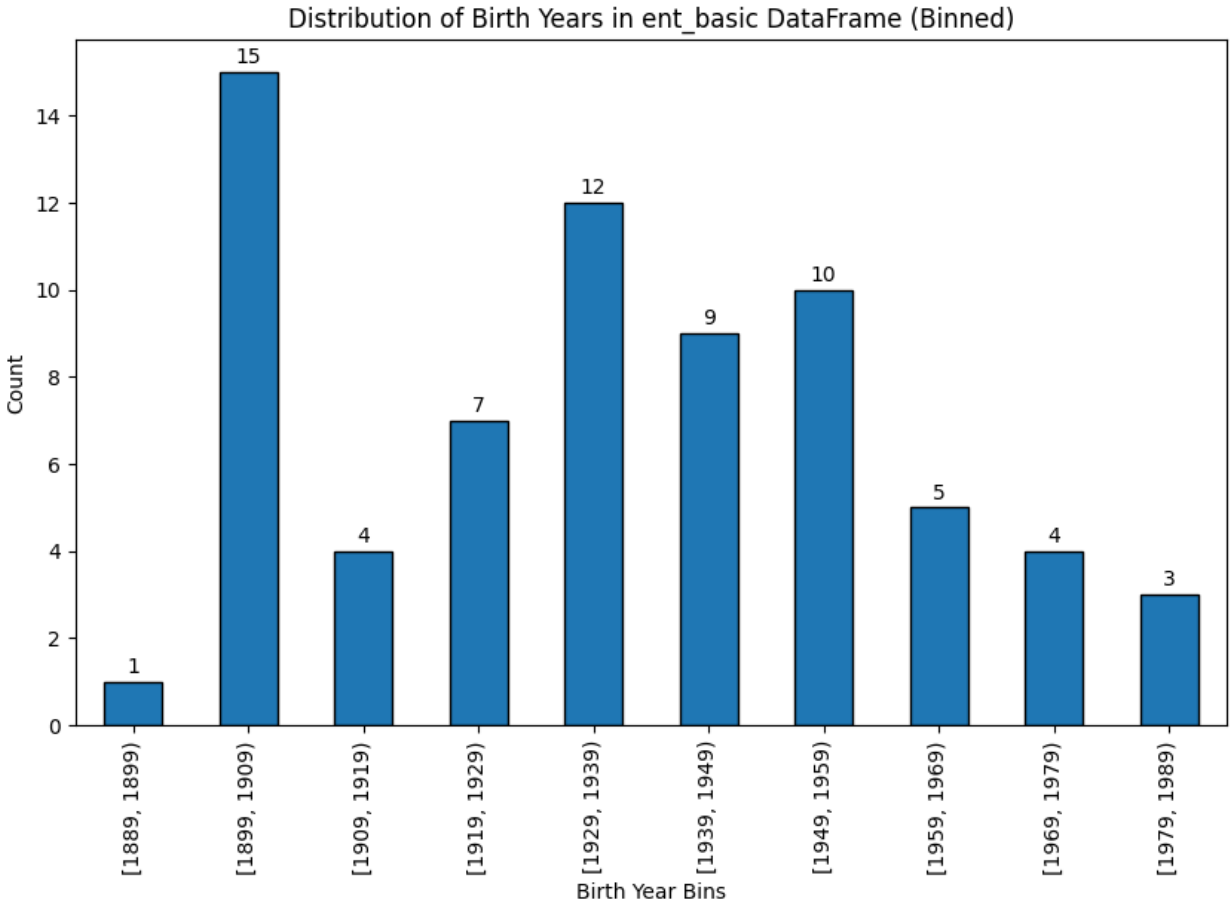



```
# Count the occurrences of each gender
gender_distribution = ent_basic['Gender (traditional)'].value_counts()

# Plotting the pie chart
plt.figure(figsize=(8, 8))

# Plotting the pie chart
plt.pie(gender_distribution, labels=gender_distribution.index,
autopct='%1.1f%%', colors=['blue', 'pink'], startangle=90)

# Adding title
plt.title('Distribution of Gender in ent_basic DataFrame')

# Display the plot
plt.show()
```

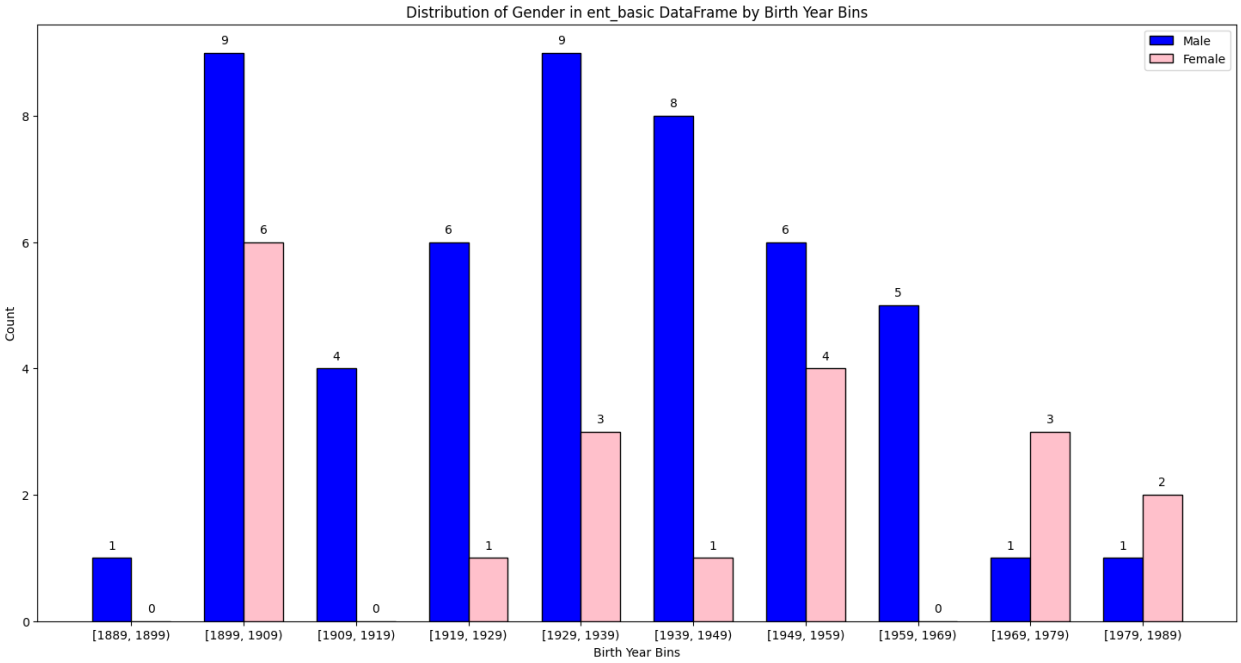



```
# Create bins of 10 years
bins = list(range(ent_basic['Birth Year'].min(), ent_basic['Birth
Year'].max() + 11, 10))

# Create a new column 'Birth Year Bins' with the bins
ent_basic['Birth Year Bins'] = pd.cut(ent_basic['Birth Year'], bins,
right=False)

# Count the occurrences in each bin
birth_year_distribution = ent_basic['Birth Year
Bins'].value_counts().sort_index()
```

```
# Plotting the bar chart
plt.figure(figsize=(10, 6))

# Plotting the bars
bars = birth_year_distribution.plot(kind='bar', edgecolor='black')

# Adding total count annotations on top of the bars
for bar in bars.patches:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width() / 2, yval + 0.1,
round(yval, 1), ha='center', va='bottom', color='black', fontsize=10)

# Adding labels and title
plt.xlabel('Birth Year Bins')
plt.ylabel('Count')
plt.title('Distribution of Birth Years in ent_basic DataFrame
(Binned)')

# Display the plot
plt.show()
```



```
# Create bins of 10 years
bins = list(range(ent_basic['Birth Year'].min(), ent_basic['Birth
Year'].max() + 11, 10))

# Create a new column 'Birth Year Bins' with the bins
ent_basic['Birth Year Bins'] = pd.cut(ent_basic['Birth Year'], bins,
right=False)

# Group by 'Birth Year Bins' and 'Gender (traditional)' and count
occurrences
gender_distribution_by_bins = ent_basic.groupby(['Birth Year Bins',
'Gender (traditional)']).size().unstack().fillna(0)

# Plotting the bar chart with counts on top of the bars
plt.figure(figsize=(18, 9))

bar_width = 0.35
index = range(len(gender_distribution_by_bins.index))

# Plotting the bars for Male
bars1 = plt.bar(index, gender_distribution_by_bins['M'], bar_width,
label='Male', edgecolor='black', color='blue')

# Plotting the bars for Female
bars2 = plt.bar([i + bar_width for i in index],
gender_distribution_by_bins['F'], bar_width, label='Female',
edgecolor='black', color='pink')

# Adding labels and title
plt.xlabel('Birth Year Bins')
plt.ylabel('Count')
plt.title('Distribution of Gender in ent_basic DataFrame by Birth Year
Bins')

# Adding counts on top of the bars
for bar in bars1 + bars2:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width() / 2, yval + 0.1,
round(yval, 1), ha='center', va='bottom', color='black', fontsize=10)

# Display the plot
plt.xticks([i + bar_width/2 for i in index],
gender_distribution_by_bins.index)
plt.legend()
plt.show()
```




```
# Merge the DataFrames on the 'Entertainer' column
ent_award = pd.merge(ent_basic, ent_break, on='Entertainer')

# Display the resulting DataFrame 'ent_award'
print(ent_award)
```

```
        Entertainer Gender (traditional)  Birth Year Birth Year
Bins  \
0             Adele                      F        1988    [1979, 1989)
1    Angelina Jolie                      F        1975    [1969, 1979)
2   Aretha Franklin                      F        1942    [1939, 1949)
3       Bette Davis                      F        1908    [1899, 1909)
4       Betty White                      F        1922    [1919, 1929)
..              ...                    ...         ...             ...
65        Tom Hanks                      M        1956    [1949, 1959)
66     Tony Bennett                      M        1926    [1919, 1929)
67     Wayne Newton                      M        1942    [1939, 1949)
68       Will Smith                      M        1968    [1959, 1969)
```

```
69    Willie Nelson                       M        1933    [1929, 1939)


    Year of Breakthrough/#1 Hit/Award Nomination  \
0                                             2008
1                                             1999
2                                             1967
3                                             1934
4                                             1952
..                                             ...
65                                            1984
66                                            1951
67                                            1972
68                                            1990
69                                            1975

                            Breakthrough Name  Year of First
Oscar/Grammy/Emmy
0                                          19
2009.0
1                           Girl, Interrupted
1999.0
2   I Never Loved a Man (The Way I Love You)
1968.0
3                            Of Human Bondage
1935.0
4                        Life with Elilzabeth
1976.0
..                                        ...
...
65                                    Splash
1993.0
66                             Because of You
1963.0
67              Daddy, Don't You Walk So Fast
NaN
68                The Fresh Prince of Bel-Air
1988.0
69                         Red Headed Stranger
1976.0

[70 rows x 7 columns]
```

```
# Convert 'Year of First Award' to numeric and calculate 'Nomination
Age'
ent_award['Year of Breakthrough/#1 Hit/Award Nomination'] =
pd.to_numeric(ent_award['Year of Breakthrough/#1 Hit/Award
Nomination'], errors='coerce')  # Convert to numeric
ent_award['Nomination Age'] = ent_award['Year of Breakthrough/#1
Hit/Award Nomination'] - ent_award['Birth Year']
```

```
# Display the resulting DataFrame 'ent_award'
print(ent_award)
```

```
        Entertainer Gender (traditional)  Birth Year Birth Year
Bins  \
0              Adele                      F        1988    [1979, 1989)

1    Angelina Jolie                       F        1975    [1969, 1979)

2   Aretha Franklin                       F        1942    [1939, 1949)

3       Bette Davis                       F        1908    [1899, 1909)

4       Betty White                       F        1922    [1919, 1929)

..              ...                     ...         ...             ...

65        Tom Hanks                       M        1956    [1949, 1959)

66     Tony Bennett                       M        1926    [1919, 1929)

67     Wayne Newton                       M        1942    [1939, 1949)

68       Will Smith                       M        1968    [1959, 1969)

69    Willie Nelson                       M        1933    [1929, 1939)


    Year of Breakthrough/#1 Hit/Award Nomination  \
0                                             2008
1                                             1999
2                                             1967
3                                             1934
4                                             1952
..                                             ...
65                                            1984
66                                            1951
67                                            1972
68                                            1990
69                                            1975

                           Breakthrough Name  Year of First
Oscar/Grammy/Emmy  \
0                                         19
2009.0
1                          Girl, Interrupted
1999.0
2   I Never Loved a Man (The Way I Love You)
1968.0
3                           Of Human Bondage
```

```
1935.0
4                        Life with Elilzabeth
1976.0
..                                        ...
...
65                                     Splash
1993.0
66                               Because of You
1963.0
67              Daddy, Don't You Walk So Fast
NaN
68                The Fresh Prince of Bel-Air
1988.0
69                         Red Headed Stranger
1976.0

    Nomination Age
0                20
1                24
2                25
3                26
4                30
..              ...
65               28
66               25
67               30
68               22
69               42

[70 rows x 8 columns]
```

```python
# Convert 'Year of First Award' to numeric and calculate 'Award Age'
ent_award['Year of First Oscar/Grammy/Emmy'] =
pd.to_numeric(ent_award['Year of First Oscar/Grammy/Emmy'],
errors='coerce')  # Convert to numeric
ent_award['Award Age'] = ent_award['Year of First Oscar/Grammy/Emmy']
- ent_award['Birth Year']

# Display the resulting DataFrame 'ent_award'
print(ent_award)
```

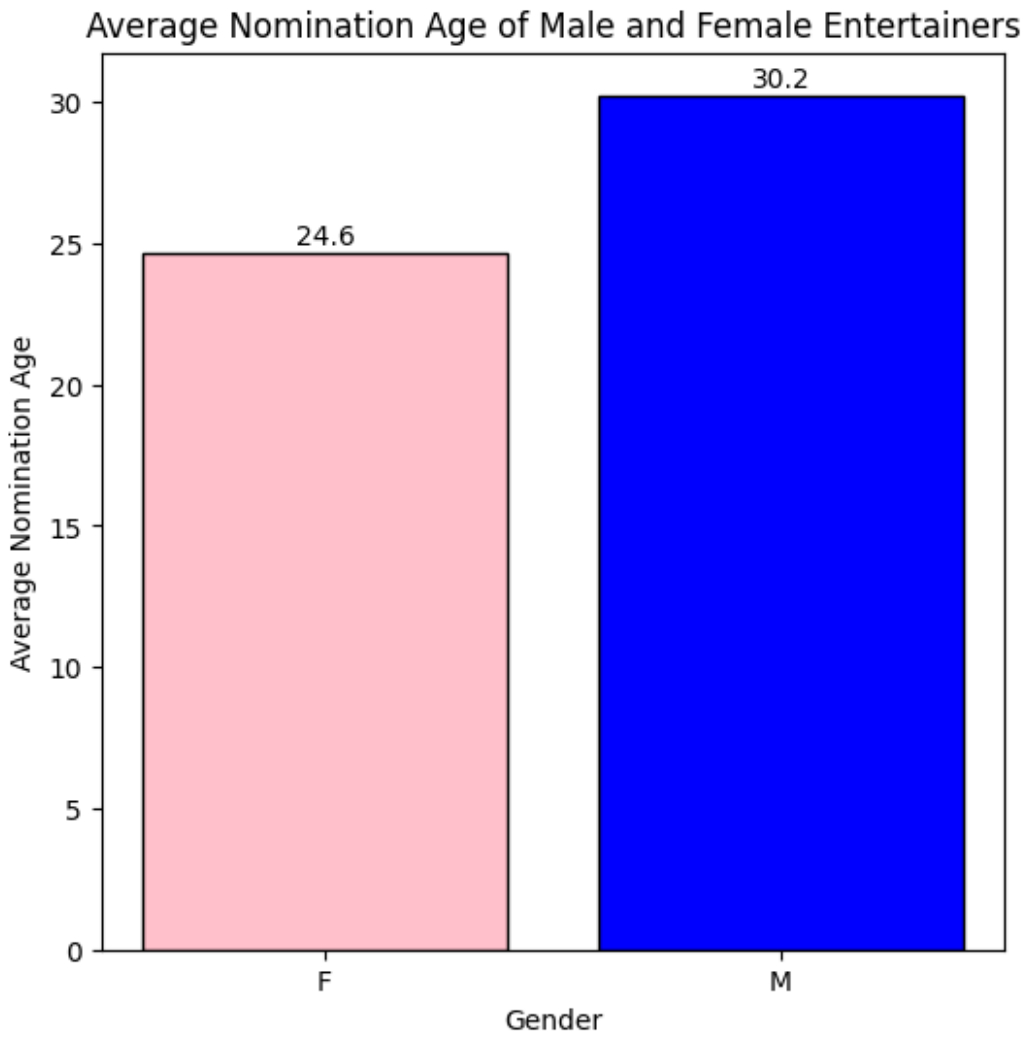
```
        Entainer Gender (traditional)  Birth Year Birth Year
Bins  \
0             Adele                      F        1988    [1979, 1989)

1    Angelina Jolie                      F        1975    [1969, 1979)

2   Aretha Franklin                      F        1942    [1939, 1949)

3       Bette Davis                      F        1908    [1899, 1909)
```

```
4       Betty White                      F        1922    [1919, 1929)
..              ...                    ...         ...             ...
65        Tom Hanks                      M        1956    [1949, 1959)
66     Tony Bennett                      M        1926    [1919, 1929)
67     Wayne Newton                      M        1942    [1939, 1949)
68       Will Smith                      M        1968    [1959, 1969)
69    Willie Nelson                      M        1933    [1929, 1939)

    Year of Breakthrough/#1 Hit/Award Nomination  \
0                                             2008
1                                             1999
2                                             1967
3                                             1934
4                                             1952
..                                             ...
65                                            1984
66                                            1951
67                                            1972
68                                            1990
69                                            1975

                            Breakthrough Name  Year of First
Oscar/Grammy/Emmy  \
0                                          19
2009.0
1                          Girl, Interrupted
1999.0
2   I Never Loved a Man (The Way I Love You)
1968.0
3                           Of Human Bondage
1935.0
4                       Life with Elilzabeth
1976.0
..                                        ...
...
65                                    Splash
1993.0
66                           Because of You
1963.0
67             Daddy, Don't You Walk So Fast
NaN
68               The Fresh Prince of Bel-Air
```

```
1988.0
69                        Red Headed Stranger
1976.0

    Nomination Age  Award Age
0               20       21.0
1               24       24.0
2               25       26.0
3               26       27.0
4               30       54.0
..             ...        ...
65              28       37.0
66              25       37.0
67              30        NaN
68              22       20.0
69              42       43.0

[70 rows x 9 columns]

ent_award.head()

       Entainer Gender (traditional)  Birth Year Birth Year Bins  \
0            Adele                      F        1988    [1979, 1989)
1   Angelina Jolie                      F        1975    [1969, 1979)
2  Aretha Franklin                      F        1942    [1939, 1949)
3      Bette Davis                      F        1908    [1899, 1909)
4      Betty White                      F        1922    [1919, 1929)

   Year of Breakthrough/#1 Hit/Award Nomination  \
0                                          2008
1                                          1999
2                                          1967
3                                          1934
4                                          1952

                           Breakthrough Name  Year of First
Oscar/Grammy/Emmy  \
0                                         19
2009.0
1                          Girl, Interrupted
1999.0
2  I Never Loved a Man (The Way I Love You)
1968.0
3                           Of Human Bondage
1935.0
4                       Life with Elilzabeth
1976.0

   Nomination Age  Award Age
0              20       21.0
```

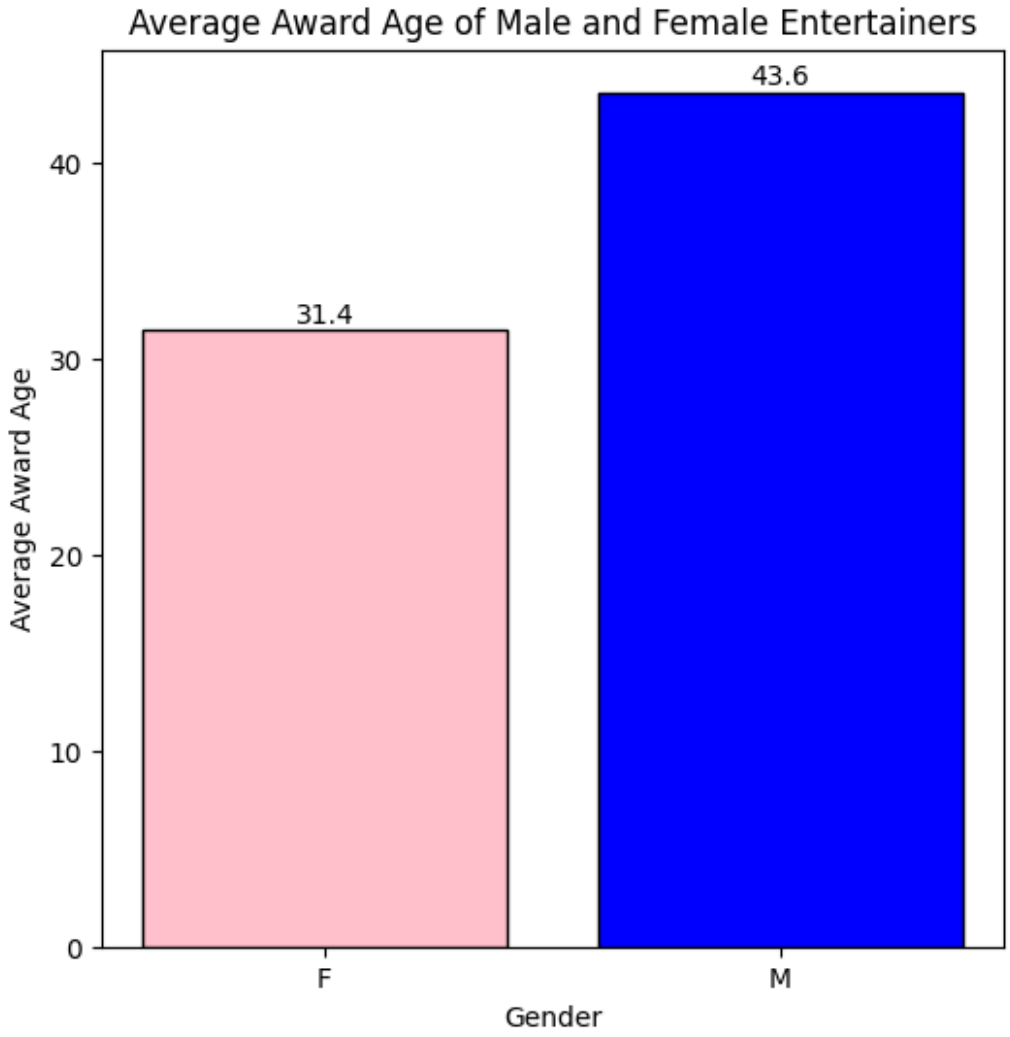
```
1                24        24.0
2                25        26.0
3                26        27.0
4                30        54.0
```

```
# Group by 'Gender (traditional)' and calculate average 'Nomination
Age'
average_age_by_gender = ent_award.groupby('Gender (traditional)')
['Nomination Age'].mean()

# Plotting the bar chart with average values on top
plt.figure(figsize=(6, 6))

# Plotting the bars
bars = plt.bar(average_age_by_gender.index, average_age_by_gender,
color=['pink', 'blue'], edgecolor='black')

# Adding labels and title
plt.xlabel('Gender')
plt.ylabel('Average Nomination Age')
plt.title('Average Nomination Age of Male and Female Entertainers')

# Adding values on top of the bars
for bar in bars:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width() / 2, yval + 0.1,
round(yval, 1), ha='center', va='bottom', color='black', fontsize=10)

# Display the plot
plt.show()
```



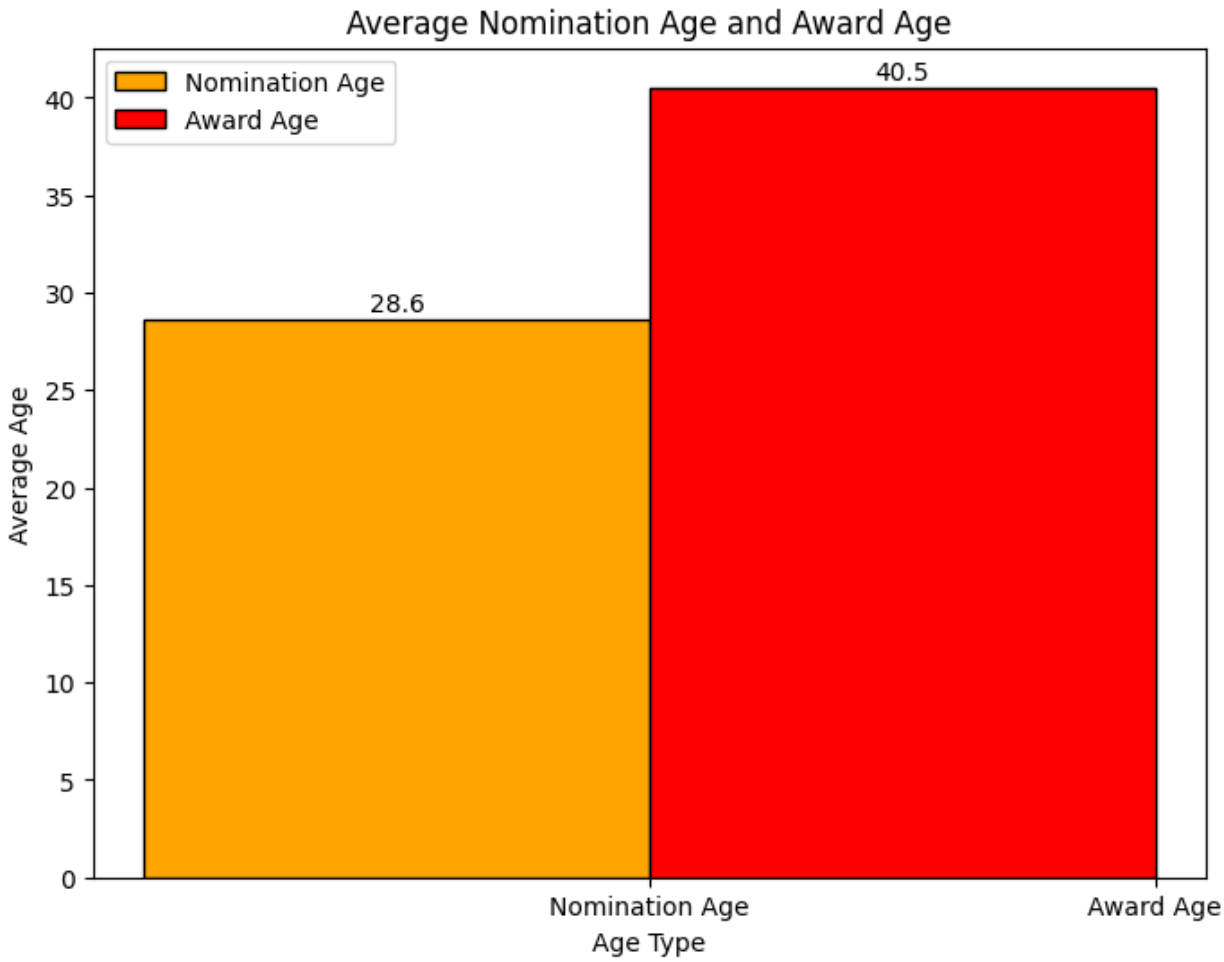

```
# Group by 'Gender (traditional)' and calculate average 'Award Age'
average_age_by_gender = ent_award.groupby('Gender (traditional)')
['Award Age'].mean()

# Plotting the bar chart with average values on top
plt.figure(figsize=(6, 6))

# Plotting the bars
bars = plt.bar(average_age_by_gender.index, average_age_by_gender,
color=['pink', 'blue'], edgecolor='black')

# Adding labels and title
plt.xlabel('Gender')
plt.ylabel('Average Award Age')
plt.title('Average Award Age of Male and Female Entertainers')

# Adding values on top of the bars
for bar in bars:
```

```
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width() / 2, yval + 0.1,
round(yval, 1), ha='center', va='bottom', color='black', fontsize=10)

# Display the plot
plt.show()
```



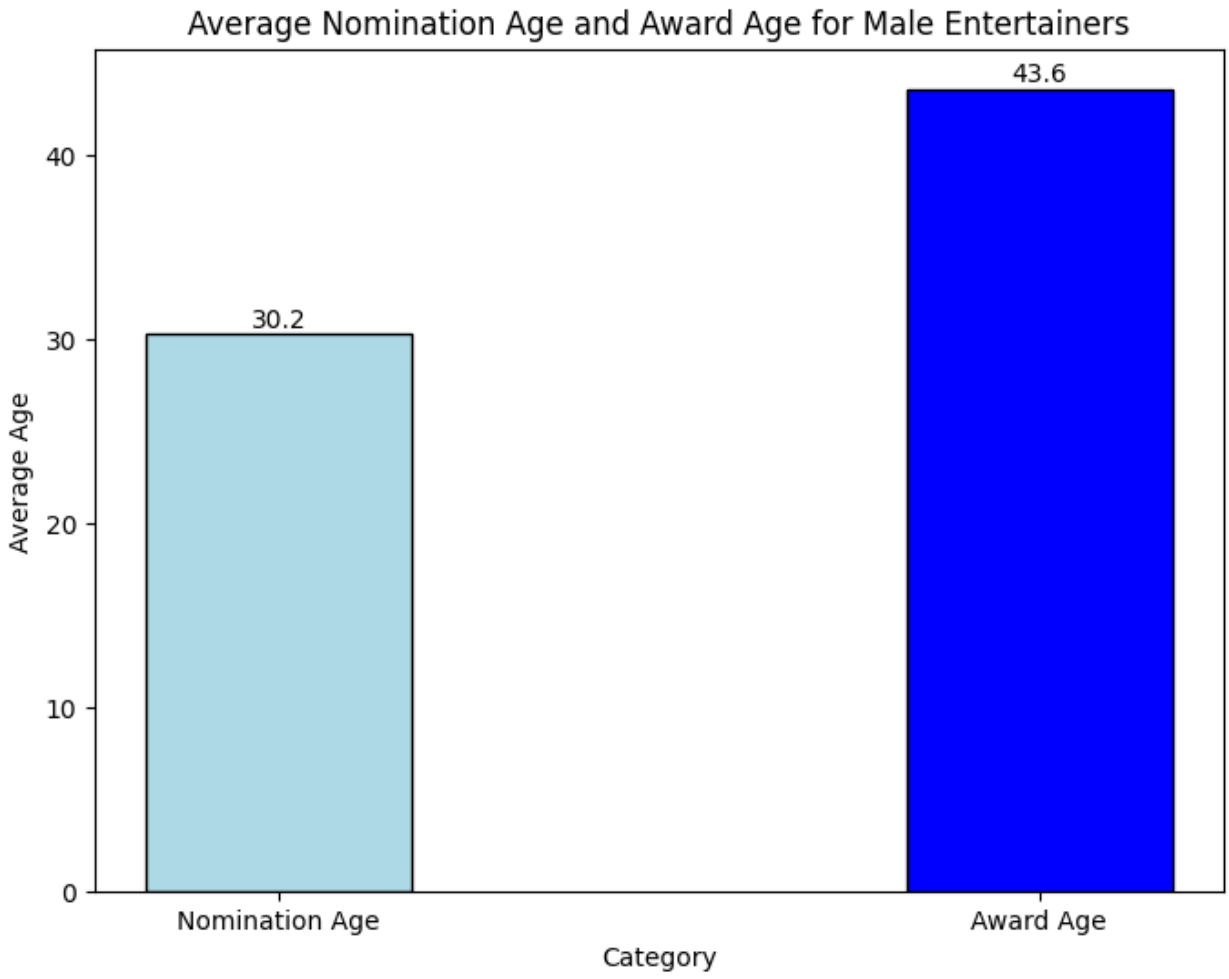

```
# Calculate average ages
average_age = ent_award[['Nomination Age', 'Award Age']].mean()

# Plotting the multiple bar chart
plt.figure(figsize=(8, 6))

# Bar width
bar_width = 0.35

# Plotting the bars for 'Nomination Age'
```

```
bars1 = plt.bar([0], [average_age['Nomination Age']], bar_width,
label='Nomination Age', color='orange', edgecolor='black')

# Plotting the bars for 'Award Age'
bars2 = plt.bar([bar_width], [average_age['Award Age']], bar_width,
label='Award Age', color='red', edgecolor='black')

# Adding labels and title
plt.xlabel('Age Type')
plt.ylabel('Average Age')
plt.title('Average Nomination Age and Award Age')
plt.xticks([bar_width / 2, bar_width + bar_width / 2], ['Nomination
Age', 'Award Age'])

# Adding values on top of the bars for 'Nomination Age'
for bar in bars1:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width() / 2, yval + 0.1,
round(yval, 1), ha='center', va='bottom', color='black', fontsize=10)

# Adding values on top of the bars for 'Award Age'
for bar in bars2:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width() / 2, yval + 0.1,
round(yval, 1), ha='center', va='bottom', color='black', fontsize=10)

# Display the plot
plt.legend()
plt.show()
```



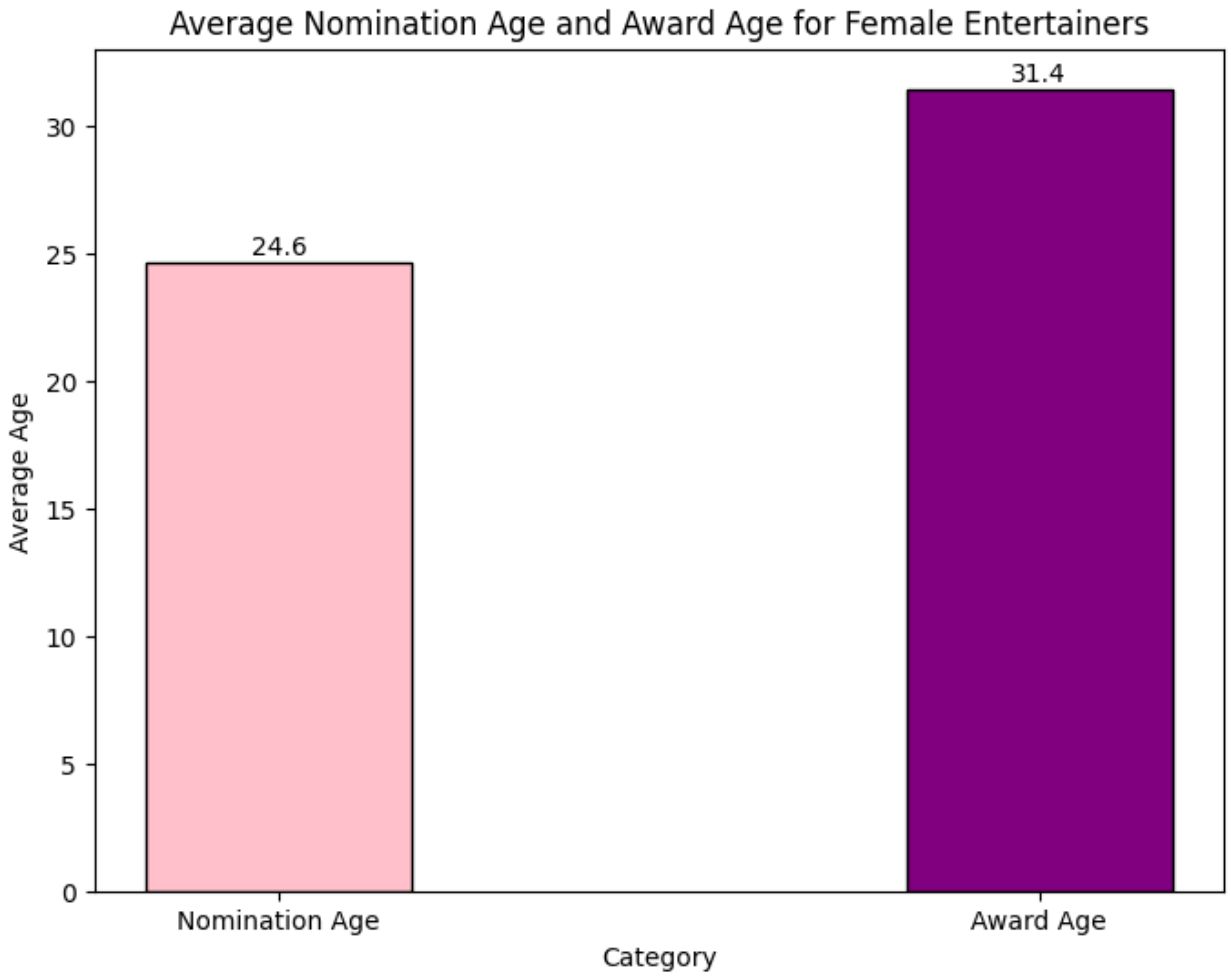

```
# Filter data for male entertainers
male_data = ent_award[ent_award['Gender (traditional)'] == 'M']

# Calculate average ages for male entertainers
average_age_male = male_data[['Nomination Age', 'Award Age']].mean()

# Plotting the bar chart
plt.figure(figsize=(8, 6))

# Bar width
bar_width = 0.35

# Plotting the bars for 'Nomination Age' and 'Award Age'
bars = plt.bar(range(len(average_age_male)), average_age_male,
bar_width, edgecolor='black', color=['lightblue', 'blue'])

# Adding labels and title
plt.xlabel('Category')
plt.ylabel('Average Age')
plt.title('Average Nomination Age and Award Age for Male
```

```
Entertainers')
plt.xticks(range(len(average_age_male)), ['Nomination Age', 'Award
Age'])

# Adding values on top of the bars
for bar in bars:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width() / 2, yval + 0.1,
round(yval, 1), ha='center', va='bottom', color='black', fontsize=10)

# Display the plot
plt.show()
```



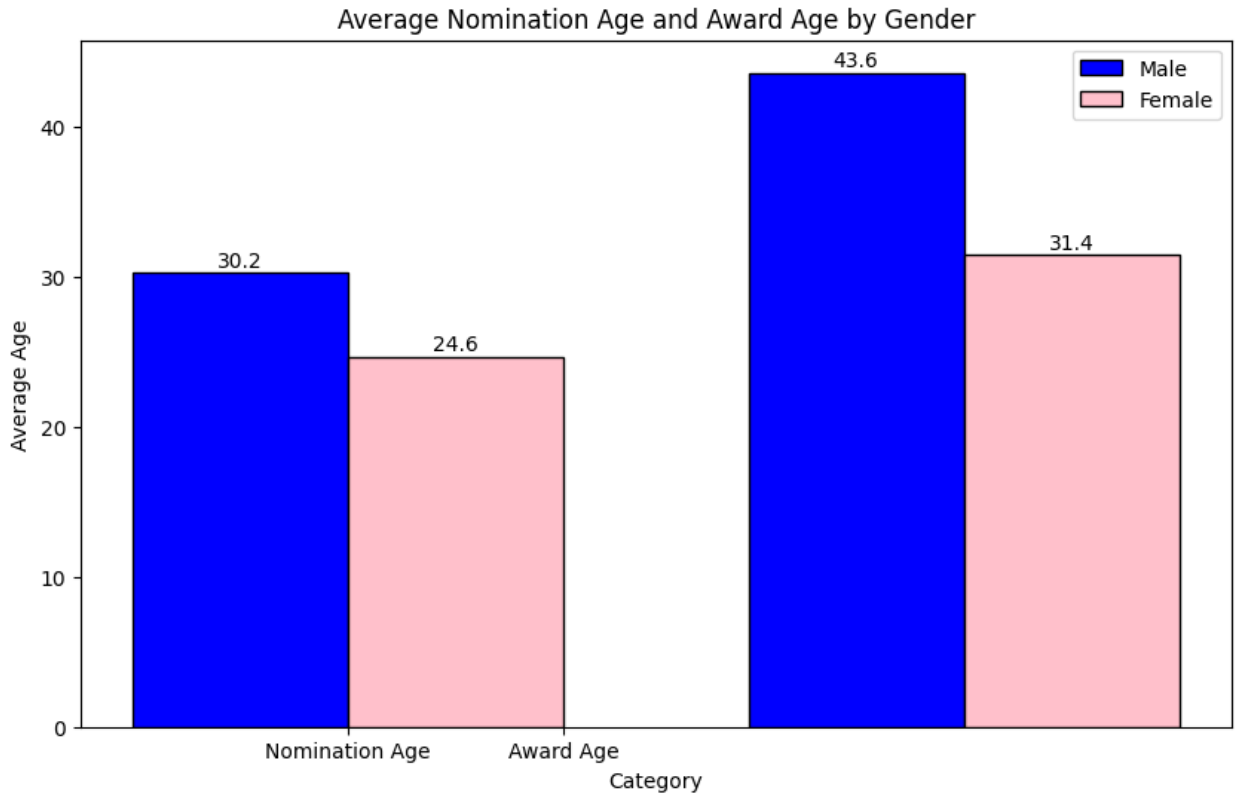

```
# Filter data for female entertainers
female_data = ent_award[ent_award['Gender (traditional)'] == 'F']

# Calculate average ages for female entertainers
average_age_female = female_data[['Nomination Age', 'Award
Age']].mean()
```

```
# Plotting the bar chart
plt.figure(figsize=(8, 6))

# Bar width
bar_width = 0.35

# Plotting the bars for 'Nomination Age' and 'Award Age'
bars = plt.bar(range(len(average_age_female)), average_age_female,
bar_width, edgecolor='black', color=['pink', 'purple'])

# Adding labels and title
plt.xlabel('Category')
plt.ylabel('Average Age')
plt.title('Average Nomination Age and Award Age for Female
Entertainers')
plt.xticks(range(len(average_age_female)), ['Nomination Age', 'Award
Age'])

# Adding values on top of the bars
for bar in bars:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width() / 2, yval + 0.1,
round(yval, 1), ha='center', va='bottom', color='black', fontsize=10)

# Display the plot
plt.show()
```

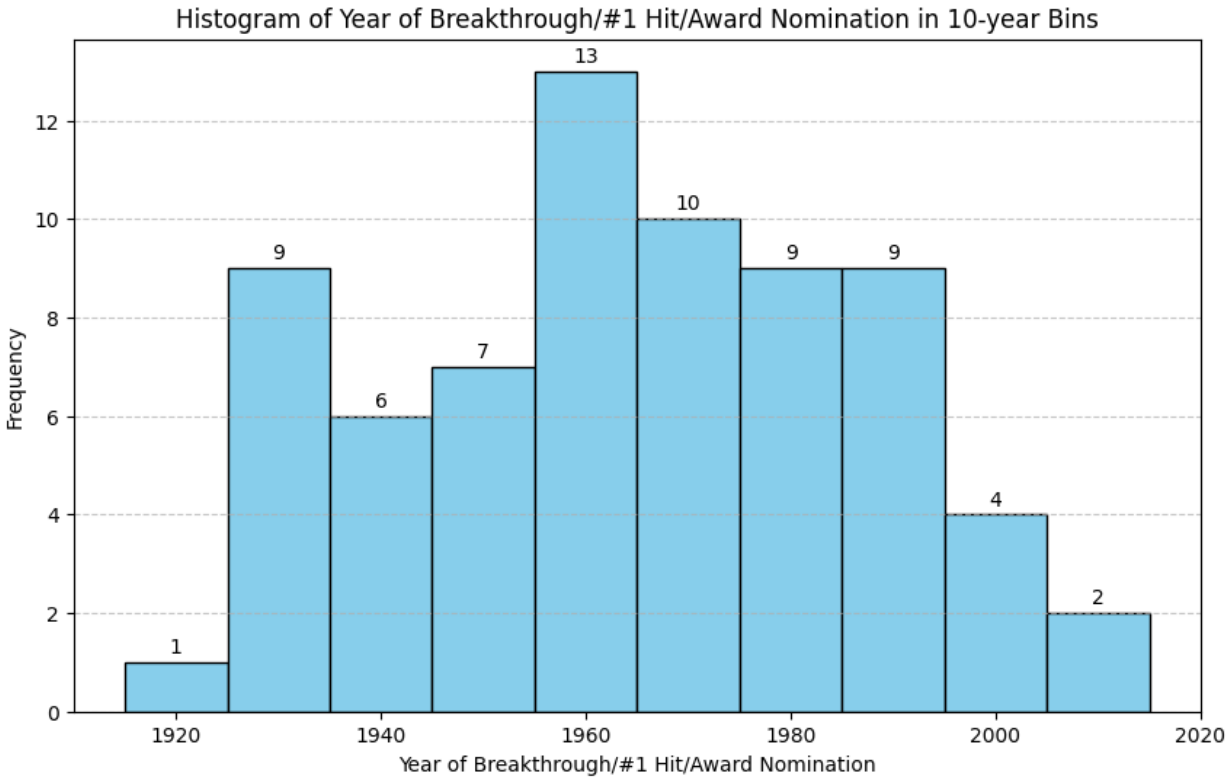



```
# Separate data by gender
male_data = ent_award[ent_award['Gender (traditional)'] == 'M']
female_data = ent_award[ent_award['Gender (traditional)'] == 'F']

# Calculate average ages for both genders
average_age_male = male_data[['Nomination Age', 'Award Age']].mean()
average_age_female = female_data[['Nomination Age', 'Award
Age']].mean()

# Plotting the grouped bar chart
plt.figure(figsize=(10, 6))

# Bar width
bar_width = 0.35

# Plotting the bars for 'Nomination Age' and 'Award Age'
bars1 = plt.bar(range(len(average_age_male)), average_age_male,
bar_width, label='Male', edgecolor='black', color=['blue', 'blue'])
bars2 = plt.bar([x + bar_width for x in
range(len(average_age_female))], average_age_female, bar_width,
```

```
label='Female', edgecolor='black', color=['pink', 'pink'])

# Adding labels and title
plt.xlabel('Category')
plt.ylabel('Average Age')
plt.title('Average Nomination Age and Award Age by Gender')
plt.xticks([bar_width / 2, 3 * bar_width / 2], ['Nomination Age',
'Award Age'])

# Adding legend
plt.legend()

# Adding values on top of the bars for Male 'Nomination Age' and
'Award Age'
for bar in bars1:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width() / 2, yval + 0.1,
round(yval, 1), ha='center', va='bottom', color='black', fontsize=10)

# Adding values on top of the bars for Female 'Nomination Age' and
'Award Age'
for bar in bars2:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width() / 2, yval + 0.1,
round(yval, 1), ha='center', va='bottom', color='black', fontsize=10)

# Display the plot
plt.show()
```

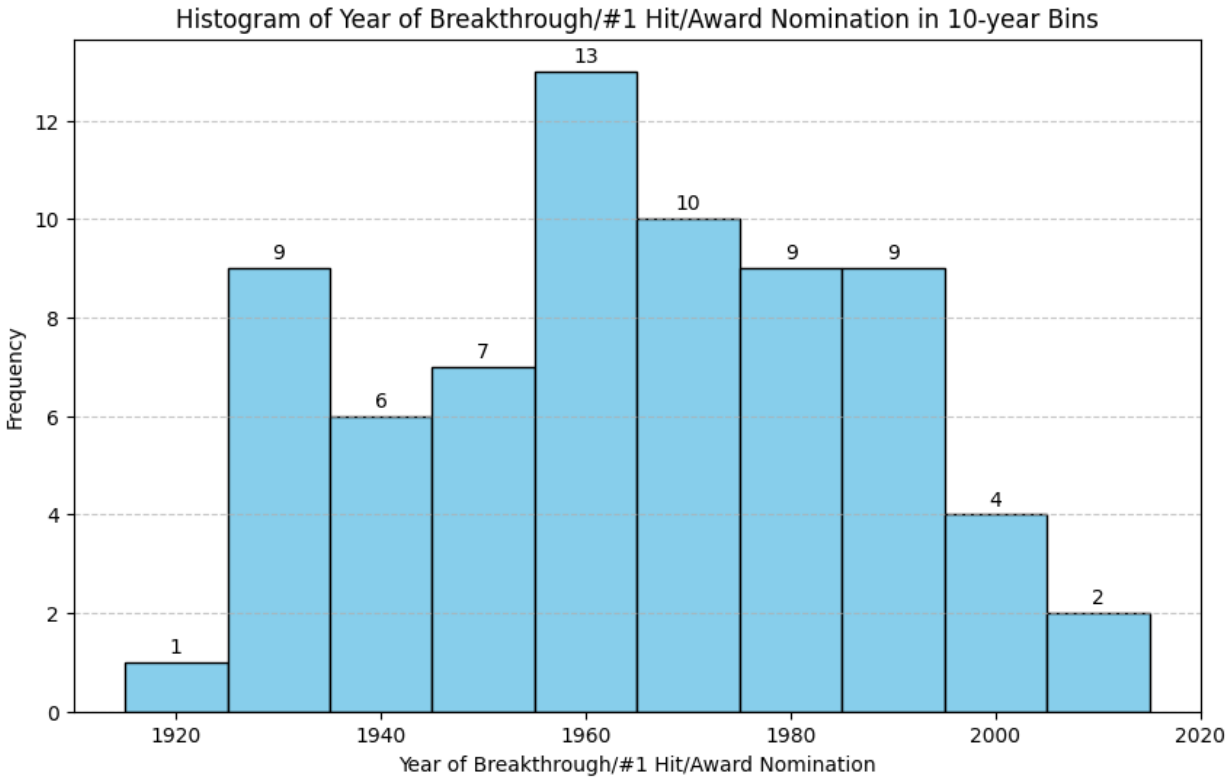



```
# Create bins of 10 years
bins = list(range(ent_award['Year of Breakthrough/#1 Hit/Award
Nomination'].min(),
                  ent_award['Year of Breakthrough/#1 Hit/Award
Nomination'].max() + 11, 10))

# Plotting the histogram
plt.figure(figsize=(10, 6))
n, bins, patches = plt.hist(ent_award['Year of Breakthrough/#1
Hit/Award Nomination'], bins=bins, edgecolor='black', color='skyblue')
plt.xlabel('Year of Breakthrough/#1 Hit/Award Nomination')
plt.ylabel('Frequency')
plt.title('Histogram of Year of Breakthrough/#1 Hit/Award Nomination
in 10-year Bins')
plt.grid(axis='y', linestyle='--', alpha=0.7)

# Adding values on top of the bars
for value, bin, patch in zip(n, bins, patches):
    plt.text(bin + 5, value + 0.1, int(value), ha='center',
va='bottom', color='black', fontsize=10)

plt.show()
```




```
# Convert 'Year of Breakthrough/#1 Hit/Award Nomination' to numeric
ent_award['Year of Breakthrough/#1 Hit/Award Nomination'] =
pd.to_numeric(ent_award['Year of Breakthrough/#1 Hit/Award
Nomination'], errors='coerce')

# Create bins of 10 years
bins = list(range(ent_award['Year of Breakthrough/#1 Hit/Award
Nomination'].min(),
                  ent_award['Year of Breakthrough/#1 Hit/Award
Nomination'].max() + 11, 10))

# Plotting the histogram
plt.figure(figsize=(10, 6))
n, bins, patches = plt.hist(ent_award['Year of Breakthrough/#1
Hit/Award Nomination'], bins=bins, edgecolor='black', color='skyblue')
plt.xlabel('Year of Breakthrough/#1 Hit/Award Nomination')
plt.ylabel('Frequency')
plt.title('Histogram of Year of Breakthrough/#1 Hit/Award Nomination
in 10-year Bins')
plt.grid(axis='y', linestyle='--', alpha=0.7)

# Adding values on top of the bars
for value, bin, patch in zip(n, bins, patches):
    plt.text(bin + 5, value + 0.1, int(value), ha='center',
va='bottom', color='black', fontsize=10)
```

```
plt.show()
```



```
# Merge the DataFrames on the 'Entertainer' column
ent_final = pd.merge(ent_award, ent_last, on='Entertainer')

# Display the resulting DataFrame 'ent_award'
print(ent_final)
```

```
        Entertainer Gender (traditional)  Birth Year Birth Year
Bins  \
0             Adele                      F        1988    [1979, 1989)

1    Angelina Jolie                      F        1975    [1969, 1979)

2   Aretha Franklin                      F        1942    [1939, 1949)

3       Bette Davis                      F        1908    [1899, 1909)

4       Betty White                      F        1922    [1919, 1929)

..              ...                    ...         ...             ...

65        Tom Hanks                      M        1956    [1949, 1959)
```

```
66     Tony Bennett                       M        1926    [1919, 1929)

67     Wayne Newton                       M        1942    [1939, 1949)

68       Will Smith                       M        1968    [1959, 1969)

69    Willie Nelson                       M        1933    [1929, 1939)


    Year of Breakthrough/#1 Hit/Award Nomination  \
0                                             2008
1                                             1999
2                                             1967
3                                             1934
4                                             1952
..                                             ...
65                                            1984
66                                            1951
67                                            1972
68                                            1990
69                                            1975

                            Breakthrough Name  Year of First
Oscar/Grammy/Emmy  \
0                                          19
2009.0
1                           Girl, Interrupted
1999.0
2   I Never Loved a Man (The Way I Love You)
1968.0
3                            Of Human Bondage
1935.0
4                        Life with Elilzabeth
1976.0
..                                        ...
...
65                                    Splash
1993.0
66                             Because of You
1963.0
67              Daddy, Don't You Walk So Fast
NaN
68                The Fresh Prince of Bel-Air
1988.0
69                        Red Headed Stranger
1976.0

    Nomination Age  Award Age  Year of Last Major Work (arguable)  \
0               20       21.0                                2016
```

```
1                24       24.0                                    2016
2                25       26.0                                    2014
3                26       27.0                                    1989
4                30       54.0                                    2016
..              ...        ...                                     ...
65               28       37.0                                    2016
66               25       37.0                                    2016
67               30        NaN                                    2016
68               22       20.0                                    2016
69               42       43.0                                    2016

    Year of Death
0             NaN
1             NaN
2             NaN
3          1989.0
4             NaN
..            ...
65            NaN
66            NaN
67            NaN
68            NaN
69            NaN

[70 rows x 11 columns]
```

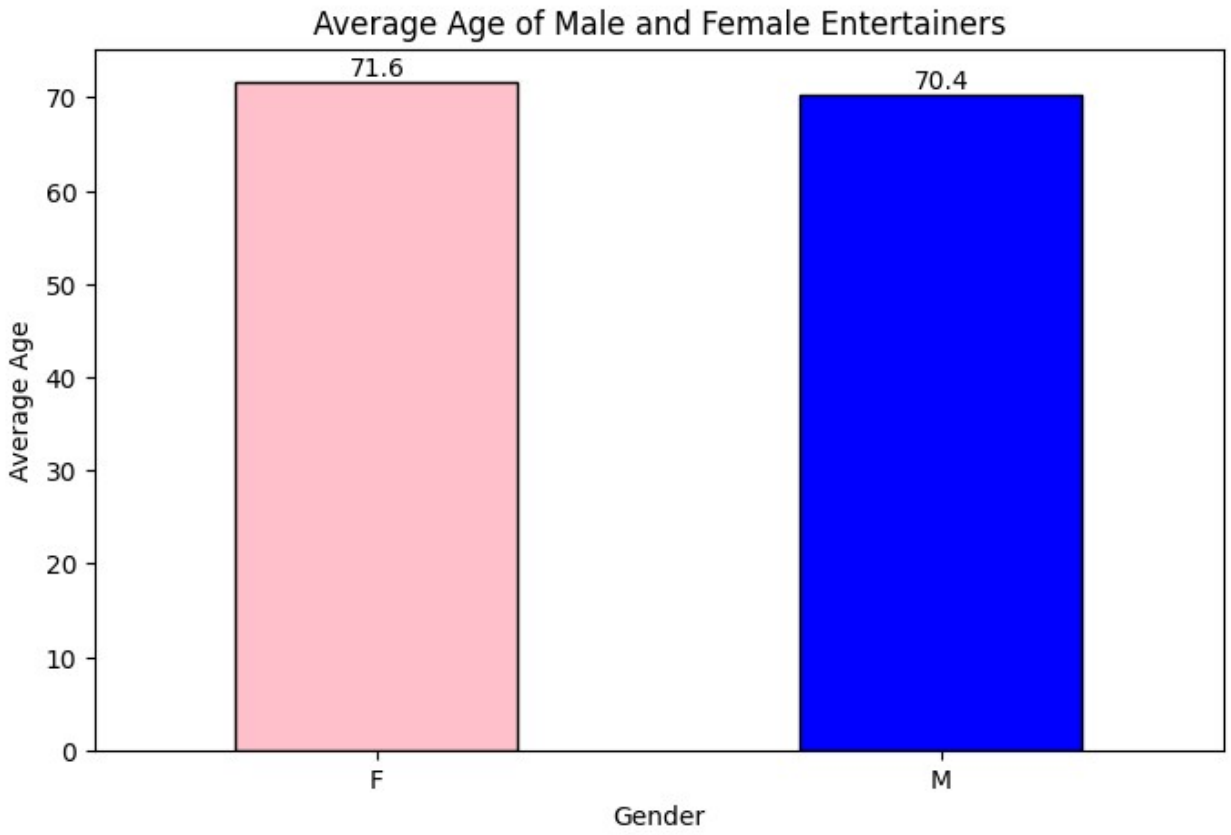
```
# Convert relevant columns to numeric
numeric_columns = ['Year of Death', 'Birth Year']
ent_final[numeric_columns] =
ent_final[numeric_columns].apply(pd.to_numeric, errors='coerce')

# Create a new column 'Entertainer Age'
ent_final['Entertainer Age'] = ent_final['Year of Death'] -
ent_final['Birth Year']

# Display the resulting dataframe with the new column
print(ent_final)
```

```
        Entertainer Gender (traditional)  Birth Year Birth Year
Bins  \
0             Adele                     F        1988    [1979, 1989)

1    Angelina Jolie                     F        1975    [1969, 1979)

2   Aretha Franklin                     F        1942    [1939, 1949)

3       Bette Davis                     F        1908    [1899, 1909)

4       Betty White                     F        1922    [1919, 1929)

..              ...                   ...         ...             ...
```

```
65        Tom Hanks                       M        1956    [1949, 1959)

66     Tony Bennett                       M        1926    [1919, 1929)

67     Wayne Newton                       M        1942    [1939, 1949)

68       Will Smith                       M        1968    [1959, 1969)

69    Willie Nelson                       M        1933    [1929, 1939)


    Year of Breakthrough/#1 Hit/Award Nomination  \
0                                                2008
1                                                1999
2                                                1967
3                                                1934
4                                                1952
..                                                ...
65                                               1984
66                                               1951
67                                               1972
68                                               1990
69                                               1975

                            Breakthrough Name  Year of First
Oscar/Grammy/Emmy  \
0                                            19
2009.0
1                           Girl, Interrupted
1999.0
2   I Never Loved a Man (The Way I Love You)
1968.0
3                            Of Human Bondage
1935.0
4                       Life with Elilzabeth
1976.0
..                                         ...
...
65                                    Splash
1993.0
66                           Because of You
1963.0
67             Daddy, Don't You Walk So Fast
NaN
68               The Fresh Prince of Bel-Air
1988.0
69                       Red Headed Stranger
1976.0
```

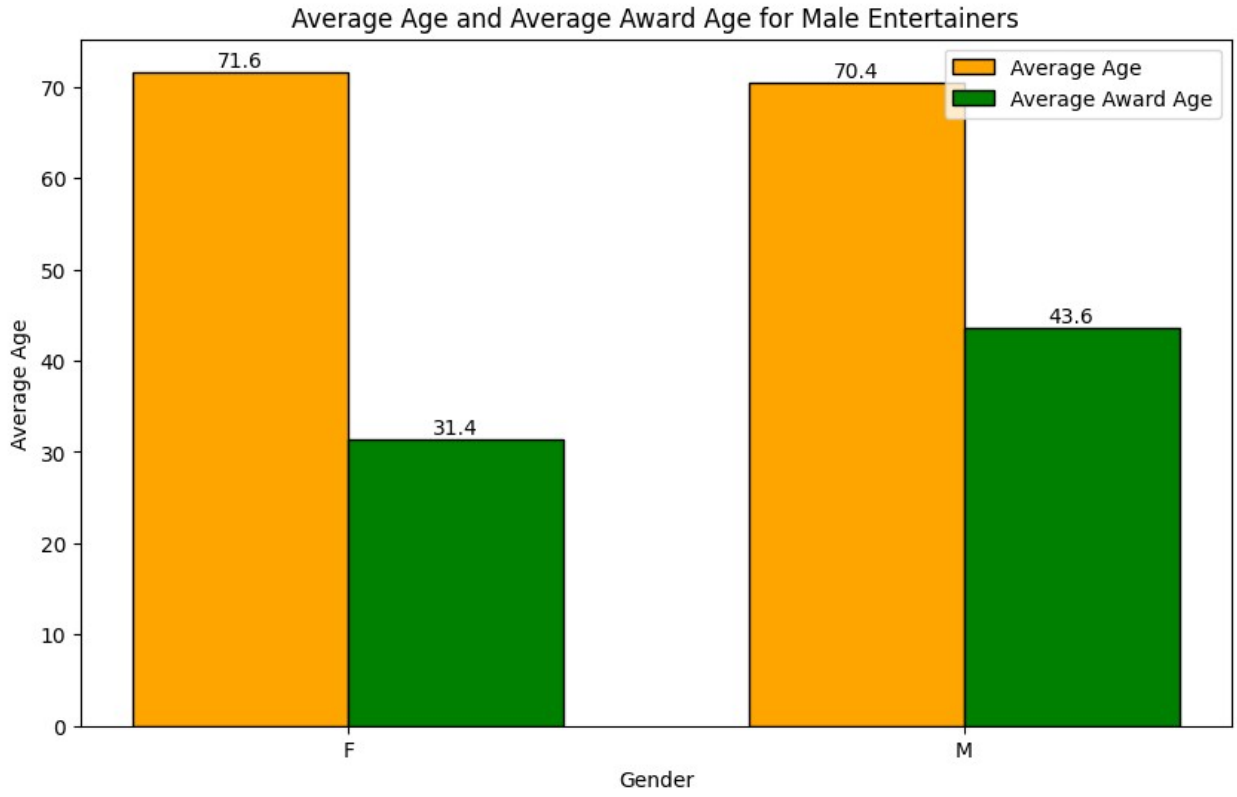
```
    Nomination Age  Award Age  Year of Last Major Work (arguable)  \
0               20       21.0                                2016
1               24       24.0                                2016
2               25       26.0                                2014
3               26       27.0                                1989
4               30       54.0                                2016
..             ...        ...                                 ...
65              28       37.0                                2016
66              25       37.0                                2016
67              30        NaN                                2016
68              22       20.0                                2016
69              42       43.0                                2016

    Year of Death  Entertainer Age
0             NaN              NaN
1             NaN              NaN
2             NaN              NaN
3          1989.0             81.0
4             NaN              NaN
..            ...              ...
65            NaN              NaN
66            NaN              NaN
67            NaN              NaN
68            NaN              NaN
69            NaN              NaN

[70 rows x 12 columns]
```

```python
# Group by 'Gender (traditional)' and calculate the average age
average_age_by_gender = ent_final.groupby('Gender (traditional)')
['Entertainer Age'].mean()

# Plotting the bar chart
plt.figure(figsize=(8, 5))
bars = average_age_by_gender.plot(kind='bar', color=['pink', 'blue'],
edgecolor='black')

# Adding values on top of the bars
for bar in bars.patches:
    yval = bar.get_height()
    plt.text(bar.get_x() + bar.get_width() / 2, yval + 0.1,
round(yval, 1), ha='center', va='bottom', color='black', fontsize=10)

plt.xlabel('Gender')
plt.ylabel('Average Age')
plt.title('Average Age of Male and Female Entertainers')
plt.xticks(rotation=0)
plt.show()
```




```
# Group by 'Gender (traditional)' and calculate the average age and
average award age
average_age_and_award_by_gender = ent_final.groupby('Gender
(traditional)')[['Entertainer Age', 'Award Age']].mean()

# Plotting the grouped bar chart
plt.figure(figsize=(10, 6))
bar_width = 0.35
index = range(len(average_age_and_award_by_gender.index))

# Plotting the bars for average age
bars1 = plt.bar(index, average_age_and_award_by_gender['Entertainer
Age'], bar_width, label='Average Age', edgecolor='black',
color='orange')

# Plotting the bars for average award age
bars2 = plt.bar([i + bar_width for i in index],
average_age_and_award_by_gender['Award Age'], bar_width,
label='Average Award Age', edgecolor='black', color='green')

# Adding labels and title
plt.xlabel('Gender')
plt.ylabel('Average Age')
```

```
plt.title('Average Age and Average Award Age for Male Entertainers')
plt.xticks([i + bar_width / 2 for i in index],
average_age_and_award_by_gender.index)
plt.legend()

# Adding values on top of the bars
for bar1, bar2 in zip(bars1, bars2):
    plt.text(bar1.get_x() + bar1.get_width() / 2, bar1.get_height() +
0.1, round(bar1.get_height(), 1), ha='center', va='bottom',
color='black', fontsize=10)
    plt.text(bar2.get_x() + bar2.get_width() / 2, bar2.get_height() +
0.1, round(bar2.get_height(), 1), ha='center', va='bottom',
color='black', fontsize=10)

plt.show()
```




```
#Export the final dataframe
ent_final.to_csv('Entertainer_Final.csv', index=False)
```