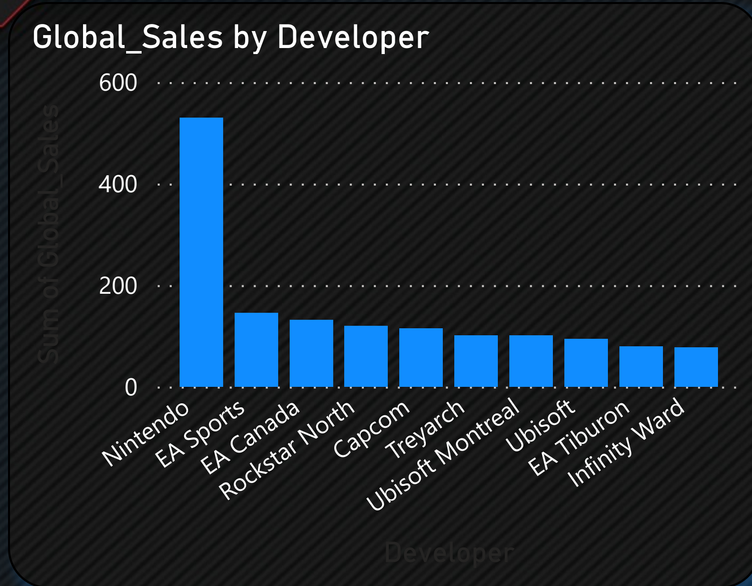
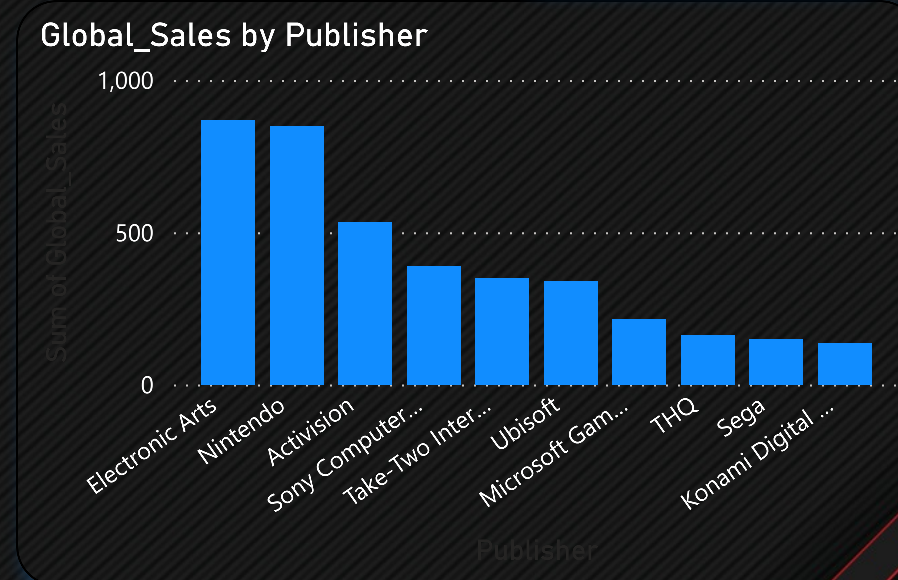
Gaming Sales Analysis

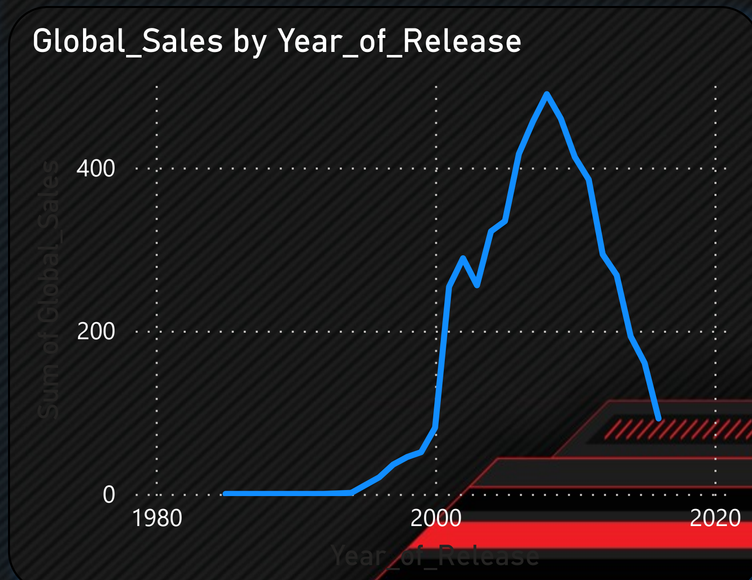
Rating

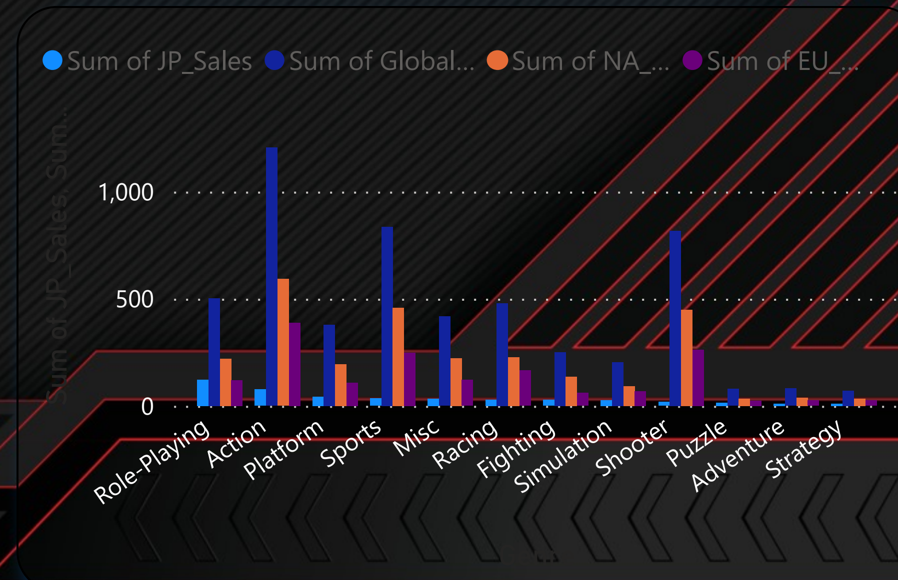
All

Name	Sum of Use
18 Wheeler: American Pro Trucker	
187: Ride or Die	
2002 FIFA World Cup	
2010 FIFA World Cup South Africa	
2014 FIFA World Cup Brazil	
24: The Game	
25 to Life	
300: March to Glory	
3D Dot Game Heroes	
4x4 EVO 2	
50 Cent: Blood on the Sand	
50 Cent: Bulletproof	
7 Days to Die	
7 Wonders of the Ancient World	
7th Dragon III Code: VFD	
A Boy and His Blob	
A Game of Thrones: Genesis	
A Vampyre Story	
A Witch's Tale	
AC/DC LIVE: Rock Band Track Pack	
Academy of Champions: Soccer	
Total	









analysis

July 25, 2023

[203]:
```python
# Imported Requirement
import numpy as np
import pandas as pd
import missingno as ms
import matplotlib.pyplot as plt
import seaborn as sns
sns.set_style("darkgrid")
```

[142]:
```python
# Data Loaded in "df" variable
df = pd.read_csv('Tagged-Data-Final.csv')
```

[143]:
```python
df
```

[143]:
```
                                Name  Year_of_Release         Genre  \
0        .hack//Infection Part 1           2002.0  Role-Playing
1         .hack//Mutation Part 2           2002.0  Role-Playing
2         .hack//Outbreak Part 3           2002.0  Role-Playing
3                    [Prototype]           2009.0        Action
4                    [Prototype]           2009.0        Action
…                              …              …            …
6889                        Zubo           2008.0          Misc
6890               Zumba Fitness           2010.0        Sports
6891  Zumba Fitness: World Party           2013.0          Misc
6892          Zumba Fitness Core           2012.0          Misc
6893          Zumba Fitness Rush           2012.0        Sports

                  Publisher  NA_Sales  EU_Sales  JP_Sales  Other_Sales  \
0                     Atari      0.49      0.38      0.26         0.13
1                     Atari      0.23      0.18      0.20         0.06
2                     Atari      0.14      0.11      0.17         0.04
3                Activision      0.84      0.35      0.00         0.12
4                Activision      0.65      0.40      0.00         0.19
…                         …       …        …        …           …
6889        Electronic Arts      0.08      0.02      0.00         0.01
6890              505 Games      1.74      0.45      0.00         0.18
6891  Majesco Entertainment      0.17      0.05      0.00         0.02
6892              505 Games      0.00      0.05      0.00         0.00
```

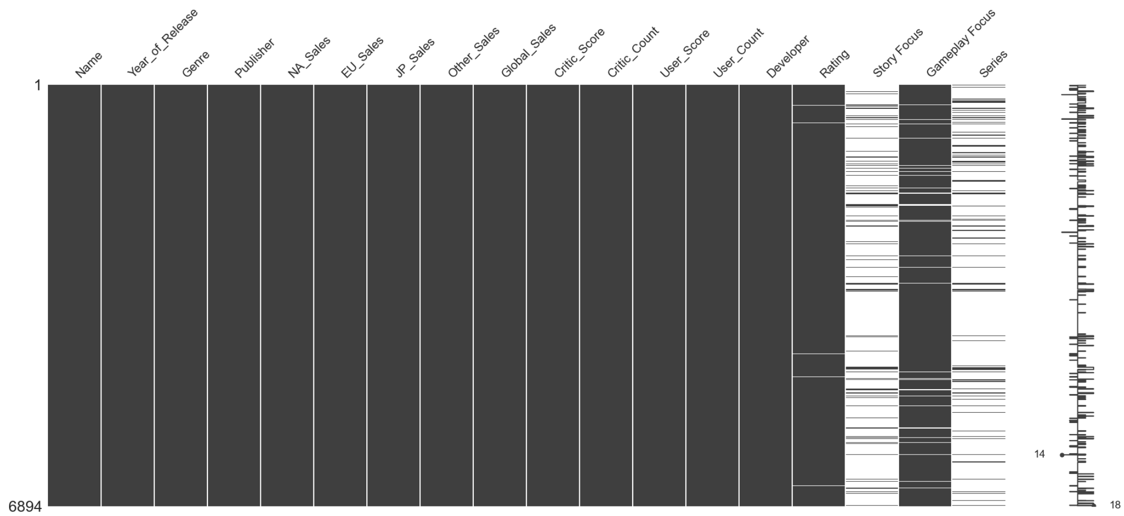
```
6893             505 Games      0.00      0.16      0.00          0.02

      Global_Sales  Critic_Score  Critic_Count  User_Score  User_Count  \
0             1.27          75.0          35.0         8.5        60.0
1             0.68          76.0          24.0         8.9        81.0
2             0.46          70.0          23.0         8.7        19.0
3             1.31          78.0          83.0         7.8       356.0
4             1.24          79.0          53.0         7.7       308.0
…              …             …             …           …          …
6889          0.11          75.0          19.0         7.6        75.0
6890          2.37          42.0          10.0         5.5        16.0
6891          0.24          73.0           5.0         6.2        40.0
6892          0.05          77.0           6.0         6.7         6.0
6893          0.18          73.0           7.0         6.2         5.0

                     Developer Rating Story Focus Gameplay Focus Series
0                CyberConnect2      T           x            NaN      x
1                CyberConnect2      T           x            NaN      x
2                CyberConnect2      T           x            NaN      x
3         Radical Entertainment     M         NaN              x      x
4         Radical Entertainment     M         NaN              x      x
…                            …     …          …              …    …
6889            EA Bright Light  E10+        NaN              x    NaN
6890  Pipeworks Software, Inc.      E         NaN              x    NaN
6891                  Zoe Mode      E         NaN              x    NaN
6892                  Zoe Mode   E10+        NaN              x    NaN
6893    Majesco Games, Majesco   E10+        NaN              x    NaN

[6894 rows x 18 columns]
```

[144]:
```python
# Visulized the null values
ms.matrix(df)
plt.show()
```



[145]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 6894 entries, 0 to 6893
Data columns (total 18 columns):
 #   Column           Non-Null Count  Dtype
---  ------           --------------  -----
 0   Name             6894 non-null   object
 1   Year_of_Release  6894 non-null   float64
 2   Genre            6894 non-null   object
 3   Publisher        6893 non-null   object
 4   NA_Sales         6894 non-null   float64
 5   EU_Sales         6894 non-null   float64
 6   JP_Sales         6894 non-null   float64
 7   Other_Sales      6894 non-null   float64
 8   Global_Sales     6894 non-null   float64
 9   Critic_Score     6894 non-null   float64
 10  Critic_Count     6894 non-null   float64
 11  User_Score       6894 non-null   float64
 12  User_Count       6894 non-null   float64
 13  Developer        6890 non-null   object
 14  Rating           6826 non-null   object
 15  Story Focus      767 non-null    object
 16  Gameplay Focus   6586 non-null   object
 17  Series           791 non-null    object
dtypes: float64(10), object(8)
memory usage: 969.6+ KB
```

[146]:
```
df.isnull().sum()
```

[146]:
```
Name                 0
Year_of_Release      0
Genre                0
Publisher            1
NA_Sales             0
EU_Sales             0
JP_Sales             0
Other_Sales          0
Global_Sales         0
Critic_Score         0
Critic_Count         0
User_Score           0
User_Count           0
Developer            4
Rating              68
Story Focus       6127
Gameplay Focus     308
Series            6103
dtype: int64
```

[147]:
```python
df.duplicated().sum()
```

[147]:
```
0
```

[148]:
```python
# Replaced all x values with 1 and null values with 0
df['Story Focus'] = df['Story Focus'].apply(lambda x: 1 if x == 'x' else 0)
df['Gameplay Focus'] = df['Gameplay Focus'].apply(lambda x: 1 if x == 'x' else␣
 ↪0)
df['Series'] = df['Series'].apply(lambda x: 1 if x == 'x' else 0)
```

[149]:
```python
df=df.dropna()
```

[150]:
```python
df.isnull().sum()
```

[150]:
```
Name               0
Year_of_Release    0
Genre              0
Publisher          0
NA_Sales           0
EU_Sales           0
JP_Sales           0
Other_Sales        0
Global_Sales       0
Critic_Score       0
Critic_Count       0
User_Score         0
User_Count         0
```

```
Developer          0
Rating             0
Story Focus        0
Gameplay Focus     0
Series             0
dtype: int64
```

[151]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Index: 6825 entries, 0 to 6893
Data columns (total 18 columns):
 #   Column           Non-Null Count  Dtype
---  ------           --------------  -----
 0   Name             6825 non-null   object
 1   Year_of_Release  6825 non-null   float64
 2   Genre            6825 non-null   object
 3   Publisher        6825 non-null   object
 4   NA_Sales         6825 non-null   float64
 5   EU_Sales         6825 non-null   float64
 6   JP_Sales         6825 non-null   float64
 7   Other_Sales      6825 non-null   float64
 8   Global_Sales     6825 non-null   float64
 9   Critic_Score     6825 non-null   float64
 10  Critic_Count     6825 non-null   float64
 11  User_Score       6825 non-null   float64
 12  User_Count       6825 non-null   float64
 13  Developer        6825 non-null   object
 14  Rating           6825 non-null   object
 15  Story Focus      6825 non-null   int64
 16  Gameplay Focus   6825 non-null   int64
 17  Series           6825 non-null   int64
dtypes: float64(10), int64(3), object(5)
memory usage: 1013.1+ KB
```

[152]:
```
df.describe()
```

[152]:
```
       Year_of_Release     NA_Sales     EU_Sales     JP_Sales  Other_Sales  \
count      6825.000000  6825.000000  6825.000000  6825.000000  6825.000000
mean       2007.436777     0.394484     0.236089     0.064158     0.082677
std           4.211248     0.967385     0.687330     0.287570     0.269871
min        1985.000000     0.000000     0.000000     0.000000     0.000000
25%        2004.000000     0.060000     0.020000     0.000000     0.010000
50%        2007.000000     0.150000     0.060000     0.000000     0.020000
75%        2011.000000     0.390000     0.210000     0.010000     0.070000
max        2016.000000    41.360000    28.960000     6.500000    10.570000
```

```
       Global_Sales  Critic_Score  Critic_Count   User_Score    User_Count  \
count   6825.000000   6825.000000   6825.000000  6825.000000   6825.000000
mean       0.777590     70.272088     28.931136     7.185626    174.722344
std        1.963443     13.868572     19.224165     1.439942    587.428538
min        0.010000     13.000000      3.000000     0.500000      4.000000
25%        0.110000     62.000000     14.000000     6.500000     11.000000
50%        0.290000     72.000000     25.000000     7.500000     27.000000
75%        0.750000     80.000000     39.000000     8.200000     89.000000
max       82.530000     98.000000    113.000000     9.600000  10665.000000

       Story Focus  Gameplay Focus       Series
count  6825.000000     6825.000000  6825.000000
mean      0.110916        0.955165     0.115165
std       0.314051        0.206957     0.319244
min       0.000000        0.000000     0.000000
25%       0.000000        1.000000     0.000000
50%       0.000000        1.000000     0.000000
75%       0.000000        1.000000     0.000000
max       1.000000        1.000000     1.000000
```

[153]:
```
df
```

[153]:
```
                             Name  Year_of_Release         Genre  \
0         .hack//Infection Part 1           2002.0  Role-Playing
1          .hack//Mutation Part 2           2002.0  Role-Playing
2          .hack//Outbreak Part 3           2002.0  Role-Playing
3                     [Prototype]           2009.0        Action
4                     [Prototype]           2009.0        Action
…                               …                …             …
6889                         Zubo           2008.0          Misc
6890                Zumba Fitness           2010.0        Sports
6891  Zumba Fitness: World Party           2013.0          Misc
6892           Zumba Fitness Core           2012.0          Misc
6893           Zumba Fitness Rush           2012.0        Sports

                   Publisher  NA_Sales  EU_Sales  JP_Sales  Other_Sales  \
0                      Atari      0.49      0.38      0.26         0.13
1                      Atari      0.23      0.18      0.20         0.06
2                      Atari      0.14      0.11      0.17         0.04
3                 Activision      0.84      0.35      0.00         0.12
4                 Activision      0.65      0.40      0.00         0.19
…                          …         …         …         …            …
6889         Electronic Arts      0.08      0.02      0.00         0.01
6890               505 Games      1.74      0.45      0.00         0.18
6891  Majesco Entertainment      0.17      0.05      0.00         0.02
6892               505 Games      0.00      0.05      0.00         0.00
6893               505 Games      0.00      0.16      0.00         0.02
```

```
      Global_Sales  Critic_Score  Critic_Count  User_Score  User_Count  \
0             1.27          75.0          35.0         8.5        60.0
1             0.68          76.0          24.0         8.9        81.0
2             0.46          70.0          23.0         8.7        19.0
3             1.31          78.0          83.0         7.8       356.0
4             1.24          79.0          53.0         7.7       308.0
…                …             …             …           …           …
6889          0.11          75.0          19.0         7.6        75.0
6890          2.37          42.0          10.0         5.5        16.0
6891          0.24          73.0           5.0         6.2        40.0
6892          0.05          77.0           6.0         6.7         6.0
6893          0.18          73.0           7.0         6.2         5.0

                    Developer Rating  Story Focus  Gameplay Focus  Series
0                CyberConnect2      T            1               0       1
1                CyberConnect2      T            1               0       1
2                CyberConnect2      T            1               0       1
3         Radical Entertainment      M            0               1       1
4         Radical Entertainment      M            0               1       1
…                            …    …           …              …     …
6889           EA Bright Light   E10+            0               1       0
6890  Pipeworks Software, Inc.      E            0               1       0
6891                  Zoe Mode      E            0               1       0
6892                  Zoe Mode   E10+            0               1       0
6893    Majesco Games, Majesco   E10+            0               1       0

[6825 rows x 18 columns]
```

[154]:
```python
df.groupby(['Year_of_Release'])['Year_of_Release'].count()
```

[154]:
```
Year_of_Release
1985.0       1
1988.0       1
1992.0       1
1994.0       1
1996.0       7
1997.0      13
1998.0      25
1999.0      30
2000.0     102
2001.0     256
2002.0     455
2003.0     498
2004.0     476
2005.0     562
2006.0     528
```

```
2007.0    590
2008.0    592
2009.0    550
2010.0    429
2011.0    453
2012.0    313
2013.0    266
2014.0    253
2015.0    211
2016.0    212
Name: Year_of_Release, dtype: int64
```

Sales Trend analysis

[155]:
```python
# Group the data by 'Year_of_Release' and calculate the sum of 'Global_Sales'␣
↪for each year
sales_by_year = df.
↪groupby('Year_of_Release')[['Global_Sales','Other_Sales','NA_Sales','EU_Sales','JP_Sales']].
↪sum().reset_index()
sales_by_year
```

[155]:

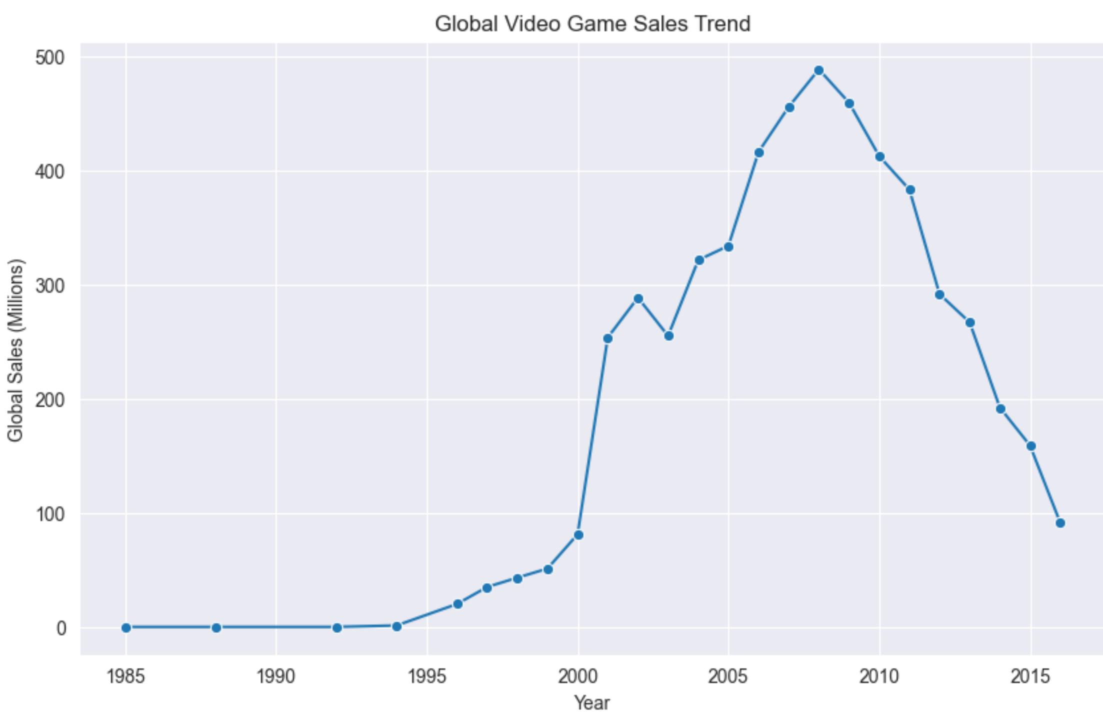
	Year_of_Release	Global_Sales	Other_Sales	NA_Sales	EU_Sales	JP_Sales
0	1985.0	0.03	0.01	0.00	0.03	0.00
1	1988.0	0.03	0.01	0.00	0.02	0.00
2	1992.0	0.03	0.00	0.02	0.00	0.00
3	1994.0	1.27	0.08	0.39	0.26	0.53
4	1996.0	20.10	1.24	7.91	6.88	4.06
5	1997.0	35.01	2.02	15.34	8.67	9.01
6	1998.0	43.18	2.14	18.13	12.13	10.81
7	1999.0	51.17	2.45	23.32	15.69	9.67
8	2000.0	81.24	5.49	39.34	25.20	11.27
9	2001.0	253.88	18.26	139.32	72.85	23.57
10	2002.0	288.84	22.30	163.76	84.03	18.61
11	2003.0	255.35	19.68	143.08	75.16	17.24
12	2004.0	321.78	42.14	173.88	83.01	22.74
13	2005.0	334.32	31.05	178.15	86.70	38.23
14	2006.0	416.72	45.90	225.69	104.53	40.43
15	2007.0	456.23	60.62	235.61	124.71	35.04
16	2008.0	489.12	57.89	256.25	137.31	37.42
17	2009.0	459.85	50.25	231.72	143.56	34.28
18	2010.0	412.96	44.24	213.24	130.13	25.19
19	2011.0	383.69	42.10	190.62	127.86	23.16
20	2012.0	291.93	31.57	133.94	99.08	27.36
21	2013.0	267.17	31.80	120.89	95.54	19.05
22	2014.0	192.43	22.58	79.38	76.42	14.02
23	2015.0	159.16	18.86	67.85	60.51	11.85
24	2016.0	91.56	11.59	34.52	41.03	4.34

[156]:
```
col_list = sales_by_year.columns.tolist()
col_list
```

[156]:
```
['Year_of_Release',
 'Global_Sales',
 'Other_Sales',
 'NA_Sales',
 'EU_Sales',
 'JP_Sales']
```

[157]:
```
# Create a line plot for the global sales trend using seaborn
plt.figure(figsize=(10, 6))
sns.lineplot(x='Year_of_Release', y='Global_Sales', data=sales_by_year,␣
 ↪marker='o')
plt.xlabel('Year')
plt.ylabel('Global Sales (Millions)')
plt.title('Global Video Game Sales Trend')
```

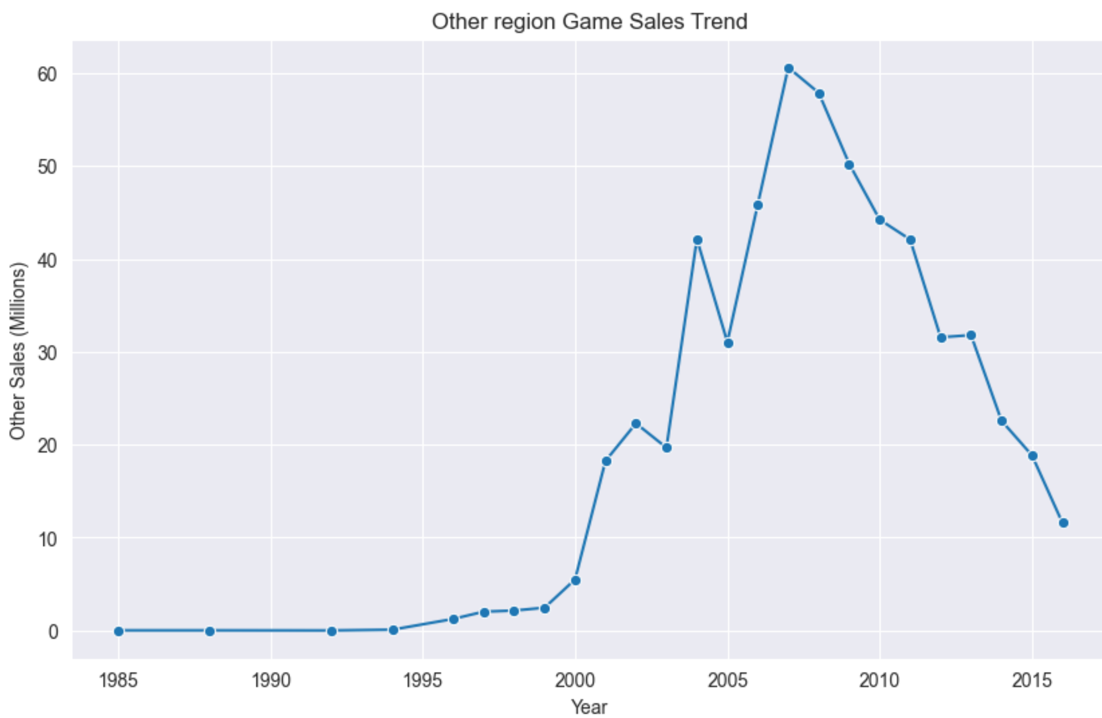
[157]:
```
Text(0.5, 1.0, 'Global Video Game Sales Trend')
```



[158]:
```
# Create a line plot for the Other Sales trend using seaborn
plt.figure(figsize=(10, 6))
sns.lineplot(x='Year_of_Release', y='Other_Sales', data=sales_by_year,␣
 ↪marker='o')
```

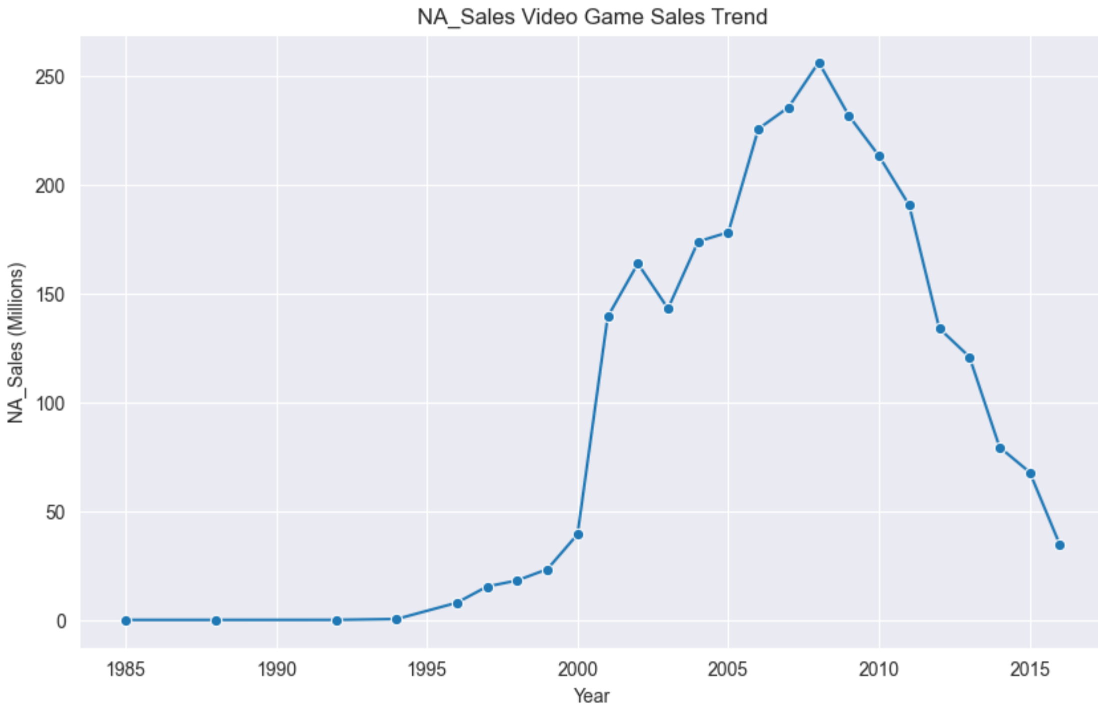
```
plt.xlabel('Year')
plt.ylabel('Other Sales (Millions)')
plt.title('Other region Game Sales Trend')
```

[158]: Text(0.5, 1.0, 'Other region Game Sales Trend')



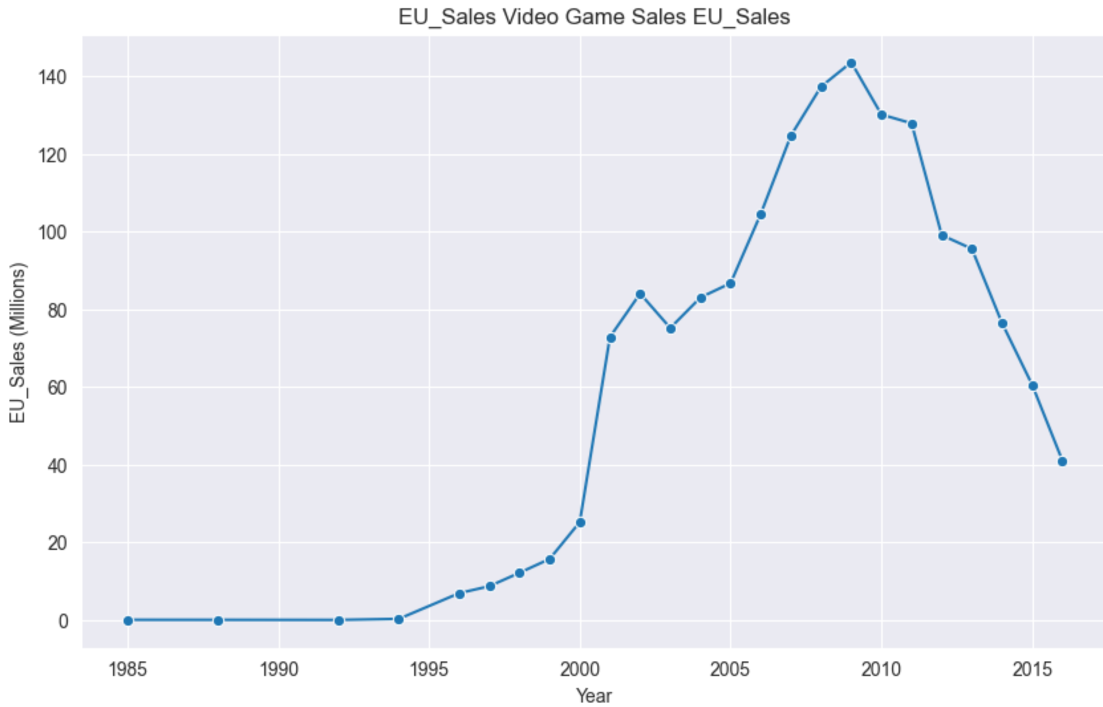
[159]:
```
# Create a line plot for the NA_Sales trend using seaborn
plt.figure(figsize=(10, 6))
sns.lineplot(x='Year_of_Release', y='NA_Sales', data=sales_by_year, marker='o')
plt.xlabel('Year')
plt.ylabel('NA_Sales (Millions)')
plt.title('NA_Sales Video Game Sales Trend')
```

[159]: Text(0.5, 1.0, 'NA_Sales Video Game Sales Trend')



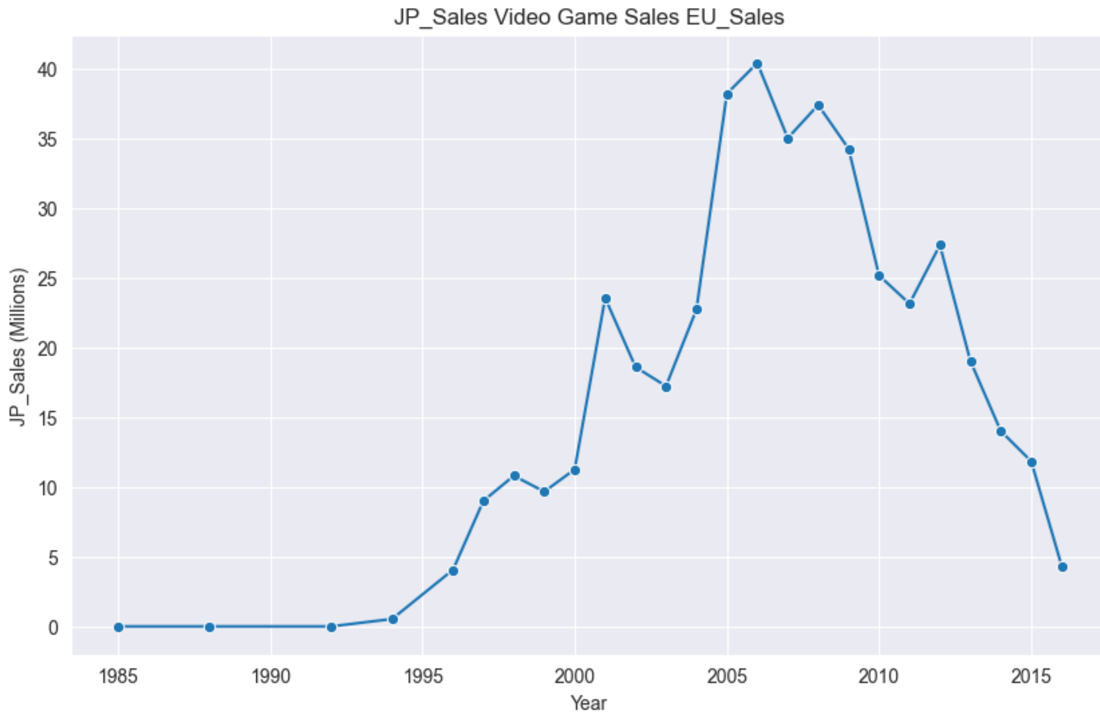
[160]:
```python
# Create a line plot for the EU_Sales trend using seaborn
plt.figure(figsize=(10, 6))
sns.lineplot(x='Year_of_Release',y= 'EU_Sales', data=sales_by_year, marker='o')
plt.xlabel('Year')
plt.ylabel('EU_Sales (Millions)')
plt.title('EU_Sales Video Game Sales EU_Sales')
```

[160]: Text(0.5, 1.0, 'EU_Sales Video Game Sales EU_Sales')



[161]:
```python
# Create a line plot for the JP_Sales trend using seaborn
plt.figure(figsize=(10, 6))
sns.lineplot(x='Year_of_Release',y= 'JP_Sales', data=sales_by_year, marker='o')
plt.xlabel('Year')
plt.ylabel('JP_Sales (Millions)')
plt.title('JP_Sales Video Game Sales EU_Sales')
```

[161]: Text(0.5, 1.0, 'JP_Sales Video Game Sales EU_Sales')



Insights

Consistent Sales Trends: The sales trends for video games in North America, Europe, Japan, and other regions exhibit a similar pattern over the years. This suggests that the gaming industry experiences consistent sales growth across different markets.

Genre-wise Sales Analysis:

[176]:
```
genre_wise_sales = df.
  ↪groupby('Genre')[['Global_Sales','Other_Sales','NA_Sales','EU_Sales','JP_Sales']].
  ↪sum().reset_index()
genre_wise_sales
```

[176]:

	Genre	Global_Sales	Other_Sales	NA_Sales	EU_Sales	JP_Sales
0	Action	1203.16	147.46	591.23	387.78	76.17
1	Adventure	80.75	8.05	38.81	25.06	8.73
2	Fighting	249.95	25.14	136.39	60.50	27.85
3	Misc	416.26	40.41	222.05	120.46	33.22
4	Platform	377.80	32.53	193.60	108.56	43.09
5	Puzzle	78.90	6.33	33.50	24.04	14.98
6	Racing	476.22	58.29	225.59	164.66	27.76
7	Role-Playing	501.37	40.36	219.53	119.20	122.47
8	Shooter	816.48	87.90	448.76	261.12	18.57
9	Simulation	202.70	17.14	92.12	67.29	26.16
10	Sports	833.85	94.05	457.52	247.43	34.54

```
11      Strategy          69.61          6.61      33.25      25.21       4.34
```

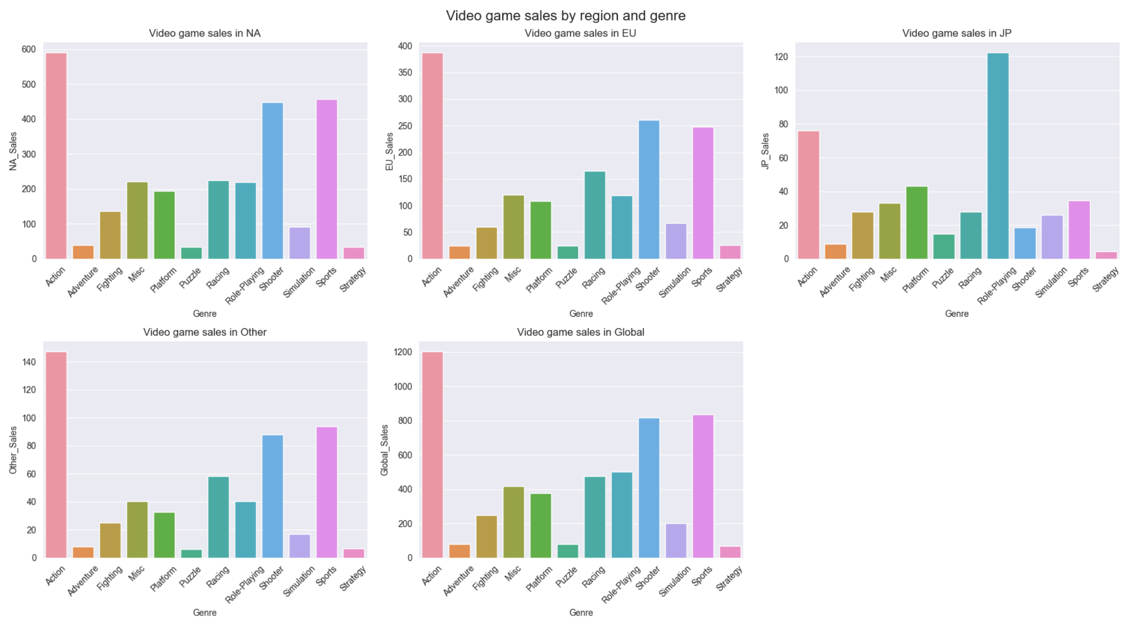
[175]:

```
fig, axes = plt.subplots(2, 3, figsize=(18, 10))
axes = axes.flatten()
axes[-1].remove()

sales_regions = ["NA_Sales", "EU_Sales", "JP_Sales", "Other_Sales",␣
 ↪"Global_Sales"]

for i, sales_region in enumerate(sales_regions):
    sns.barplot(data=genre_wise_sales, x='Genre', y=sales_region, ax=axes[i]).
 ↪set_title("Video game sales in " + sales_region.split("_Sales")[0])
    axes[i].tick_params(axis='x', rotation=45)


plt.suptitle("Video game sales by region and genre", fontsize=16)
plt.tight_layout()
plt.show()
```



Insight

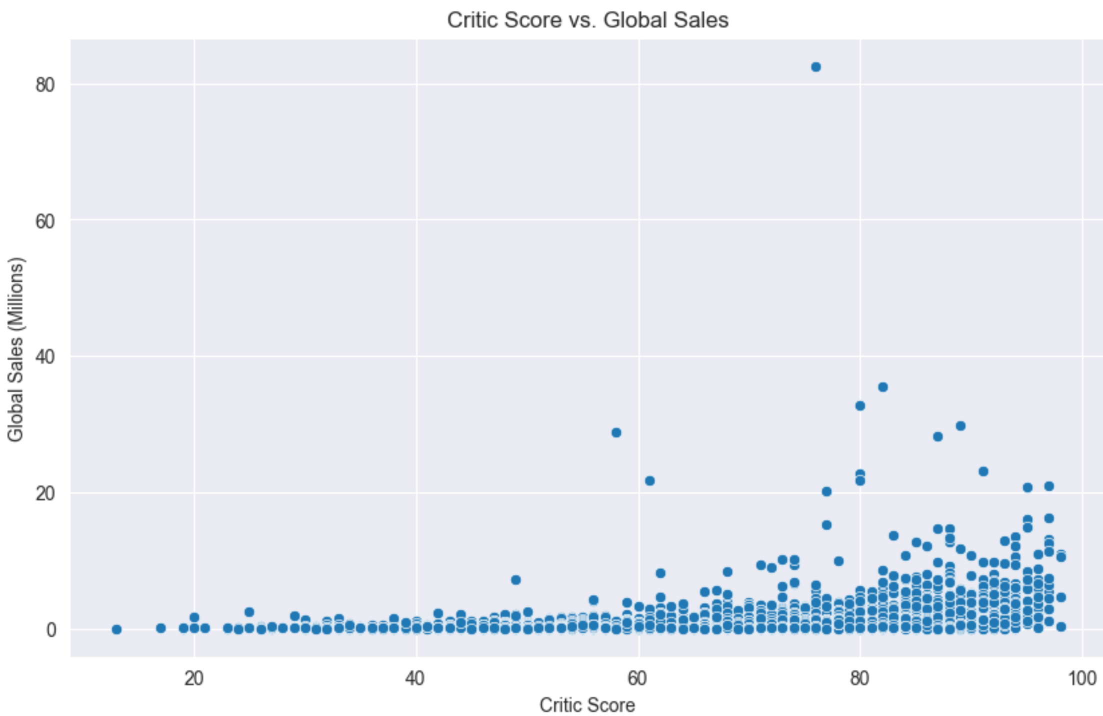
Top-Selling Genres: The "Action" genre has the highest global sales, with over 1203 million units sold. It is followed by "Shooter" and "Sports" genres, each with global sales of over 800 million units.

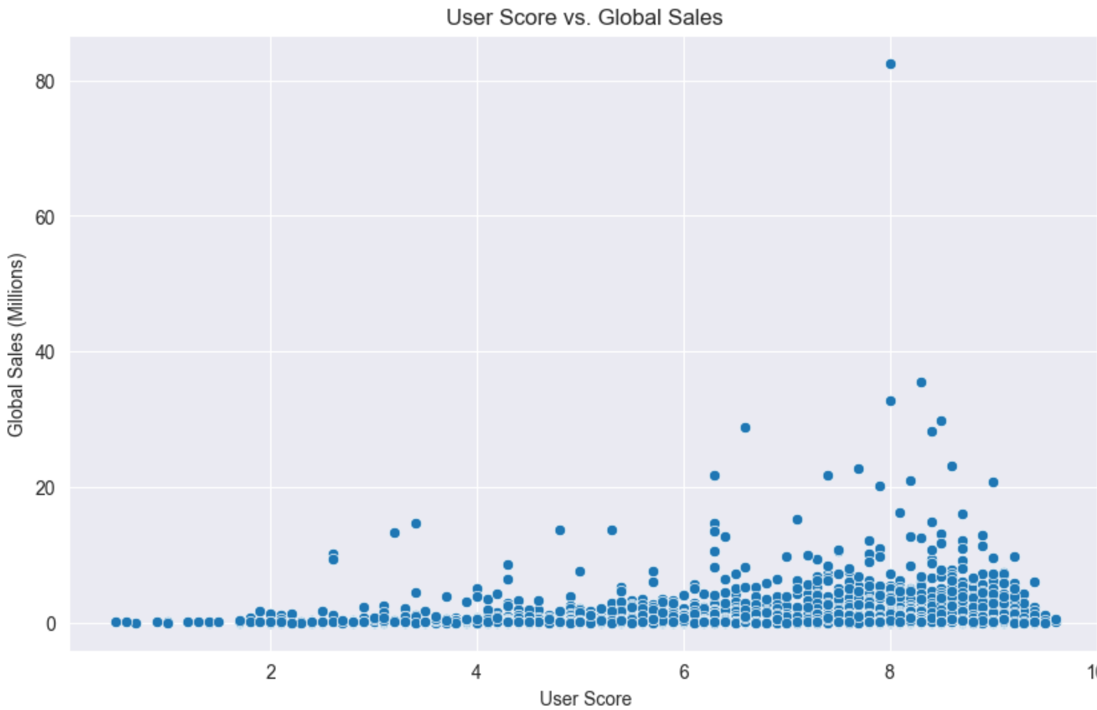
Market Potential: "Simulation" and "Strategy" genres have relatively lower sales compared to other genres. Game developers might consider exploring untapped market potential for these genres.

Score review analysis

[179]:
```
# Scatter plot for Critic Score vs. Global Sales
plt.figure(figsize=(10, 6))
sns.scatterplot(data=df, x='Critic_Score', y='Global_Sales')
plt.xlabel('Critic Score')
plt.ylabel('Global Sales (Millions)')
plt.title('Critic Score vs. Global Sales')
plt.grid(True)
plt.show()

# Scatter plot for User Score vs. Global Sales
plt.figure(figsize=(10, 6))
sns.scatterplot(data=df, x='User_Score', y='Global_Sales')
plt.xlabel('User Score')
plt.ylabel('Global Sales (Millions)')
plt.title('User Score vs. Global Sales')
plt.grid(True)
plt.show()
```





Insights

Critic Scores Concentration: The data points for critic scores are highly concentrated in the range of 60 to 100. This indicates that most of the video games received higher critic scores, suggesting that professional critics tend to give favorable ratings to many games.

Critical Reception Impact: The concentration of data points in the higher critic score range suggests that games with higher critic scores are relatively common and well-received by professional critics.

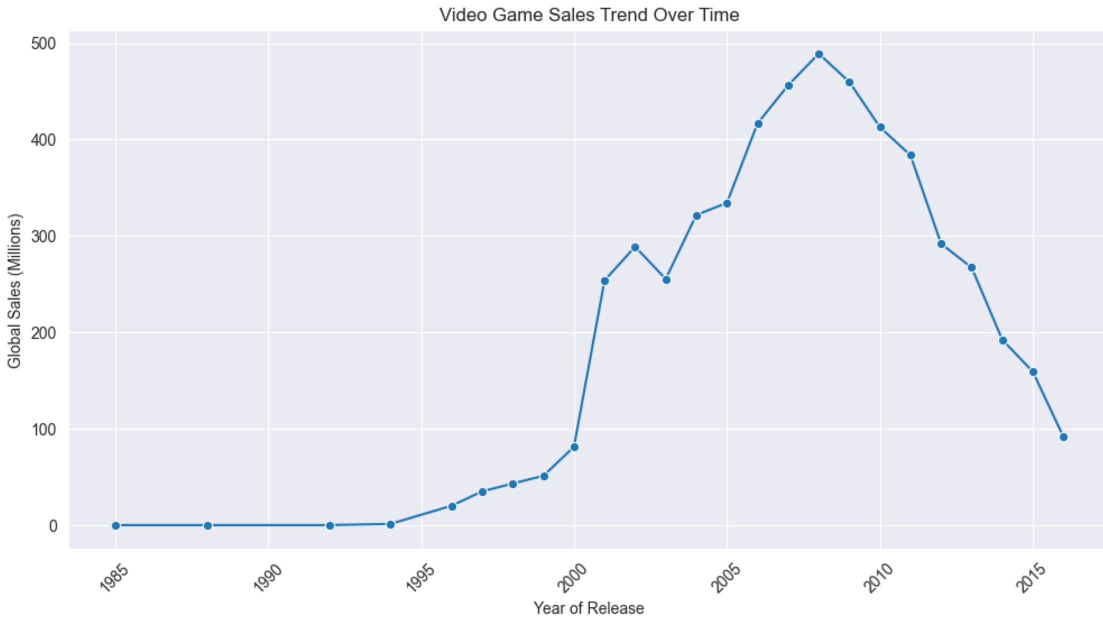
Outliers: While the majority of games have higher critic scores, there are a few outliers with lower scores that have exceptionally high global sales. These outliers could represent games that have gained commercial success despite receiving lower critical acclaim.

Global Trend Over the years

[180]:
```
# Group the data by 'Year_of_Release' and calculate the total global sales for␣
↪each year
yearly_global_sales = df.groupby('Year_of_Release')['Global_Sales'].sum().
↪reset_index()

# Line plot for Year of Release vs. Global Sales
plt.figure(figsize=(12, 6))
sns.lineplot(data=yearly_global_sales, x='Year_of_Release', y='Global_Sales',␣
↪marker='o')
plt.xlabel('Year of Release')
plt.ylabel('Global Sales (Millions)')
```

```
plt.title('Video Game Sales Trend Over Time')
plt.grid(True)
plt.xticks(rotation=45)  # Rotate x-axis labels for better visibility
plt.show()
```



Insights

It observable that sales has been spiked since 2000 to 2007-08 and then started to decline after that till 2015

Relationship between the "Publishers" and "Global Sales"

[199]:
```
publisher_game_count = df.groupby(['Publisher','Story Focus','Gameplay␣
↪Focus'])['Name'].count().reset_index()
publisher_game_count_sorted = publisher_game_count.sort_values(by='Name',␣
↪ascending=False)
publisher_game_count_sorted
```

[199]:

	Publisher	Story Focus	Gameplay Focus	Name
93	Electronic Arts	0	1	901
16	Activision	0	1	479
330	Ubisoft	0	1	468
305	THQ	0	1	297
276	Sony Computer Entertainment	0	1	292
..	…	…	…	…
176	Kool Kizz	0	1	1
177	Level 5	0	1	1
178	Lexicon Entertainment	0	1	1

```
179       Lighthouse Interactive            0               1     1
365         inXile Entertainment            1               0     1

[366 rows x 4 columns]
```

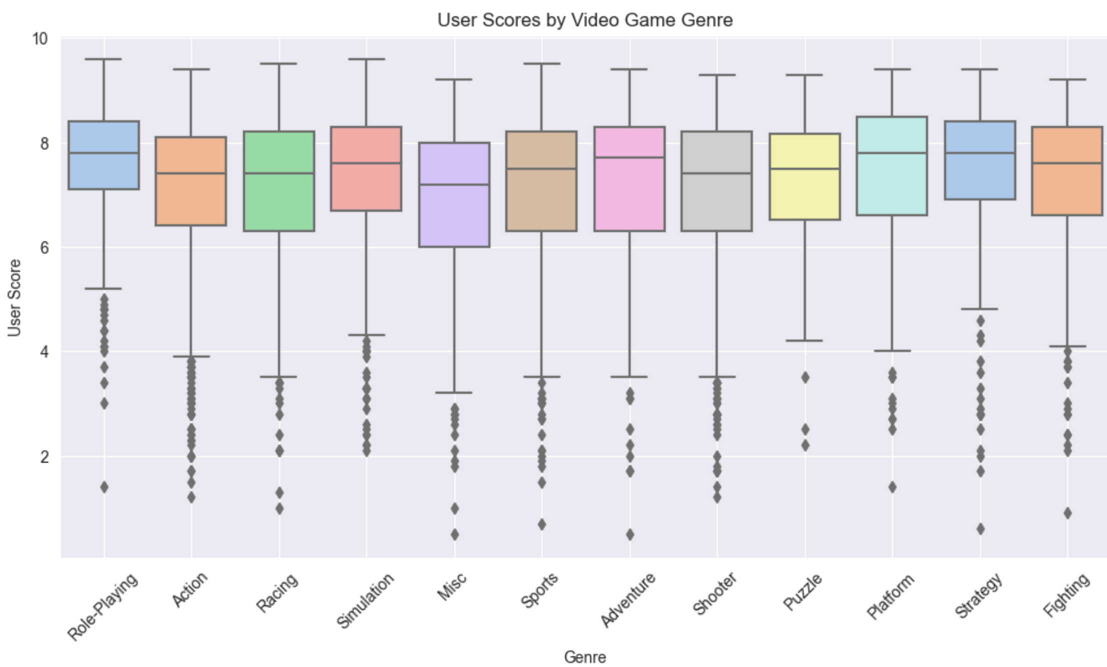
Insights

Dominant Publishers: The list starts with the top publishers based on the number of games they have released. Electronic Arts leads the pack with 901 games, followed by Activision with 479 games and Ubisoft with 468 games. These publishers are major players in the industry and have a significant presence in the market.

Relationship between "Genre" and "User Score"

[200]:

```python
# Box plot for Genre vs. User Score
plt.figure(figsize=(12, 6))
sns.boxplot(data=df, x='Genre', y='User_Score', palette='pastel')
plt.xlabel('Genre')
plt.ylabel('User Score')
plt.title('User Scores by Video Game Genre')
plt.grid(True)
plt.xticks(rotation=45)  # Rotate x-axis labels for better visibility
plt.show()
```

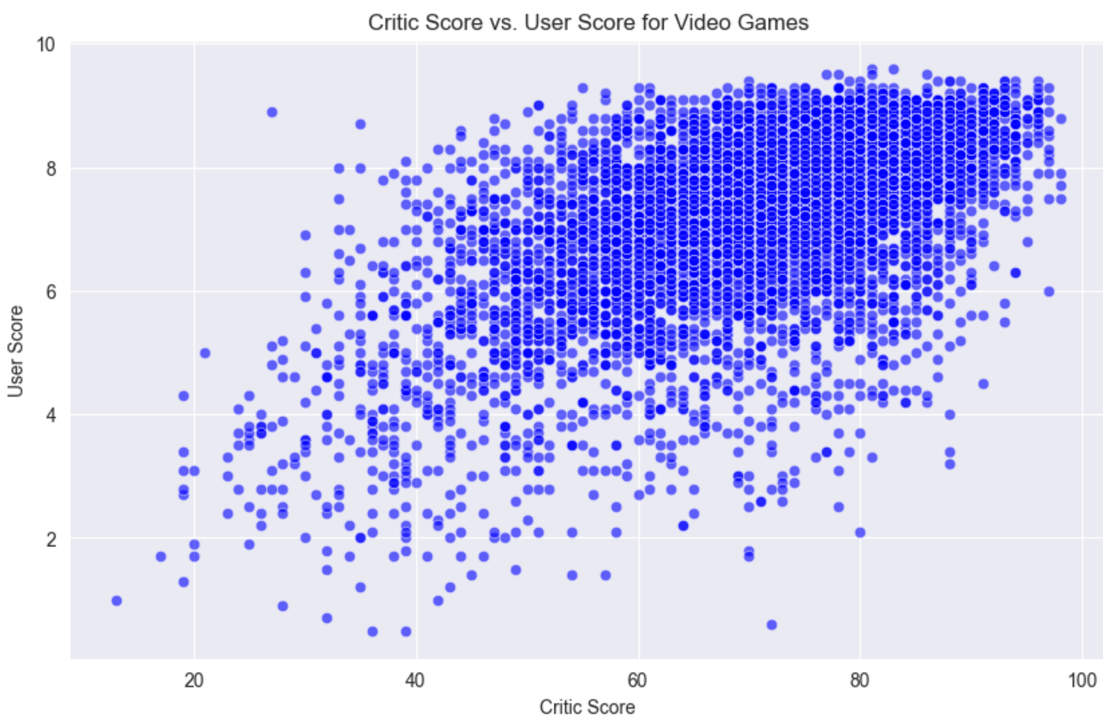


Insight

Positive User Reception: The fact that the box plot is mainly within the 6 to 9 range suggests that users generally have a positive reception to video games across various genres. This positive sentiment can be an encouraging sign for game developers and publishers, as it indicates that players tend to enjoy a wide range of video games.

Relationship between "Critic Score" and "User Score"

[201]:
```
# Scatter plot for Critic Score vs. User Score
plt.figure(figsize=(10, 6))
sns.scatterplot(data=df, x='Critic_Score', y='User_Score', alpha=0.6,␣
    ↪color='blue')
plt.xlabel('Critic Score')
plt.ylabel('User Score')
plt.title('Critic Score vs. User Score for Video Games')
plt.grid(True)
plt.show()
```



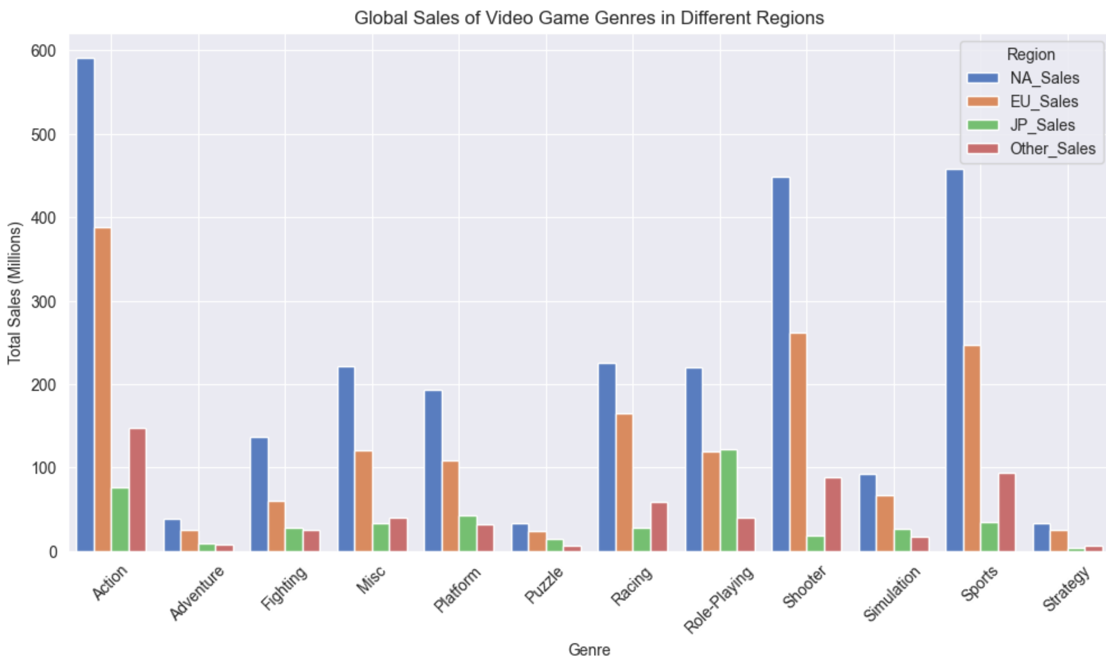
Sales performance of video games across different regions

[202]:
```
# Group the data by 'Genre' and calculate the total sales for each genre in␣
    ↪different regions
region_sales = df.groupby('Genre')[['NA_Sales', 'EU_Sales', 'JP_Sales',␣
    ↪'Other_Sales']].sum().reset_index()

# Melt the data to create a long-form dataframe suitable for stacked bar plots
```

```python
region_sales_melted = region_sales.melt(id_vars='Genre', var_name='Region',␣
  ↪value_name='Sales')

# Stacked bar plot for Genre vs. Sales in different regions
plt.figure(figsize=(12, 6))
sns.barplot(data=region_sales_melted, x='Genre', y='Sales', hue='Region',␣
  ↪palette='muted')
plt.xlabel('Genre')
plt.ylabel('Total Sales (Millions)')
plt.title('Global Sales of Video Game Genres in Different Regions')
plt.grid(True)
plt.xticks(rotation=45)  # Rotate x-axis labels for better visibility
plt.legend(title='Region', loc='upper right')
plt.show()
```



Inshights

Regional Preferences: It is observed that in all Genre NA_Sales has been max sales showing interest of NA Gamers, After that EU_sales are the one which shows great sales.

Importance of Regional Marketing: Need to focus on Genre of other regions and need to market accordingly.

Final Inshights

Global Video Game Sales Trend: The analysis of global video game sales over the years reveals a steady growth in the industry. The sales have experienced consistent year-on-year growth, indicating a healthy and thriving market for video games worldwide.

Regional Sales Preferences: There are notable regional differences in video game sales preferences. North America and Europe exhibit higher sales across various genres, while Japan shows a strong preference for role-playing games (RPGs). Other regions also contribute significantly to the global sales, but with varying genre preferences.

Top-Selling Genres: The analysis identifies action, sports, shooter, and role-playing genres as the top-selling genres, accounting for a significant share of global video game sales. These genres have widespread popularity and appeal to a broad audience.

Influence of User and Critic Scores: User scores and critic scores show a positive correlation, indicating that games highly praised by critics tend to receive positive user ratings as well. This alignment suggests that critically acclaimed games are well-received by players, contributing to their commercial success.

Yearly Sales Trends: Certain genres have witnessed fluctuating sales trends over the years, influenced by changing market demands, technological advancements, and gaming trends.

[ ]:

```

```