```python
import numpy as np
import pandas as pd
pd.set_option('display.max_columns', None)
import matplotlib.pyplot as plt
%matplotlib inline
import seaborn as sns

# Load data
df = pd.read_csv("vgsales.csv")
print(df.describe())
df.head()
```

```
               Rank          Year      NA_Sales      EU_Sales
JP_Sales  \
count  16598.000000  16327.000000  16598.000000  16598.000000
16598.000000
mean    8300.605254   2006.406443      0.264667      0.146652
0.077782
std     4791.853933      5.828981      0.816683      0.505351
0.309291
min        1.000000   1980.000000      0.000000      0.000000
0.000000
25%     4151.250000   2003.000000      0.000000      0.000000
0.000000
50%     8300.500000   2007.000000      0.080000      0.020000
0.000000
75%    12449.750000   2010.000000      0.240000      0.110000
0.040000
max    16600.000000   2020.000000     41.490000     29.020000
10.220000

        Other_Sales  Global_Sales
count  16598.000000  16598.000000
mean       0.048063      0.537441
std        0.188588      1.555028
min        0.000000      0.010000
25%        0.000000      0.060000
50%        0.010000      0.170000
75%        0.040000      0.470000
max       10.570000     82.740000

   Rank                      Name Platform    Year         Genre
Publisher  \
0     1                Wii Sports      Wii  2006.0        Sports
Nintendo
1     2         Super Mario Bros.      NES  1985.0      Platform
Nintendo
2     3            Mario Kart Wii      Wii  2008.0        Racing
Nintendo
3     4         Wii Sports Resort      Wii  2009.0        Sports
```

```
Nintendo
4     5  Pokemon Red/Pokemon Blue       GB  1996.0  Role-Playing
Nintendo

   NA_Sales  EU_Sales  JP_Sales  Other_Sales  Global_Sales
0     41.49     29.02      3.77         8.46         82.74
1     29.08      3.58      6.81         0.77         40.24
2     15.85     12.88      3.79         3.31         35.82
3     15.75     11.01      3.28         2.96         33.00
4     11.27      8.89     10.22         1.00         31.37



# I want to see rows with NaN values, then I will drop them
# Select rows with any NaN values
rows_with_nan = df[df.isnull().any(axis=1)]

# Create a new DataFrame with rows containing NaN values
new_df = pd.DataFrame(rows_with_nan)

new_df

        Rank                             Name Platform    Year
Genre  \
179      180                   Madden NFL 2004      PS2     NaN
Sports
377      378                  FIFA Soccer 2004      PS2     NaN
Sports
431      432        LEGO Batman: The Videogame      Wii     NaN
Action
470      471        wwe Smackdown vs. Raw 2006      PS2     NaN
Fighting
607      608                    Space Invaders     2600     NaN
Shooter
...      ...                               ...      ...     ...
...
16427  16430                      Virtua Quest       GC     NaN  Role-
Playing
16493  16496                        The Smurfs      3DS     NaN
Action
16494  16497  Legends of Oz: Dorothy's Return      3DS  2014.0
Puzzle
16543  16546          Driving Simulator 2011       PC  2011.0
Racing
16553  16556                    Bound By Flame     X360  2014.0  Role-
Playing

                                    Publisher  NA_Sales  EU_Sales
JP_Sales  \
179                           Electronic Arts      4.26      0.26
```

```
0.01
377                           Electronic Arts      0.59      2.36
0.04
431    Warner Bros. Interactive Entertainment      1.86      1.02
0.00
470                                       NaN      1.57      1.02
0.00
607                                     Atari      2.36      0.14
0.00
...                                       ...       ...       ...
...
16427                                 Unknown      0.01      0.00
0.00
16493                                 Unknown      0.00      0.01
0.00
16494                                     NaN      0.00      0.01
0.00
16543                                     NaN      0.00      0.01
0.00
16553                                     NaN      0.00      0.01
0.00

       Other_Sales  Global_Sales
179           0.71          5.23
377           0.51          3.49
431           0.29          3.17
470           0.41          3.00
607           0.03          2.53
...            ...           ...
16427         0.00          0.01
16493         0.00          0.01
16494         0.00          0.01
16543         0.00          0.01
16553         0.00          0.01

[307 rows x 11 columns]
```

```
# Drop rows with NaN values from the original DataFrame
df_cleaned = df.dropna()
print(df_cleaned.describe())
df_cleaned
```

```
               Rank          Year      NA_Sales      EU_Sales
JP_Sales  \
count  16291.000000  16291.000000  16291.000000  16291.000000
16291.000000
mean    8290.190228   2006.405561      0.265647      0.147731
0.078833
std     4792.654450      5.832412      0.822432      0.509303
0.311879
```

```
min        1.000000   1980.000000      0.000000      0.000000
0.000000
25%     4132.500000   2003.000000      0.000000      0.000000
0.000000
50%     8292.000000   2007.000000      0.080000      0.020000
0.000000
75%    12439.500000   2010.000000      0.240000      0.110000
0.040000
max    16600.000000   2020.000000     41.490000     29.020000
10.220000

        Other_Sales  Global_Sales
count  16291.000000  16291.000000
mean       0.048426      0.540910
std        0.190083      1.567345
min        0.000000      0.010000
25%        0.000000      0.060000
50%        0.010000      0.170000
75%        0.040000      0.480000
max       10.570000     82.740000

        Rank                                              Name
Platform  \
0          1                                        Wii Sports
Wii
1          2                                 Super Mario Bros.
NES
2          3                                    Mario Kart Wii
Wii
3          4                                 Wii Sports Resort
Wii
4          5                          Pokemon Red/Pokemon Blue
GB
...      ...                                               ...       ..
.
16593  16596                Woody Woodpecker in Crazy Castle 5
GBA
16594  16597                     Men in Black II: Alien Escape
GC
16595  16598  SCORE International Baja 1000: The Official Game
PS2
16596  16599                                        Know How 2
DS
16597  16600                                  Spirits & Spells
GBA

         Year         Genre   Publisher  NA_Sales  EU_Sales  JP_Sales
\
0      2006.0        Sports    Nintendo     41.49     29.02      3.77
```

```
1       1985.0       Platform     Nintendo      29.08       3.58       6.81
2       2008.0         Racing     Nintendo      15.85      12.88       3.79
3       2009.0         Sports     Nintendo      15.75      11.01       3.28
4       1996.0   Role-Playing     Nintendo      11.27       8.89      10.22
...        ...            ...          ...        ...        ...        ...
16593   2002.0       Platform        Kemco       0.01       0.00       0.00
16594   2003.0        Shooter   Infogrames       0.01       0.00       0.00
16595   2008.0         Racing   Activision       0.00       0.00       0.00
16596   2010.0         Puzzle     7G//AMES       0.00       0.01       0.00
16597   2003.0       Platform      Wanadoo       0.01       0.00       0.00

       Other_Sales  Global_Sales
0             8.46         82.74
1             0.77         40.24
2             3.31         35.82
3             2.96         33.00
4             1.00         31.37
...            ...           ...
16593         0.00          0.01
16594         0.00          0.01
16595         0.00          0.01
16596         0.00          0.01
16597         0.00          0.01

[16291 rows x 11 columns]

# I want to analyze games released after 2010
drop_row_index = df_cleaned[df_cleaned['Year'] < 2010].index
df_cleaned = df_cleaned.drop(drop_row_index)

print(df_cleaned.describe())
df_cleaned.head()

               Rank         Year      NA_Sales      EU_Sales
JP_Sales  \
count   5134.000000  5134.000000  5134.000000  5134.000000
5134.000000
mean    8903.949357  2012.251071     0.216724     0.163331
0.058192
std     4914.303885     1.966175     0.615722     0.465067
0.227404
```

```
min       16.000000  2010.000000     0.000000     0.000000
0.000000
25%     4680.250000  2011.000000     0.000000     0.000000
0.000000
50%     9246.000000  2012.000000     0.050000     0.030000
0.000000
75%    13335.500000  2014.000000     0.180000     0.130000
0.040000
max    16599.000000  2020.000000    14.970000     9.270000
5.650000

       Other_Sales  Global_Sales
count  5134.000000   5134.000000
mean      0.052538      0.490923
std       0.155971      1.242906
min       0.000000      0.010000
25%       0.000000      0.050000
50%       0.010000      0.140000
75%       0.040000      0.410000
max       4.140000     21.820000

    Rank                            Name Platform    Year
Genre  \
15    16              Kinect Adventures!     X360  2010.0
Misc
16    17              Grand Theft Auto V      PS3  2013.0
Action
23    24              Grand Theft Auto V     X360  2013.0
Action
26    27     Pokemon Black/Pokemon White       DS  2010.0  Role-
Playing
29    30  Call of Duty: Modern Warfare 3     X360  2011.0
Shooter

                 Publisher  NA_Sales  EU_Sales  JP_Sales  Other_Sales
\
15  Microsoft Game Studios     14.97      4.94      0.24         1.67

16    Take-Two Interactive      7.01      9.27      0.97         4.14

23    Take-Two Interactive      9.63      5.31      0.06         1.38

26                Nintendo      5.57      3.28      5.65         0.82

29              Activision      9.03      4.28      0.13         1.32


    Global_Sales
15         21.82
16         21.40
```

```
23          16.38
26          15.32
29          14.76
```

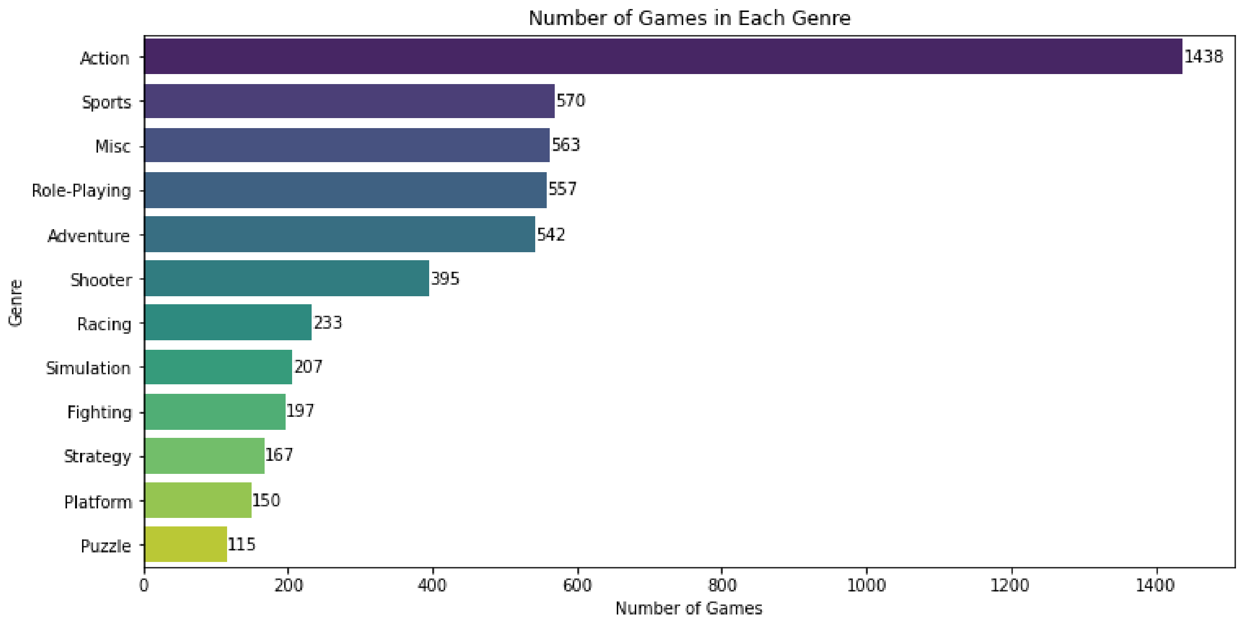
```
df_cleaned.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 5134 entries, 15 to 16596
Data columns (total 11 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   Rank          5134 non-null   int64
 1   Name          5134 non-null   object
 2   Platform      5134 non-null   object
 3   Year          5134 non-null   float64
 4   Genre         5134 non-null   object
 5   Publisher     5134 non-null   object
 6   NA_Sales      5134 non-null   float64
 7   EU_Sales      5134 non-null   float64
 8   JP_Sales      5134 non-null   float64
 9   Other_Sales   5134 non-null   float64
 10  Global_Sales  5134 non-null   float64
dtypes: float64(6), int64(1), object(4)
memory usage: 481.3+ KB
```

```
# Count the number of games in each genre
genre_counts = df_cleaned['Genre'].value_counts()
print(genre_counts)

# Creating a horizontal bar plot using Seaborn with values inside bars
plt.figure(figsize=(12, 6))
plot = sns.barplot(x=genre_counts.values, y=genre_counts.index, 
palette='viridis')

# Display values inside the bars
for index, value in enumerate(genre_counts.values):
    plot.text(value, index, f'{value}', ha="left", va="center", 
fontsize=10)

plt.title('Number of Games in Each Genre')
plt.xlabel('Number of Games')
plt.ylabel('Genre')
plt.show()
```

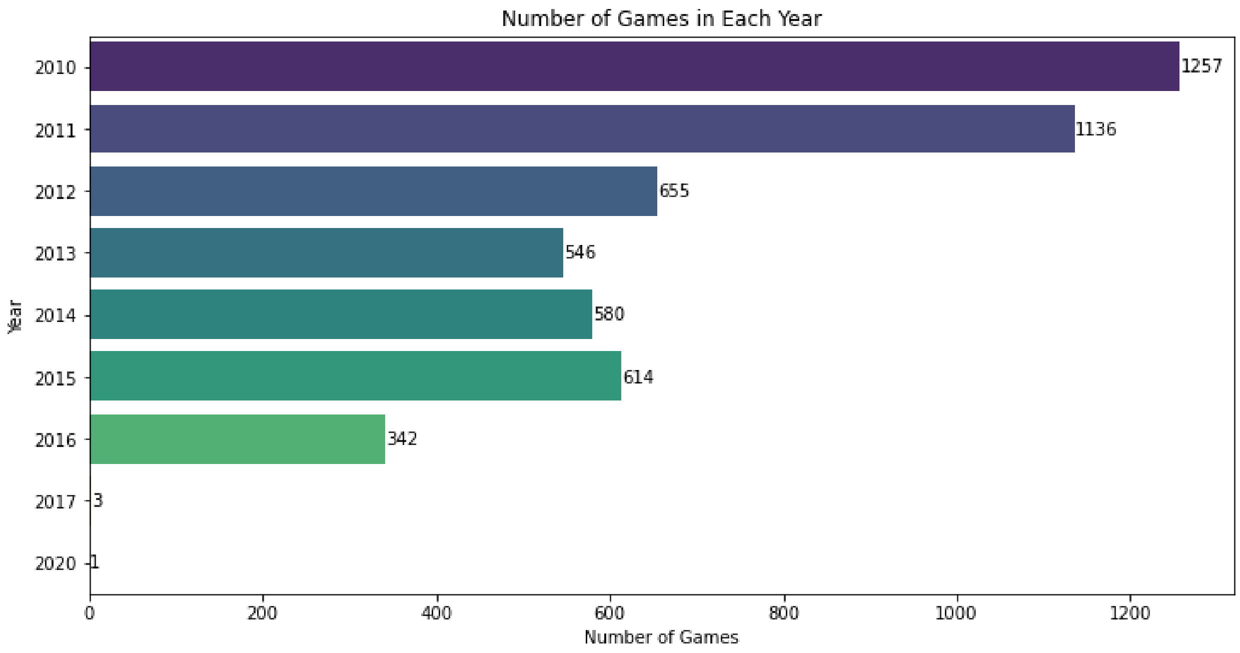
```
Action          1438
Sports           570
Misc             563
Role-Playing     557
Adventure        542
Shooter          395
```

```
Racing          233
Simulation      207
Fighting        197
Strategy        167
Platform        150
Puzzle          115
Name: Genre, dtype: int64
```

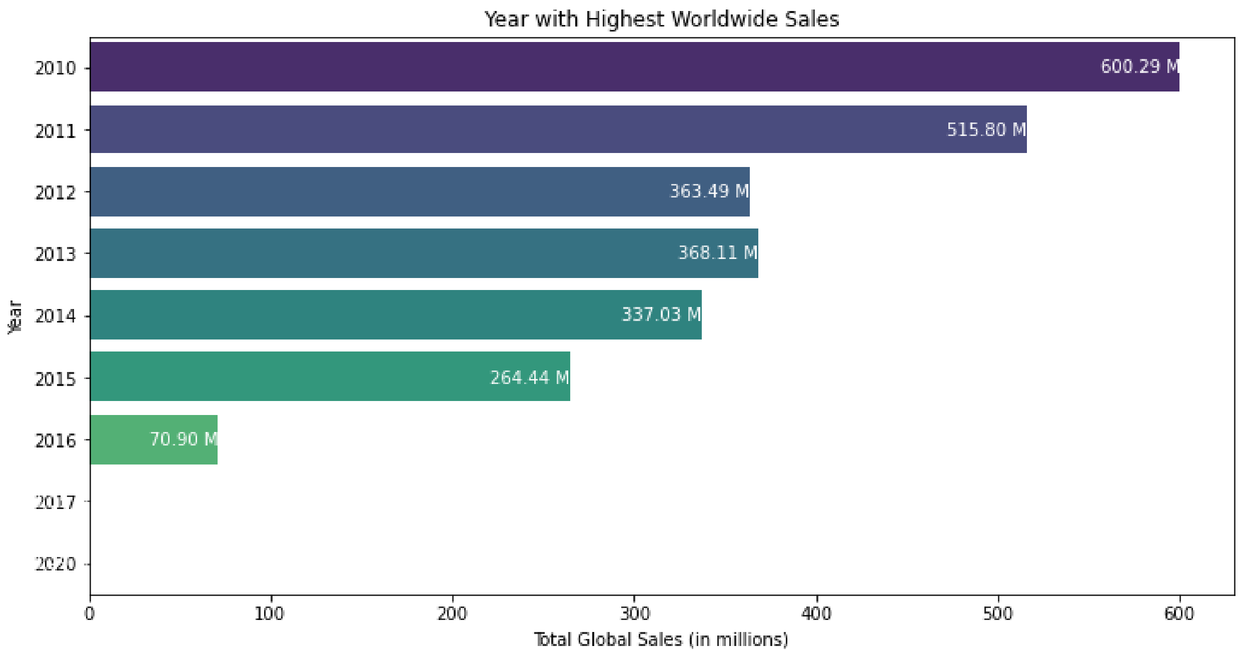


```
# Count the number of games in each genre
df_cleaned['Year'] =
df_cleaned['Year'].astype(str).str.split('.').str[0]
year_counts = df_cleaned['Year'].value_counts()
print(year_counts)
year_counts = year_counts.sort_index()

# Creating a horizontal bar plot using Seaborn with values inside bars
plt.figure(figsize=(12, 6))
plot = sns.barplot(x=year_counts.values, y=year_counts.index,
palette='viridis')

# Display values inside the bars
for index, value in enumerate(year_counts.values):
    plot.text(value, index, f'{value}', ha="left", va="center",
fontsize=10)

plt.title('Number of Games in Each Year')
plt.xlabel('Number of Games')
plt.ylabel('Year')
plt.show()
```

```
2010    1257
2011    1136
2012     655
2015     614
2014     580
2013     546
2016     342
2017       3
2020       1
Name: Year, dtype: int64
```



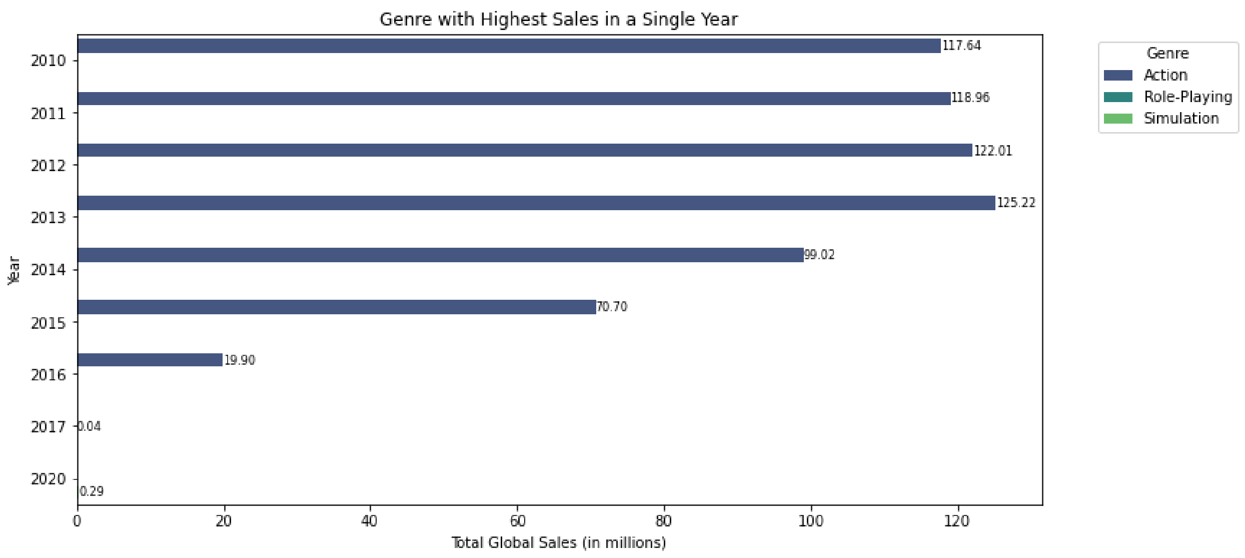
```
df_cleaned['Year'] =
df_cleaned['Year'].astype(str).str.split('.').str[0]

# Grouping by year and calculate the total global sales for each year
total_sales_by_year = df_cleaned.groupby('Year')
['Global_Sales'].sum().reset_index()

# Finding the year with the highest total global sales
year_with_highest_sales =
total_sales_by_year.loc[total_sales_by_year['Global_Sales'].idxmax()]

# Plotting horizontally
plt.figure(figsize=(12, 6))
plot = sns.barplot(x='Global_Sales', y='Year',
data=total_sales_by_year.sort_values('Year'), palette='viridis')

# Add value labels to the bars
for index, value in enumerate(total_sales_by_year['Global_Sales']):
    plot.text(value, index, f'{value:.2f} M', ha="right", va="center",
fontsize=10, color='white')

plt.title('Year with Highest Worldwide Sales')
plt.xlabel('Total Global Sales (in millions)')
plt.ylabel('Year')
plt.show()
```



```
# Linear
total_sales_by_year_genre = df_cleaned.groupby(['Year', 'Genre'])
['Global_Sales'].sum().reset_index()

# Finding the genre with the highest total sales in a single year
genre_with_highest_sales =
total_sales_by_year_genre.loc[total_sales_by_year_genre.groupby('Year'
)['Global_Sales'].idxmax()]

print(genre_with_highest_sales)
# Plotting horizontally
plt.figure(figsize=(12, 6))
plot = sns.barplot(x='Global_Sales', y='Year', hue='Genre',
data=genre_with_highest_sales, palette='viridis')

# Display values inside the bars
for p in plot.patches:
    plot.annotate(f'{p.get_width():.2f}', (p.get_width(), p.get_y() +
p.get_height() / 2),
                  ha='left', va='center', fontsize=8, color='black')
```

```python
plt.title('Genre with Highest Sales in a Single Year')
plt.xlabel('Total Global Sales (in millions)')
plt.ylabel('Year')
plt.legend(title='Genre', bbox_to_anchor=(1.05, 1), loc='upper left')
plt.show()
```

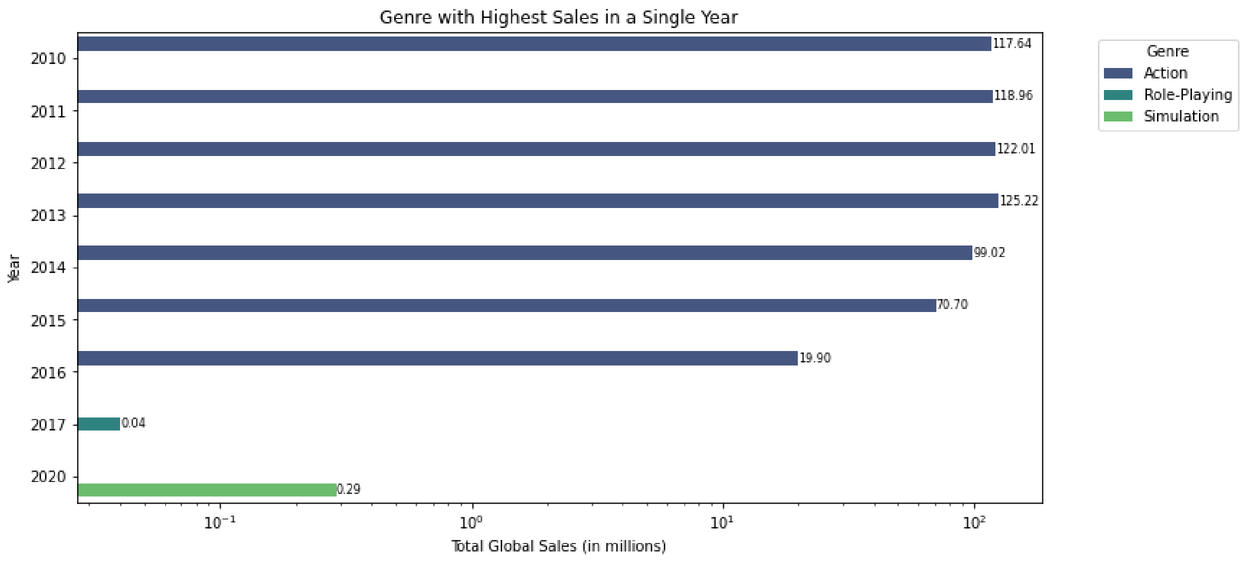
```
    Year        Genre  Global_Sales
0   2010       Action        117.64
12  2011       Action        118.96
24  2012       Action        122.01
36  2013       Action        125.22
48  2014       Action         99.02
60  2015       Action         70.70
72  2016       Action         19.90
84  2017  Role-Playing         0.04
85  2020    Simulation         0.29
```



```python
# Logarithmic
total_sales_by_year_genre = df_cleaned.groupby(['Year', 'Genre'])
['Global_Sales'].sum().reset_index()

# Finding the genre with the highest total sales in a single year
genre_with_highest_sales =
total_sales_by_year_genre.loc[total_sales_by_year_genre.groupby('Year'
)['Global_Sales'].idxmax()]
print(genre_with_highest_sales)
# Plotting horizontally with log scale for the y-axis
plt.figure(figsize=(12, 6))
plot = sns.barplot(x='Global_Sales', y='Year', hue='Genre',
data=genre_with_highest_sales, palette='viridis')

# Setting a log scale for the x-axis
```

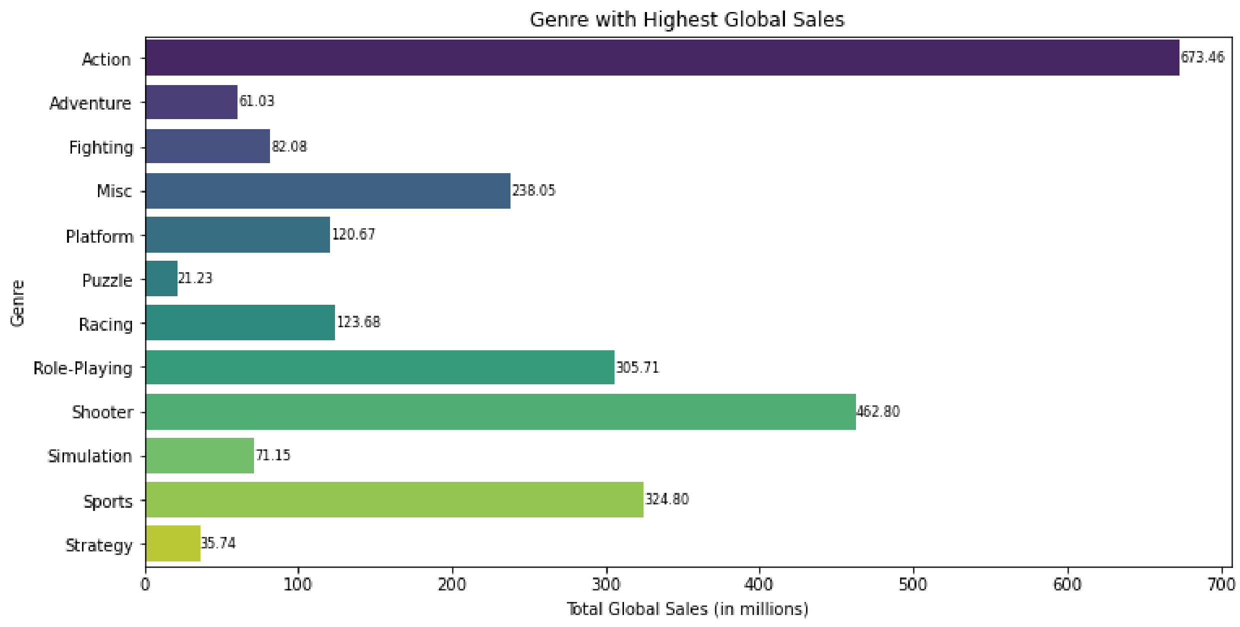
```
plt.xscale('log')

# Display values inside the bars
for p in plot.patches:
    plot.annotate(f'{p.get_width():.2f}', (p.get_width(), p.get_y() +
p.get_height() / 2),
                  ha='left', va='center', fontsize=8, color='black')

plt.title('Genre with Highest Sales in a Single Year')
plt.xlabel('Total Global Sales (in millions)')
plt.ylabel('Year')
plt.legend(title='Genre', bbox_to_anchor=(1.05, 1), loc='upper left')
plt.show()
```

```
    Year         Genre  Global_Sales
0   2010        Action        117.64
12  2011        Action        118.96
24  2012        Action        122.01
36  2013        Action        125.22
48  2014        Action         99.02
60  2015        Action         70.70
72  2016        Action         19.90
84  2017  Role-Playing          0.04
85  2020    Simulation          0.29
```



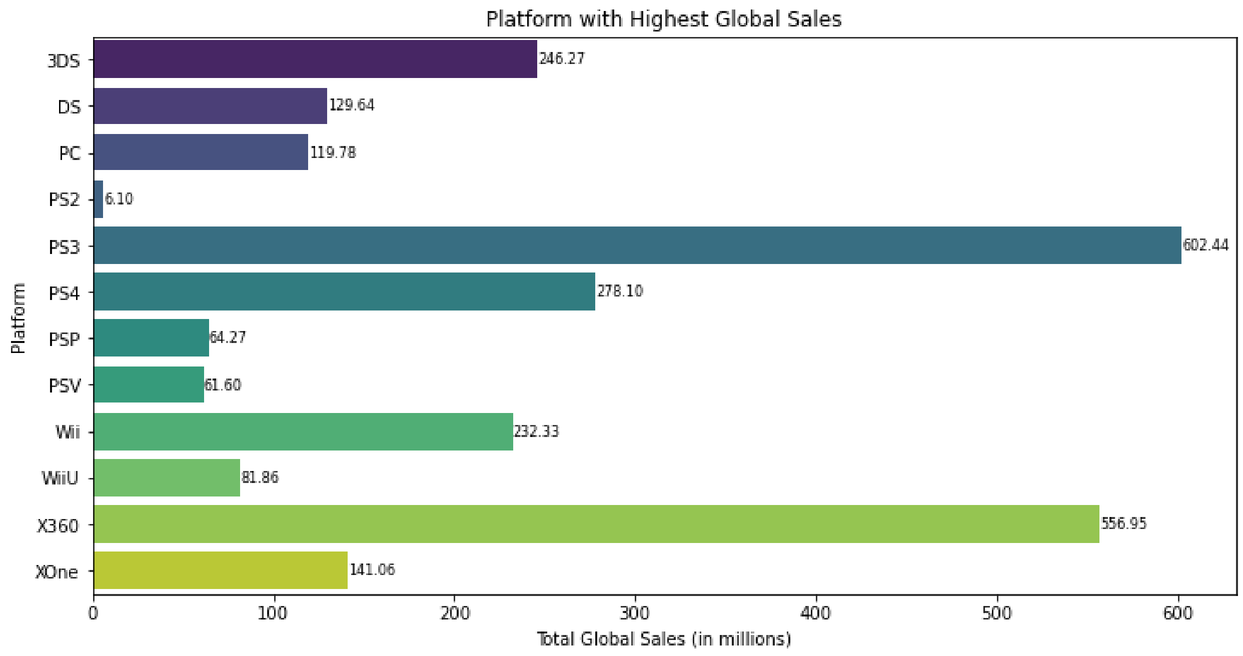
```
total_sales_by_genre = df_cleaned.groupby('Genre')
['Global_Sales'].sum().reset_index()

# Find the genre with the highest total global sales
genre_with_highest_sales =
total_sales_by_genre.loc[total_sales_by_genre['Global_Sales'].idxmax()
]
print(total_sales_by_genre)
# Plotting horizontally with viridis color palette
plt.figure(figsize=(12, 6))
plot = sns.barplot(x='Global_Sales', y='Genre',
data=total_sales_by_genre, palette='viridis')

# Display values inside the bars
for p in plot.patches:
    plot.annotate(f'{p.get_width():.2f}', (p.get_width(), p.get_y() +
p.get_height() / 2),
                  ha='left', va='center', fontsize=8, color='black')

plt.title('Genre with Highest Global Sales')
plt.xlabel('Total Global Sales (in millions)')
plt.ylabel('Genre')
plt.show()
```

```
           Genre  Global_Sales
0         Action        673.46
1      Adventure         61.03
2       Fighting         82.08
3           Misc        238.05
4       Platform        120.67
5         Puzzle         21.23
6         Racing        123.68
7   Role-Playing        305.71
8        Shooter        462.80
9     Simulation         71.15
10        Sports        324.80
11      Strategy         35.74
```



```
total_sales_by_platform = df_cleaned.groupby('Platform')
['Global_Sales'].sum().reset_index()
print(total_sales_by_platform)
# Find the platform with the highest total global sales
platform_with_highest_sales =
total_sales_by_platform.loc[total_sales_by_platform['Global_Sales'].id
xmax()]

# Plotting horizontally with viridis color palette
plt.figure(figsize=(12, 6))
plot = sns.barplot(x='Global_Sales', y='Platform',
data=total_sales_by_platform, palette='viridis')

# Display values inside the bars
for p in plot.patches:
    plot.annotate(f'{p.get_width():.2f}', (p.get_width(), p.get_y() +
p.get_height() / 2),
                  ha='left', va='center', fontsize=8, color='black')

plt.title('Platform with Highest Global Sales')
plt.xlabel('Total Global Sales (in millions)')
plt.ylabel('Platform')
plt.show()
```

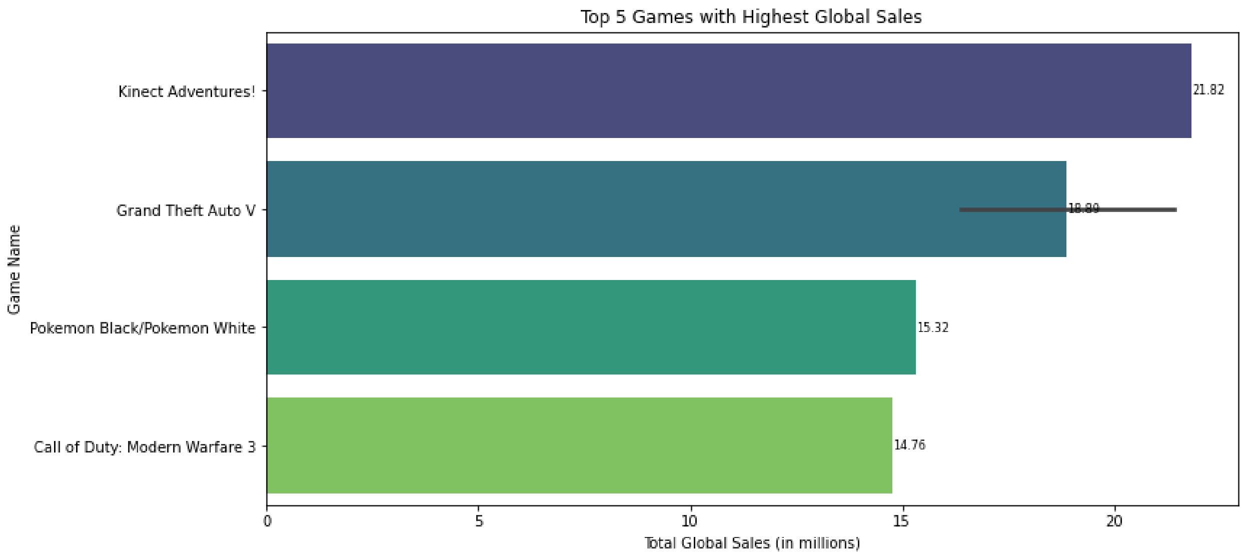
```
   Platform  Global_Sales
0       3DS        246.27
1        DS        129.64
2        PC        119.78
3       PS2          6.10
4       PS3        602.44
5       PS4        278.10
6       PSP         64.27
7       PSV         61.60
8       Wii        232.33
9      WiiU         81.86
10     X360        556.95
11     XOne        141.06
```



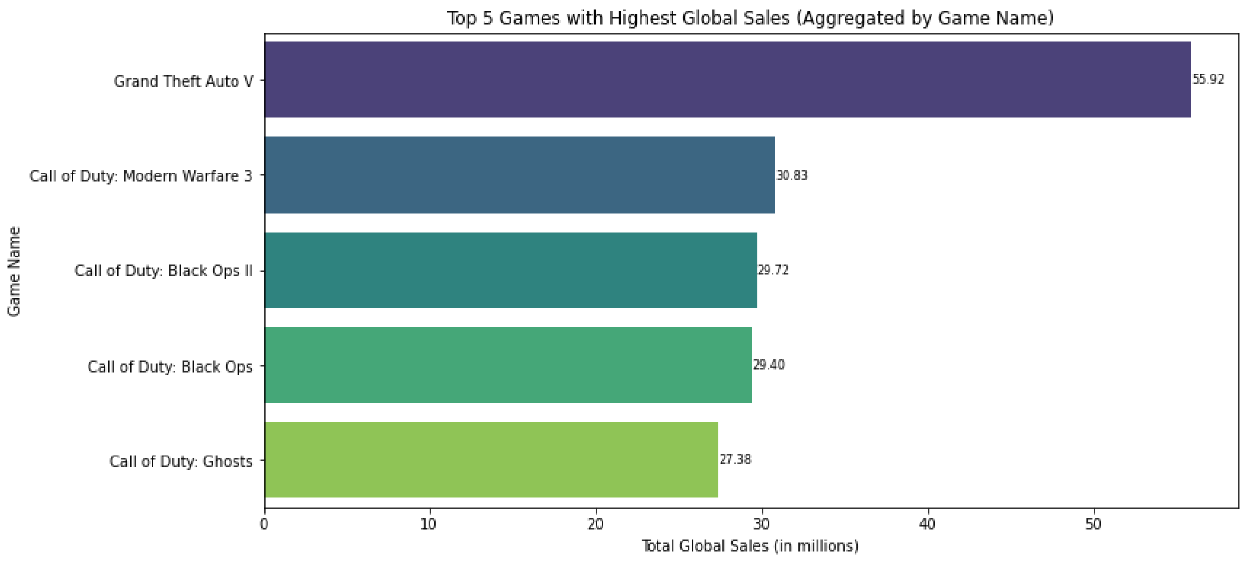
```python
top_5_games = df_cleaned.nlargest(5, 'Global_Sales')
print(top_5_games)
# Plotting a horizontal bar for the top 5 games
plt.figure(figsize=(12, 6))
plot = sns.barplot(x='Global_Sales', y='Name', data=top_5_games,
palette='viridis')

# Display the values inside the bars
for p in plot.patches:
    plot.annotate(f'{p.get_width():.2f}', (p.get_width(), p.get_y() +
p.get_height() / 2),
                  ha='left', va='center', fontsize=8, color='black')

plt.title('Top 5 Games with Highest Global Sales')
plt.xlabel('Total Global Sales (in millions)')
plt.ylabel('Game Name')
plt.show()
```

```
    Rank                            Name Platform  Year         Genre  \
15    16              Kinect Adventures!     X360  2010          Misc   
16    17                Grand Theft Auto V      PS3  2013        Action   
23    24                Grand Theft Auto V     X360  2013        Action   
26    27  Pokemon Black/Pokemon White       DS  2010  Role-Playing   
29    30  Call of Duty: Modern Warfare 3     X360  2011       Shooter   
```

```
                Publisher  NA_Sales  EU_Sales  JP_Sales  Other_Sales  \
15  Microsoft Game Studios     14.97      4.94      0.24         1.67   

16    Take-Two Interactive      7.01      9.27      0.97         4.14   

23    Take-Two Interactive      9.63      5.31      0.06         1.38   

26                Nintendo      5.57      3.28      5.65         0.82   

29              Activision      9.03      4.28      0.13         1.32   


    Global_Sales  
15         21.82  
16         21.40  
23         16.38  
26         15.32  
29         14.76  
```

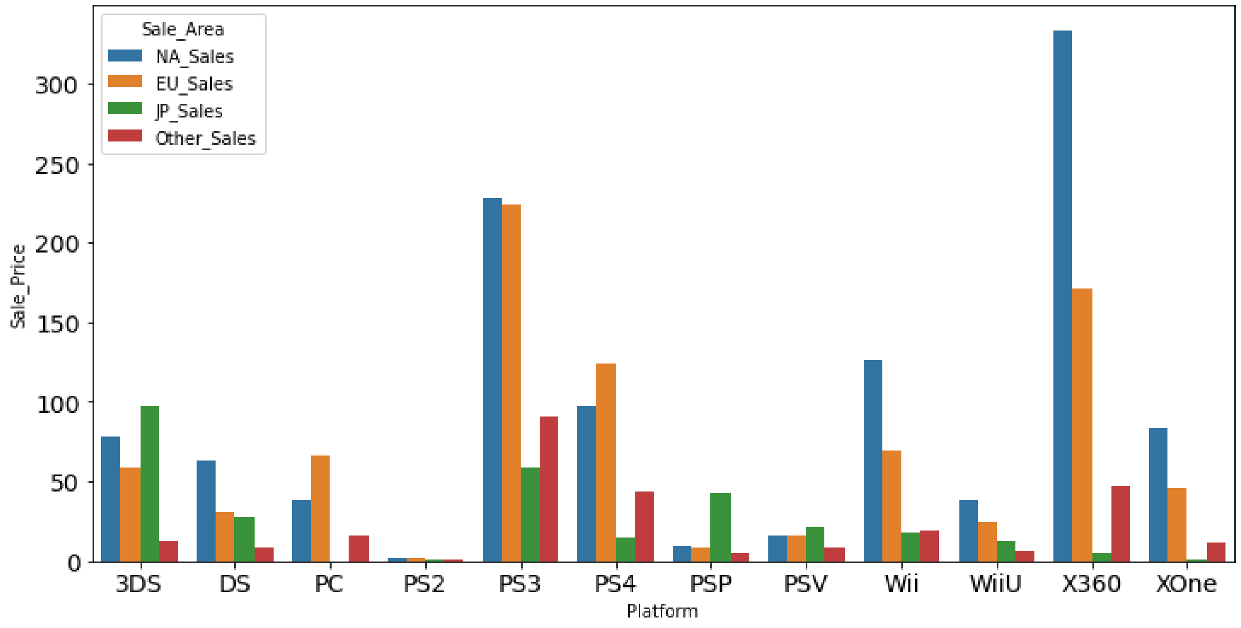


```python
# GTA V is problematic because it is in the list with 2 platforms. so
I aggregated them:
grouped_by_game = df_cleaned.groupby('Name')
['Global_Sales'].sum().reset_index()

# Find the top 5 games with the highest global sales
top_5_games = grouped_by_game.nlargest(5, 'Global_Sales')

# Plotting a horizontal bar for the top 5 games
plt.figure(figsize=(12, 6))
plot = sns.barplot(x='Global_Sales', y='Name', data=top_5_games,
palette='viridis')

# Display the values inside the bars
for p in plot.patches:
    plot.annotate(f'{p.get_width():.2f}', (p.get_width(), p.get_y() +
p.get_height() / 2),
                  ha='left', va='center', fontsize=8, color='black')

plt.title('Top 5 Games with Highest Global Sales (Aggregated by Game
Name)')
plt.xlabel('Total Global Sales (in millions)')
plt.ylabel('Game Name')
plt.show()
```

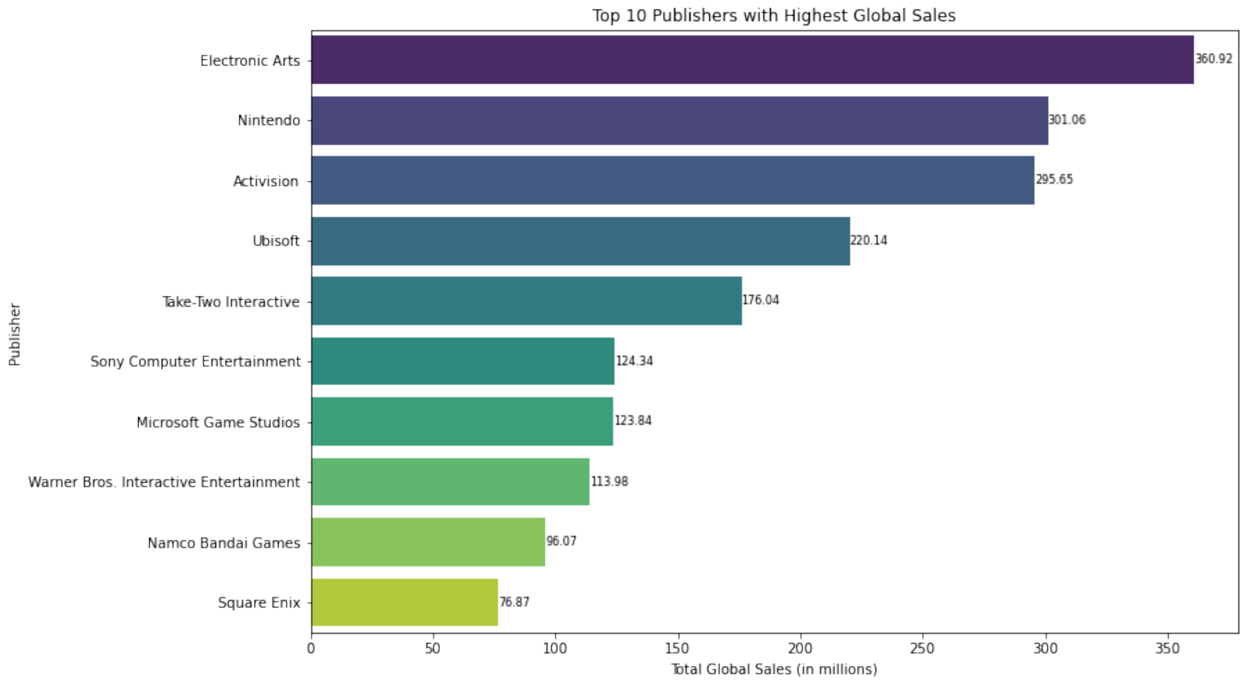


```
comp_platform = df_cleaned[['Platform', 'NA_Sales', 'EU_Sales',
'JP_Sales', 'Other_Sales']]

comp_platform =
comp_platform.groupby(by=['Platform']).sum().reset_index()

print(comp_platform)
comp_table = pd.melt(comp_platform, id_vars=['Platform'],
value_vars=['NA_Sales', 'EU_Sales', 'JP_Sales', 'Other_Sales'],
var_name='Sale_Area', value_name='Sale_Price')

plt.figure(figsize=(12, 6))
sns.barplot(x='Platform', y='Sale_Price', hue='Sale_Area',
data=comp_table)
plt.xticks(fontsize=14)
plt.yticks(fontsize=14)
plt.show()
```

```
   Platform  NA_Sales  EU_Sales  JP_Sales  Other_Sales
0       3DS     78.03     58.29     97.30        12.55
1        DS     62.84     30.34     27.90         8.57
2        PC     37.97     65.88      0.00        15.67
3       PS2      2.32      1.67      0.80         1.30
4       PS3    228.11    224.27     59.06        90.87
5       PS4     96.80    123.70     14.30        43.36
6       PSP      9.58      7.86     42.20         4.72
7       PSV     16.07     16.27     20.86         8.41
8       Wii    126.51     69.14     17.75        18.85
9      WiiU     38.32     24.23     12.79         6.45
10     X360    332.92    171.24      5.46        47.06
11     XOne     83.19     45.65      0.34        11.92
```



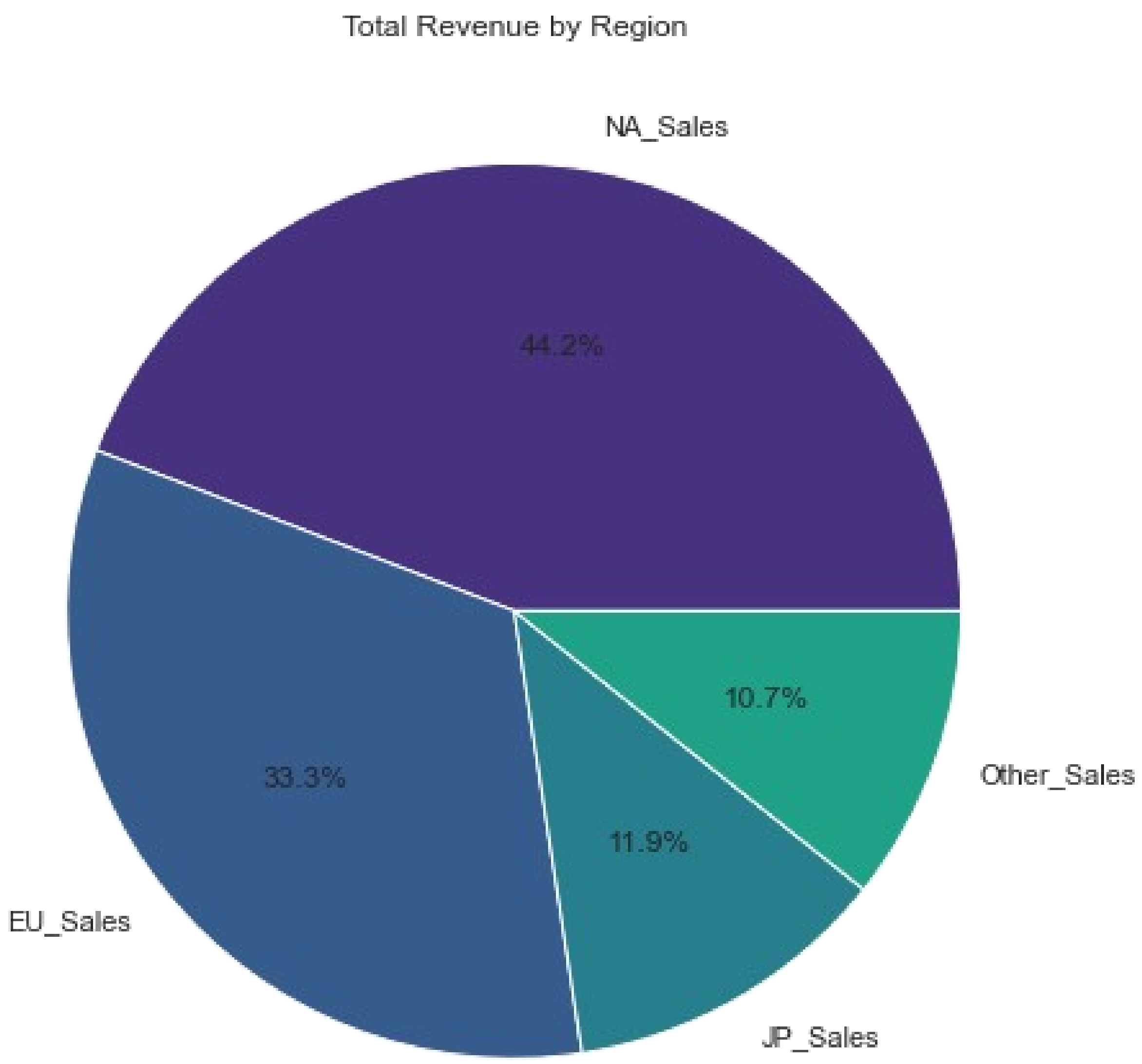
```
grouped_by_publisher = df_cleaned.groupby('Publisher')
['Global_Sales'].sum().reset_index()

print(grouped_by_publisher)
# Find the top 10 publishers with the highest global sales
top_10_publishers = grouped_by_publisher.nlargest(10, 'Global_Sales')

# Plotting a horizontal bar for the top 10 publishers
plt.figure(figsize=(12, 8))
plot = sns.barplot(x='Global_Sales', y='Publisher',
data=top_10_publishers, palette='viridis')

# Display the values inside the bars
for p in plot.patches:
    plot.annotate(f'{p.get_width():.2f}', (p.get_width(), p.get_y() +
p.get_height() / 2),
                  ha='left', va='center', fontsize=8, color='black')

plt.title('Top 10 Publishers with Highest Global Sales')
plt.xlabel('Total Global Sales (in millions)')
plt.ylabel('Publisher')
plt.show()

                  Publisher  Global_Sales
0                1C Company          0.09
1                 505 Games         25.10
2                       5pb          1.35
3                  7G//AMES          0.08
4        ASCII Media Works          0.14
..                      ...           ...
259         dramatic create          0.11
260                    iWin          0.06
261         imageepoch Inc.          0.04
262  inXile Entertainment            0.10
263              mixi, Inc           0.86

[264 rows x 2 columns]
```



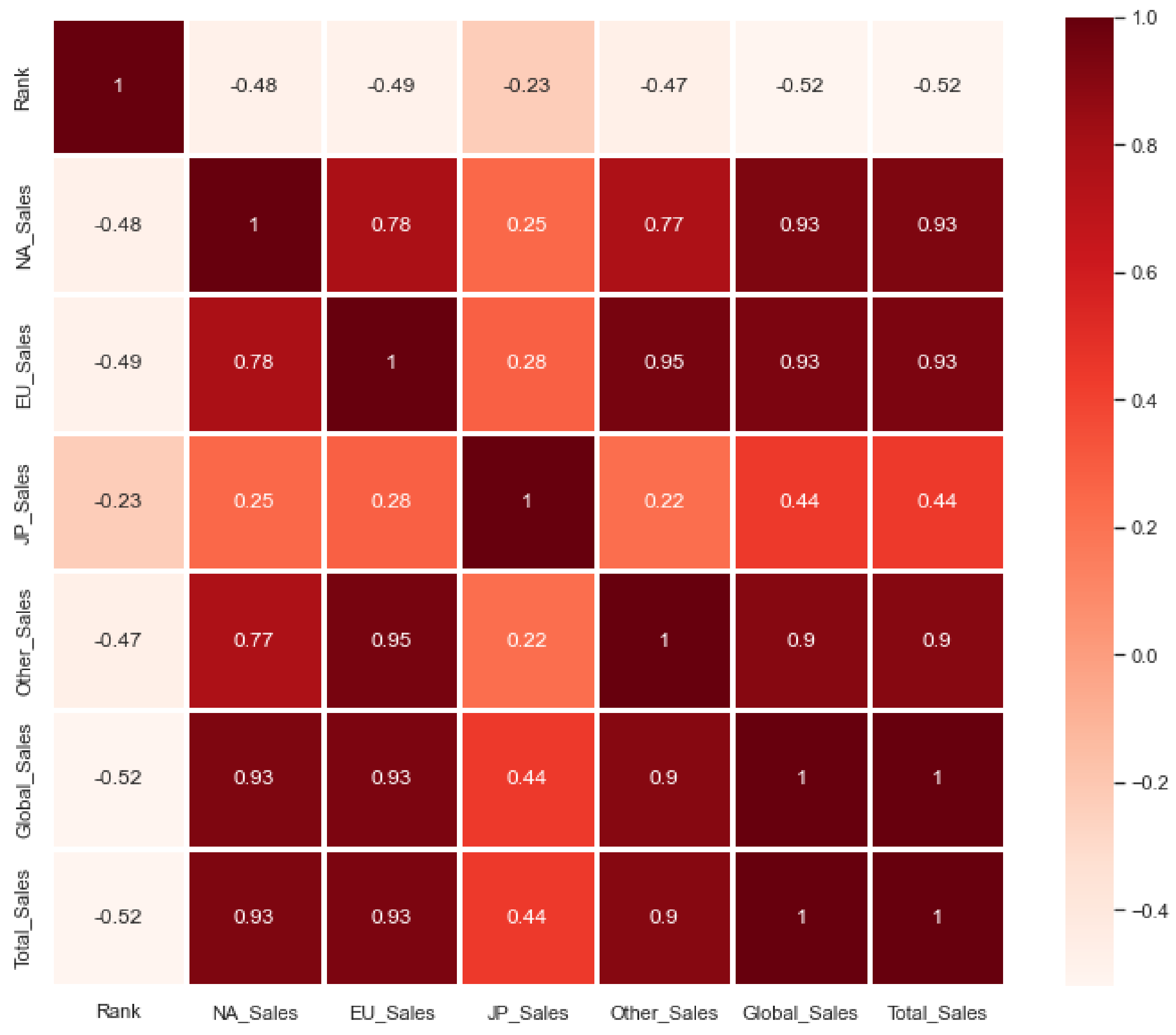
```
df_cleaned['Total_Sales'] = df_cleaned[['NA_Sales', 'EU_Sales',
'JP_Sales', 'Other_Sales']].sum(axis=1)

# Calculate the total sales in each region
total_sales_by_region = df_cleaned[['NA_Sales', 'EU_Sales',
'JP_Sales', 'Other_Sales']].sum()
```

```
print(total_sales_by_region)
# Plotting a pie chart for total revenue by region using Seaborn
plt.figure(figsize=(8, 8))
sns.set(style="whitegrid")
plt.pie(total_sales_by_region, labels=total_sales_by_region.index,
autopct='%1.1f%%', colors=sns.color_palette('viridis'))
plt.title('Total Revenue by Region')
plt.show()
```

```
NA_Sales       1112.66
EU_Sales        838.54
JP_Sales        298.76
Other_Sales     269.73
dtype: float64
```



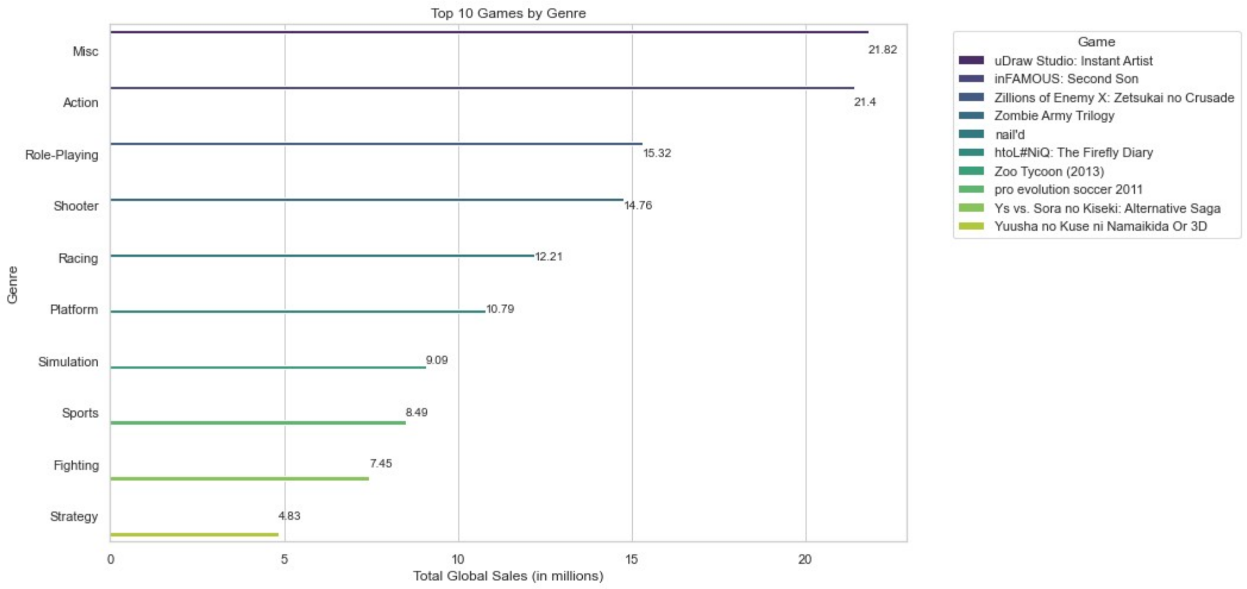
```
plt.figure(figsize=(12,10))

sns.heatmap(df_cleaned.corr(), cmap = "Reds", annot=True, linewidth=3)

<AxesSubplot:>
```



	Rank	NA_Sales	EU_Sales	JP_Sales	Other_Sales	Global_Sales	Total_Sales
Rank	1	-0.48	-0.49	-0.23	-0.47	-0.52	-0.52
NA_Sales	-0.48	1	0.78	0.25	0.77	0.93	0.93
EU_Sales	-0.49	0.78	1	0.28	0.95	0.93	0.93
JP_Sales	-0.23	0.25	0.28	1	0.22	0.44	0.44
Other_Sales	-0.47	0.77	0.95	0.22	1	0.9	0.9
Global_Sales	-0.52	0.93	0.93	0.44	0.9	1	1
Total_Sales	-0.52	0.93	0.93	0.44	0.9	1	1

```
top_games_by_genre = df_cleaned.groupby('Genre')['Global_Sales',
'Name'].max().reset_index()

# Sorting values to get the top 10 games by genre
top_games_by_genre = top_games_by_genre.sort_values(by='Global_Sales',
ascending=False).head(10)

print(top_games_by_genre)
# Creating a horizontal bar plot using Seaborn
plt.figure(figsize=(12, 8))
plot = sns.barplot(x='Global_Sales', y='Genre', hue='Name',
data=top_games_by_genre, palette='viridis')

# Display values inside the bars
for index, value in enumerate(top_games_by_genre['Global_Sales']):
    plot.text(value, index, f'{value}', ha="left", va="center",
fontsize=10)
```

```
plt.title('Top 10 Games by Genre')
plt.xlabel('Total Global Sales (in millions)')
plt.ylabel('Genre')
plt.legend(title='Game', bbox_to_anchor=(1.05, 1), loc='upper left')
plt.show()

C:\Users\yahya.demirbas\AppData\Local\Temp\
ipykernel_3492\3423598055.py:1: FutureWarning: Indexing with multiple
keys (implicitly converted to a tuple of keys) will be deprecated, use
a list instead.
  top_games_by_genre = df_cleaned.groupby('Genre')['Global_Sales',
'Name'].max().reset_index()

           Genre  Global_Sales
Name
3           Misc         21.82              uDraw Studio: Instant
Artist
0         Action         21.40                      inFAMOUS: Second
Son
7   Role-Playing         15.32  Zillions of Enemy X: Zetsukai no
Crusade
8        Shooter         14.76                          Zombie Army
Trilogy
6         Racing         12.21
nail'd
4       Platform         10.79               htoL#NiQ: The Firefly
Diary
9     Simulation          9.09                            Zoo Tycoon
(2013)
10        Sports          8.49                 pro evolution soccer
2011
2       Fighting          7.45   Ys vs. Sora no Kiseki: Alternative
Saga
11      Strategy          4.83         Yuusha no Kuse ni Namaikida Or
3D
```


Top 10 Games by Genre
Misc
Action
Role-Playing
Shooter
Racing
Platform
Simulation
Sports
Fighting
Strategy
Genre
21.82
21.4
15.32
14.76
12.21
10.79
9.09
8.49
7.45
4.83
0
5
10
15
20
Total Global Sales (in millions)
Game
uDraw Studio: Instant Artist
inFAMOUS: Second Son
Zillions of Enemy X: Zetsukai no Crusade
Zombie Army Trilogy
nail'd
htoL#NiQ: The Firefly Diary
Zoo Tycoon (2013)
pro evolution soccer 2011
Ys vs. Sora no Kiseki: Alternative Saga
Yuusha no Kuse ni Namaikida Or 3D