Entertainer Data Analysis

1. Import Required Libraries

In [17]:

```
# Importing necessary libraries for the project
import pandas as pd  # For data manipulation and analysis
import numpy as np  # For numerical operations
import matplotlib.pyplot as plt  # For basic visualizations
import seaborn as sns  # For advanced visualizations
from datetime import datetime

# Configuring visualizations to appear inline
%matplotlib inline
```

2. Load the Datasets

In [3]:

```
# Loading the three datasets
basic_info = pd.read_csv("Entertainer - Basic Info.csv")
breakthrough_info = pd.read_csv("Entertainer - Breakthrough Info.csv")
last_work_info = pd.read_csv("Entertainer - Last work Info.csv")
```

In [5]:

```
# Displaying the first few rows of each dataset to understand the structure
print("Basic Info Dataset:")
basic_info.head()
```

```
Basic Info Dataset:
```

Out[5]:

	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

In [7]:

```
print("\nBreakthrough Info Dataset:")
breakthrough_info.head()
```

```
Breakthrough Info Dataset:
```

Out[7]:

	Entertainer	Year of Breakthrough/#1 Hit/Award Nomination	Breakthrough Name	Year of First Oscar/Grammy/Emmy
0	Adele	2008	19	2009.0
1	Angelina Jolie	1999	Girl, Interrupted	1999.0
2	Aretha Franklin	1967	I Never Loved a Man (The Way I Love You)	1968.0
3	Bette Davis	1934	Of Human Bondage	1935.0
4	Betty White	1952	Life with Elilzabeth	1976.0

In [9]:

```
print("\nLast Work Info Dataset:")
last_work_info.head()
```

```
Last Work Info Dataset:
```

Out[9]:

	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

3. Inspect and Understand the Data

In [13]:

```
# Checking the basic structure of each dataset
print("Basic Info Structure:")
basic_info.info()

print("\nBreakthrough Info Structure:")
breakthrough_info.info()

print("\nLast Work Info Structure:")
last_work_info.info()
```

```
Basic Info Structure:
<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

Breakthrough Info Structure:
<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

Last Work Info Structure:
<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
```

In [15]:

```python
# Checking for missing values in each dataset
print("\nMissing Values in Basic Info:")
print(basic_info.isnull().sum())

print("\nMissing Values in Breakthrough Info:")
print(breakthrough_info.isnull().sum())

print("\nMissing Values in Last Work Info:")
print(last_work_info.isnull().sum())
```

```
Missing Values in Basic Info:
Entertainer             0
Gender (traditional)    0
Birth Year              0
dtype: int64

Missing Values in Breakthrough Info:
Entertainer                                     0
Year of Breakthrough/#1 Hit/Award Nomination    0
Breakthrough Name                               0
Year of First Oscar/Grammy/Emmy                 6
dtype: int64

Missing Values in Last Work Info:
Entertainer                            0
Year of Last Major Work (arguable)     0
Year of Death                         40
dtype: int64
```

In [25]:

```
# Checking for duplicate values in each dataset
print("\nDuplicate Values in Basic Info:")
print(basic_info.duplicated().sum())

print("\nDuplicate Values in Breakthrough Info:")
print(breakthrough_info.duplicated().sum())

print("\nDuplicate Values in Last Work Info:")
print(last_work_info.duplicated().sum())
```

```
Duplicate Values in Basic Info:
0

Duplicate Values in Breakthrough Info:
0

Duplicate Values in Last Work Info:
0
```

4. Data Cleaning

In [27]:

```
# Dropping duplicates in all datasets
basic_info.drop_duplicates(inplace=True)
breakthrough_info.drop_duplicates(inplace=True)
last_work_info.drop_duplicates(inplace=True)
```

In [29]:

```
# Filling missing values if necessary
breakthrough_info['Year of First Oscar/Grammy/Emmy'] = breakthrough_info['Year c
last_work_info['Year of Death'] = last_work_info['Year of Death'].fillna(0000.0)
```

In [31]:

```
# Merging the datasets using 'Name' as a common column
merged_data = pd.merge(basic_info, breakthrough_info, on='Entertainer', how='inn
merged_data = pd.merge(merged_data, last_work_info, on='Entertainer', how='inner
```

In [33]:

```
# Displaying the merged dataset structure
print("Merged Data Structure:")
print(merged_data.info())
```

```
Merged Data Structure:
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 70 entries, 0 to 69
Data columns (total 8 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  
 3   Year of Breakthrough/#1 Hit/Award Nomination  70 non-null     int64  
 4   Breakthrough Name                         70 non-null     object 
 5   Year of First Oscar/Grammy/Emmy           70 non-null     float64
 6   Year of Last Major Work (arguable)        70 non-null     int64  
 7   Year of Death                             70 non-null     float64
dtypes: float64(2), int64(3), object(3)
memory usage: 4.5+ KB
None
```

In [35]:

```
# Saving the cleaned dataset for Power BI
merged_data.to_csv("cleaned_entertainer_data.csv", index=False)
```

In [37]:

```
cleaned_entertainer_data = pd.read_csv("cleaned_entertainer_data.csv")
print("\nCleaned Entertainer Data:")
cleaned_entertainer_data.head()
```

```
Cleaned Entertainer Data:
```

Out[37]:

	Entertainer	Gender (traditional)	Birth Year	Year of Breakthrough/#1 Hit/Award Nomination	Breakthrough Name	Year of Fi Oscar/Grammy/Emn
0	Adele	F	1988	2008	19	2009
1	Angelina Jolie	F	1975	1999	Girl, Interrupted	1999
2	Aretha Franklin	F	1942	1967	I Never Loved a Man (The Way I Love You)	1968
3	Bette Davis	F	1908	1934	Of Human Bondage	1935
4	Betty White	F	1922	1952	Life with Elilzabeth	1976

In [39]:

```
# Calculate 'Years Active' by subtracting 'Birth Year' from 'Year of Death' or c
current_year = datetime.now().year

cleaned_entertainer_data['Years Active'] = cleaned_entertainer_data.apply(
    lambda x: current_year - x['Birth Year'] if x['Year of Death'] == 0 else x['
    axis=1
)
```

In [105…

```
# Saving the cleaned dataset for Power BI
cleaned_entertainer_data.to_csv("cleaned_entertainer_data.csv", index=False)
```

In [5]:

```
cleaned_entertainer_data = pd.read_csv("cleaned_entertainer_data.csv")
print("\nCleaned Entertainer Data:")
cleaned_entertainer_data.head()
```

```
Cleaned Entertainer Data:
```

Out[5]:

	Entertainer	Gender (traditional)	Birth Year	Year of Breakthrough/#1 Hit/Award Nomination	Breakthrough Name	Year of Fi Oscar/Grammy/Emn
0	Adele	F	1988	2008	19	2009
1	Angelina Jolie	F	1975	1999	Girl, Interrupted	1999
2	Aretha Franklin	F	1942	1967	I Never Loved a Man (The Way I Love You)	1968
3	Bette Davis	F	1908	1934	Of Human Bondage	1935
4	Betty White	F	1922	1952	Life with Elilzabeth	1976

5. Exploratory Data Analysis (EDA)

1. Number of Entertainers by Gender

In [31]:

```
# Count of entertainers by gender
gender_count = cleaned_entertainer_data['Gender (traditional)'].value_counts()
print("Number of Entertainers by Gender:")
print(gender_count)
```

```
Number of Entertainers by Gender:
Gender (traditional)
M    50
F    20
Name: count, dtype: int64
```

2. Breakthrough Year Analysis

In [111…

```
# Count of entertainers by year of breakthrough
breakthrough_by_year = cleaned_entertainer_data['Year of Breakthrough/#1 Hit/Awa
print("Number of Breakthroughs by Year:")
print(breakthrough_by_year)
```

```
Number of Breakthroughs by Year:
Year of Breakthrough/#1 Hit/Award Nomination
1915    1
1926    1
1928    1
1930    1
1931    1
1933    2
1934    3
1936    1
1938    2
1939    1
1940    1
1944    1
1948    1
1949    1
1951    2
1952    2
1953    1
1955    1
1956    1
1957    1
1958    1
1959    1
1961    2
1962    2
1963    3
1964    1
1965    1
1967    4
1968    1
1969    2
1972    2
1975    1
1977    1
1978    1
1979    1
1980    1
1982    1
1984    3
1985    1
1987    1
1988    1
1989    2
1990    2
1992    1
1994    1
1997    1
1999    1
2000    1
2001    1
2008    2
Name: count, dtype: int64
```

3. Average Age at Death (only for deceased entertainers)

In [18]:

```
# Calculate Age at Death
cleaned_entertainer_data['Age at Death'] = np.where(cleaned_entertainer_data['Ye
# Filter for deceased entertainers
deceased_data = cleaned_entertainer_data[cleaned_entertainer_data['Year of Death

# Calculate average age at death
average_age_at_death = deceased_data['Age at Death'].mean()
print(f"Average Age at Death: {average_age_at_death}")
```

```
Average Age at Death: 70.7
```

4. Trends in Breakthroughs by Gender

In [21]:

```
# Group by gender and year of breakthrough, and count the number of entertainers
breakthrough_by_gender = cleaned_entertainer_data.groupby(['Gender (traditional)
print("Breakthroughs by Gender and Year:")
print(breakthrough_by_gender)
```

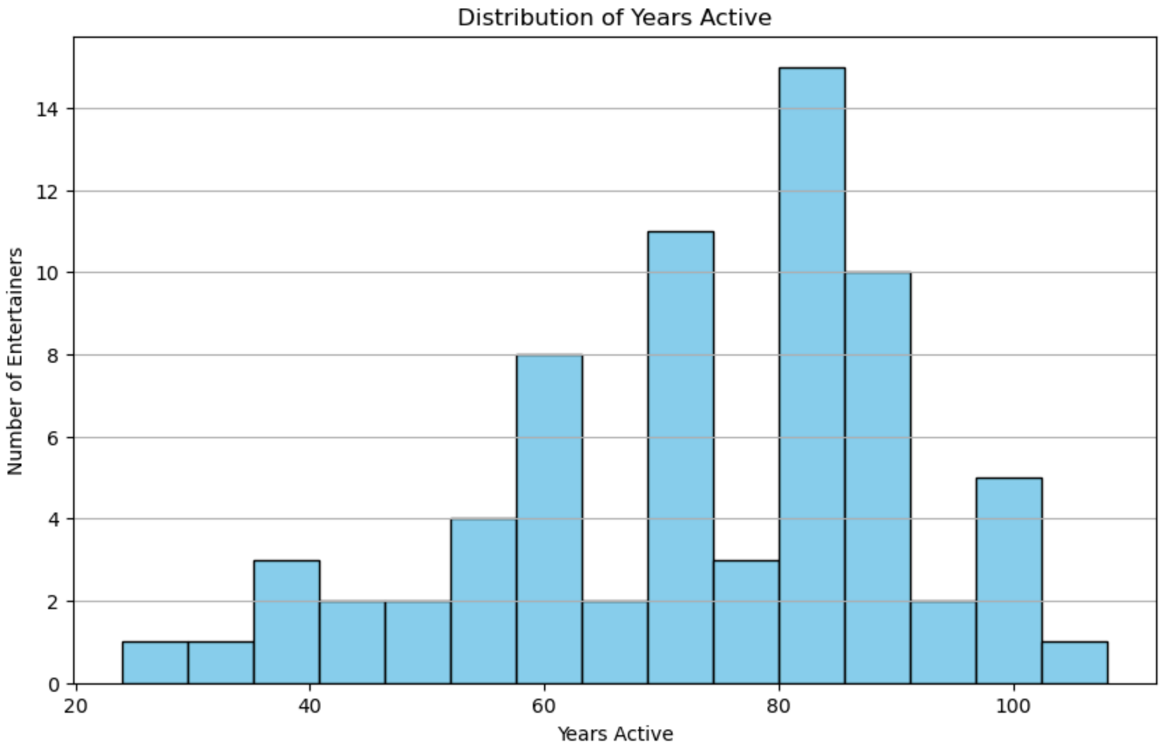
```
Breakthroughs by Gender and Year:
Year of Breakthrough/#1 Hit/Award Nomination  1915  1926  1928  1930  1931  \
Gender (traditional)
F                                                0     1     1     1     0
M                                                1     0     0     0     1

Year of Breakthrough/#1 Hit/Award Nomination  1933  1934  1936  1938  1939  \
Gender (traditional)
F                                                1     2     0     0     0
M                                                1     1     1     2     1

Year of Breakthrough/#1 Hit/Award Nomination  ...  1988  1989  1990  1992  \
Gender (traditional)                          ...
F                                             ...     0     0     1     0
M                                             ...     1     2     1     1

Year of Breakthrough/#1 Hit/Award Nomination  1994  1997  1999  2000  2001  \
Gender (traditional)
F                                                1     0     1     0     0
M                                                0     1     0     1     1

Year of Breakthrough/#1 Hit/Award Nomination  2008
Gender (traditional)
F                                                2
M                                                0

[2 rows x 50 columns]
```

Visualizations using Python

1. Trends in Years Active

In [121…

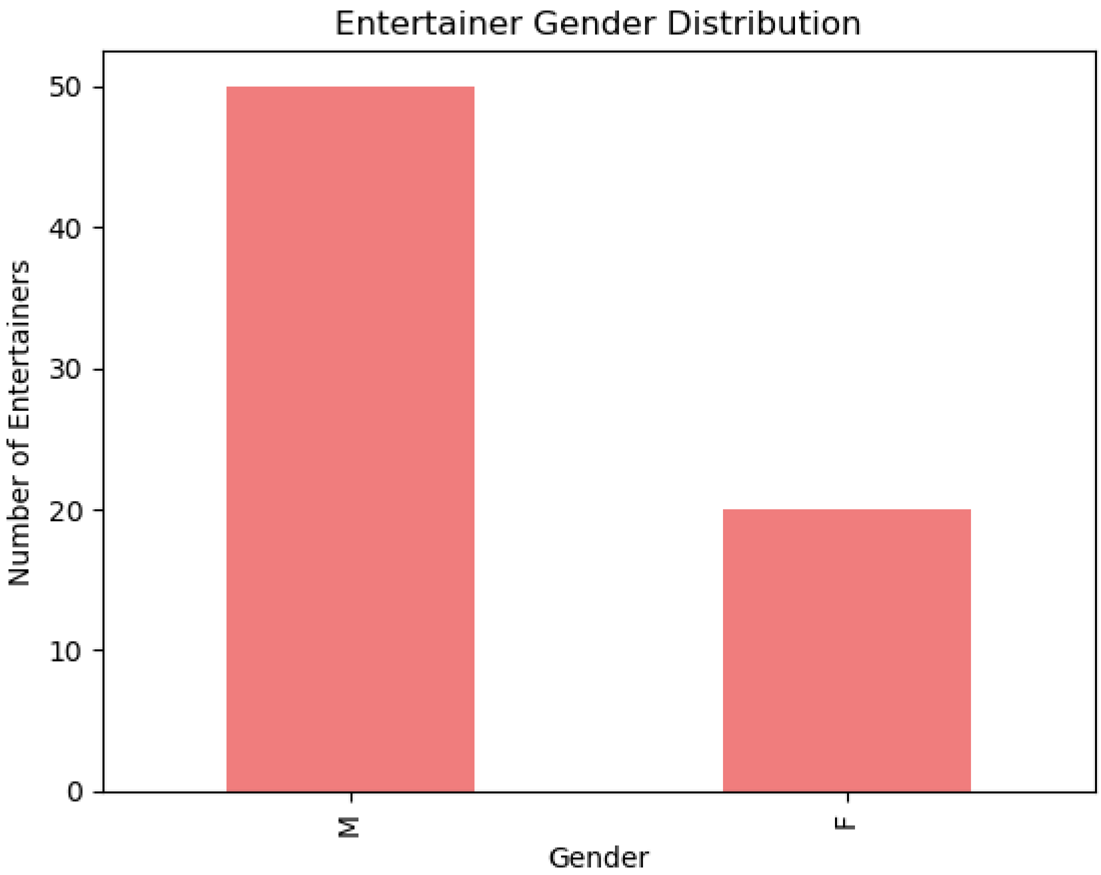
```
# Plot the distribution of 'Years Active' to see how long entertainers typically

plt.figure(figsize=(10, 6))
plt.hist(cleaned_entertainer_data['Years Active'], bins=15, color='skyblue', edg
plt.title("Distribution of Years Active")
plt.xlabel("Years Active")
plt.ylabel("Number of Entertainers")
plt.grid(axis='y')
plt.show()
```



2. Bar Chart for Gender Representation

In [33]:

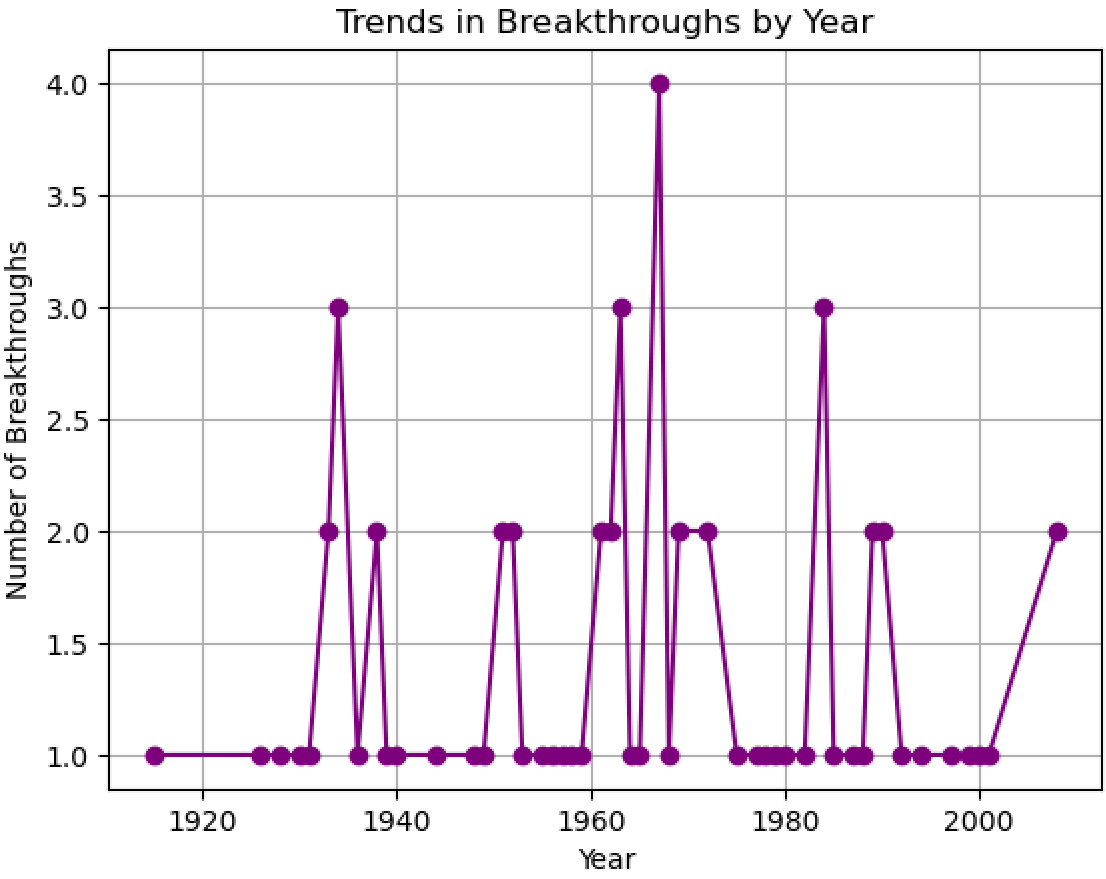
```
# Bar chart for gender distribution
gender_count.plot(kind='bar', color='lightcoral')
plt.title("Entertainer Gender Distribution")
plt.xlabel("Gender")
plt.ylabel("Number of Entertainers")
plt.show()
```



3. Line Chart for Trends in Breakthroughs by Year

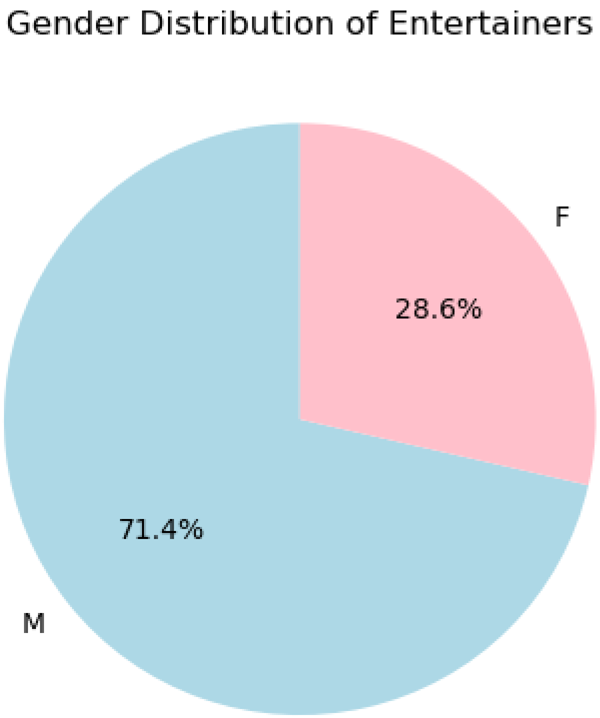
In [91]:

```
# Line chart for trends in breakthroughs by year
breakthrough_by_year.plot(kind='line', marker='o', color='purple')
plt.title("Trends in Breakthroughs by Year")
plt.xlabel("Year")
plt.ylabel("Number of Breakthroughs")
plt.grid(True)
plt.show()
```



4. Pie Chart for Gender Representation

In [95]:
```
# Pie chart for gender distribution
gender_count.plot(kind='pie', autopct='%1.1f%%', startangle=90, colors=['lightbl
plt.title("Gender Distribution of Entertainers")
plt.ylabel('')  # Remove the y-label
plt.show()
```

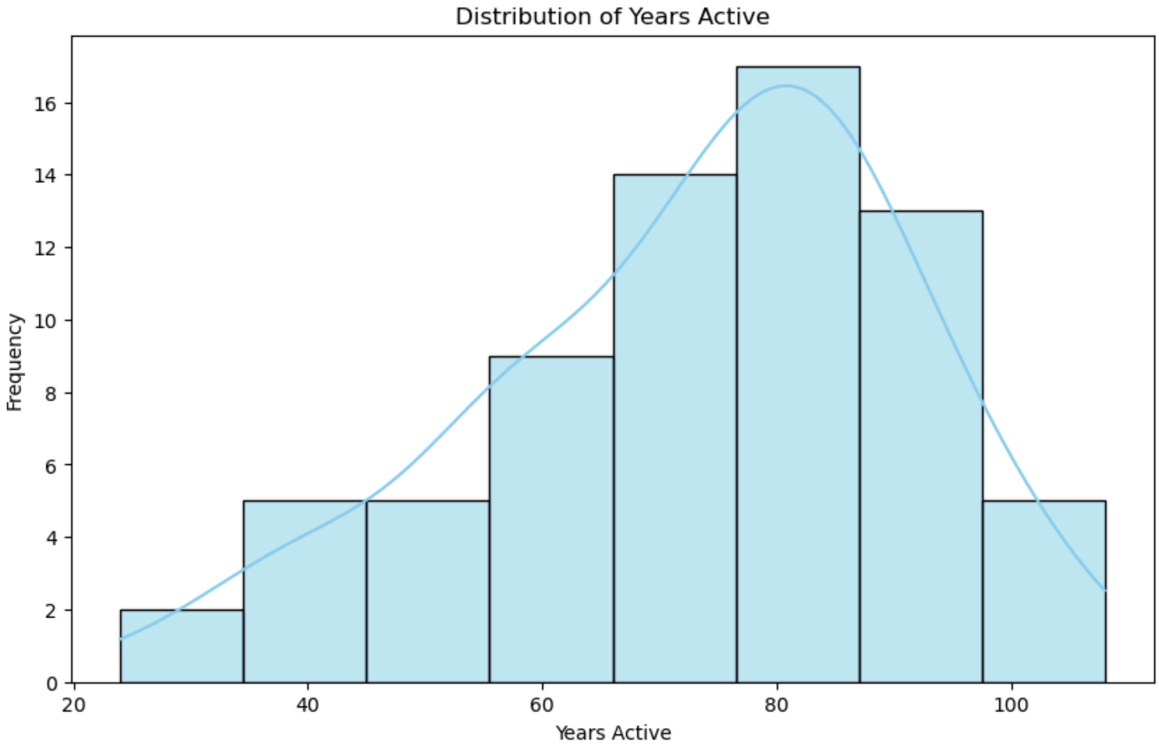


In [38]:
```
# Save cleaned data to CSV for further use or Power BI
cleaned_entertainer_data.to_csv("cleaned_entertainer_data.csv", index=False)
```

In [7]:
```
cleaned_entertainer_data.info()
```

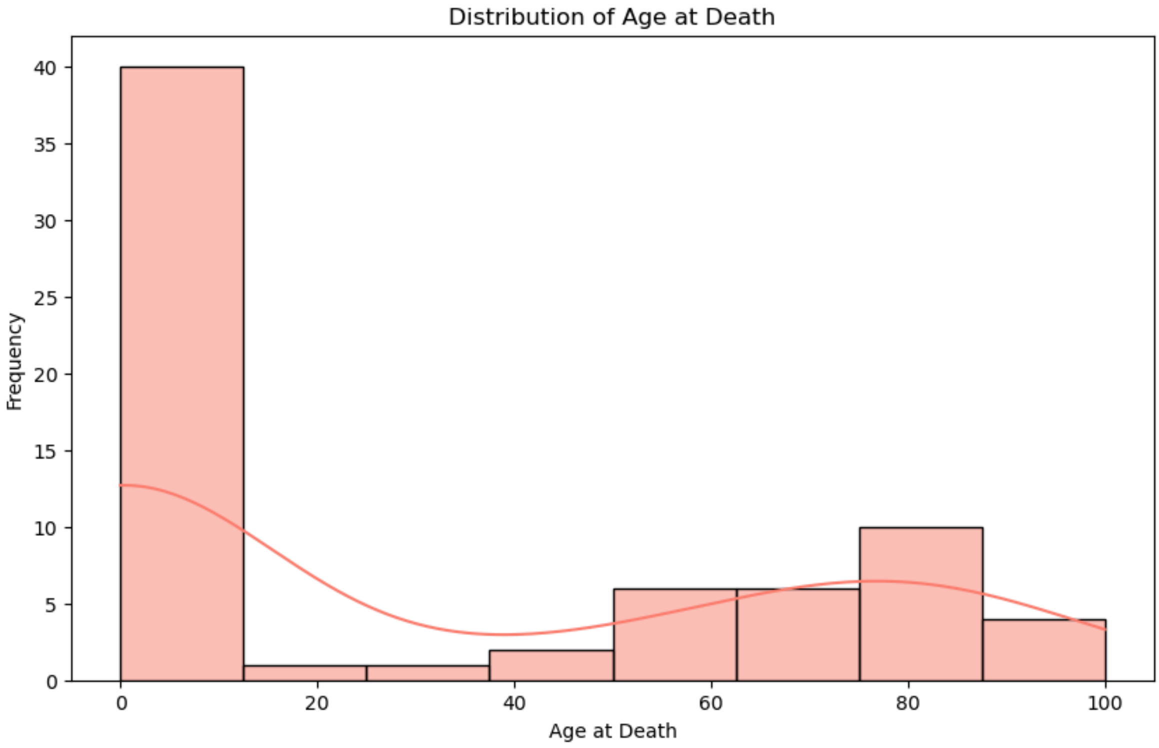
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 70 entries, 0 to 69
Data columns (total 10 columns):
 #   Column                                     Non-Null Count  Dtype  
---  ------                                     --------------  -----  
 0   Entertainer                                70 non-null     object 
 1   Gender (traditional)                       70 non-null     object 
 2   Birth Year                                 70 non-null     int64  
 3   Year of Breakthrough/#1 Hit/Award Nomination  70 non-null     int64  
 4   Breakthrough Name                          70 non-null     object 
 5   Year of First Oscar/Grammy/Emmy            70 non-null     float64
 6   Year of Last Major Work (arguable)         70 non-null     int64  
 7   Year of Death                              70 non-null     float64
 8   Years Active                               70 non-null     float64
 9   Age at Death                               70 non-null     float64
dtypes: float64(4), int64(3), object(3)
memory usage: 5.6+ KB
```

In [11]:
```
# Visualize the data distribution
plt.figure(figsize=(10, 6))
sns.histplot(cleaned_entertainer_data['Years Active'], kde=True, color='skyblue'
plt.title("Distribution of Years Active")
plt.xlabel("Years Active")
plt.ylabel("Frequency")
plt.show()
```



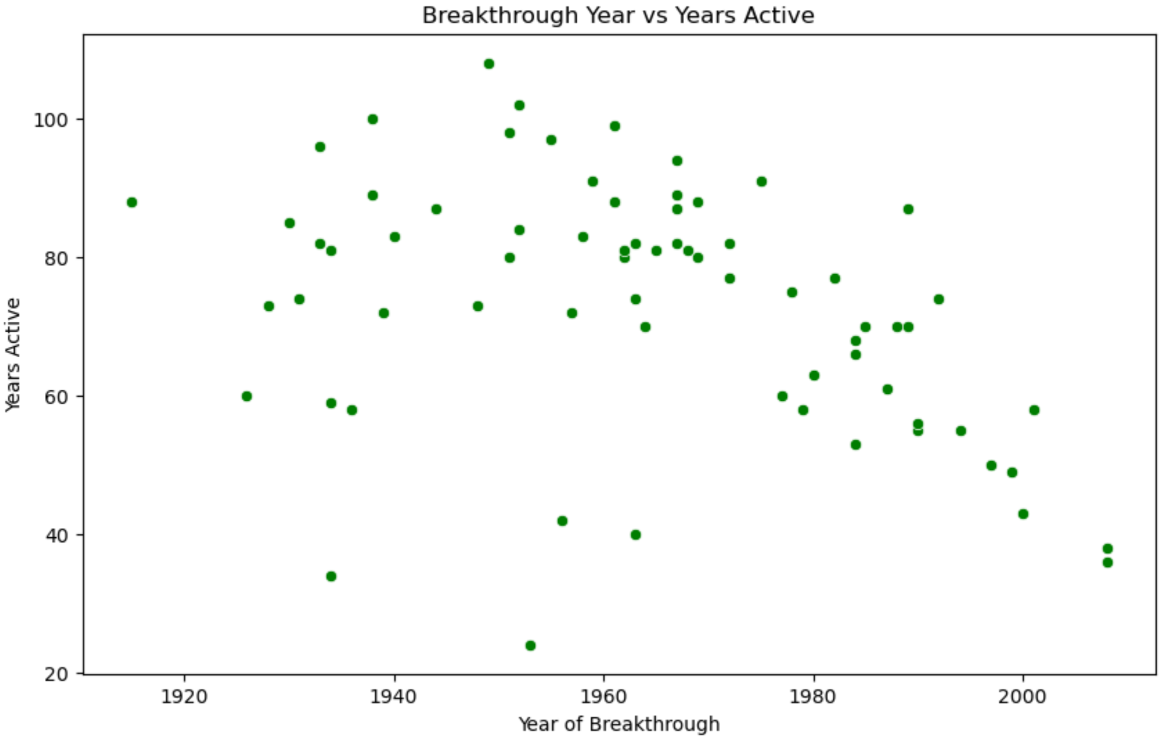
In [21]:

```
# Age at Death analysis
plt.figure(figsize=(10, 6))
sns.histplot(cleaned_entertainer_data['Age at Death'], kde=True, color='salmon')
plt.title("Distribution of Age at Death")
plt.xlabel("Age at Death")
plt.ylabel("Frequency")
plt.show()
```



In [23]:

```
# Additional Analysis: Correlation between 'Year of Breakthrough' and 'Years Act
plt.figure(figsize=(10, 6))
sns.scatterplot(data=cleaned_entertainer_data, x='Year of Breakthrough/#1 Hit/Aw
plt.title("Breakthrough Year vs Years Active")
plt.xlabel("Year of Breakthrough")
plt.ylabel("Years Active")
plt.show()
```



```
In [ ]:
```