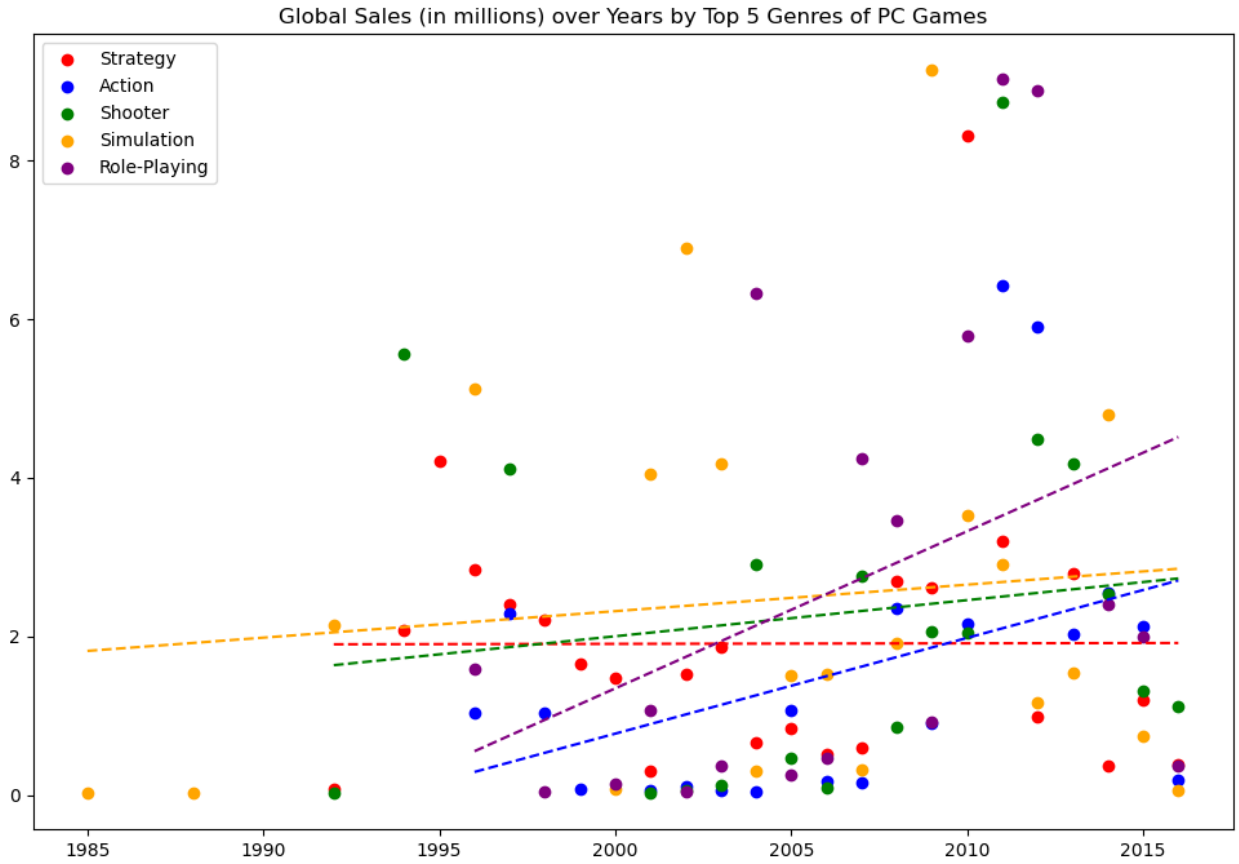
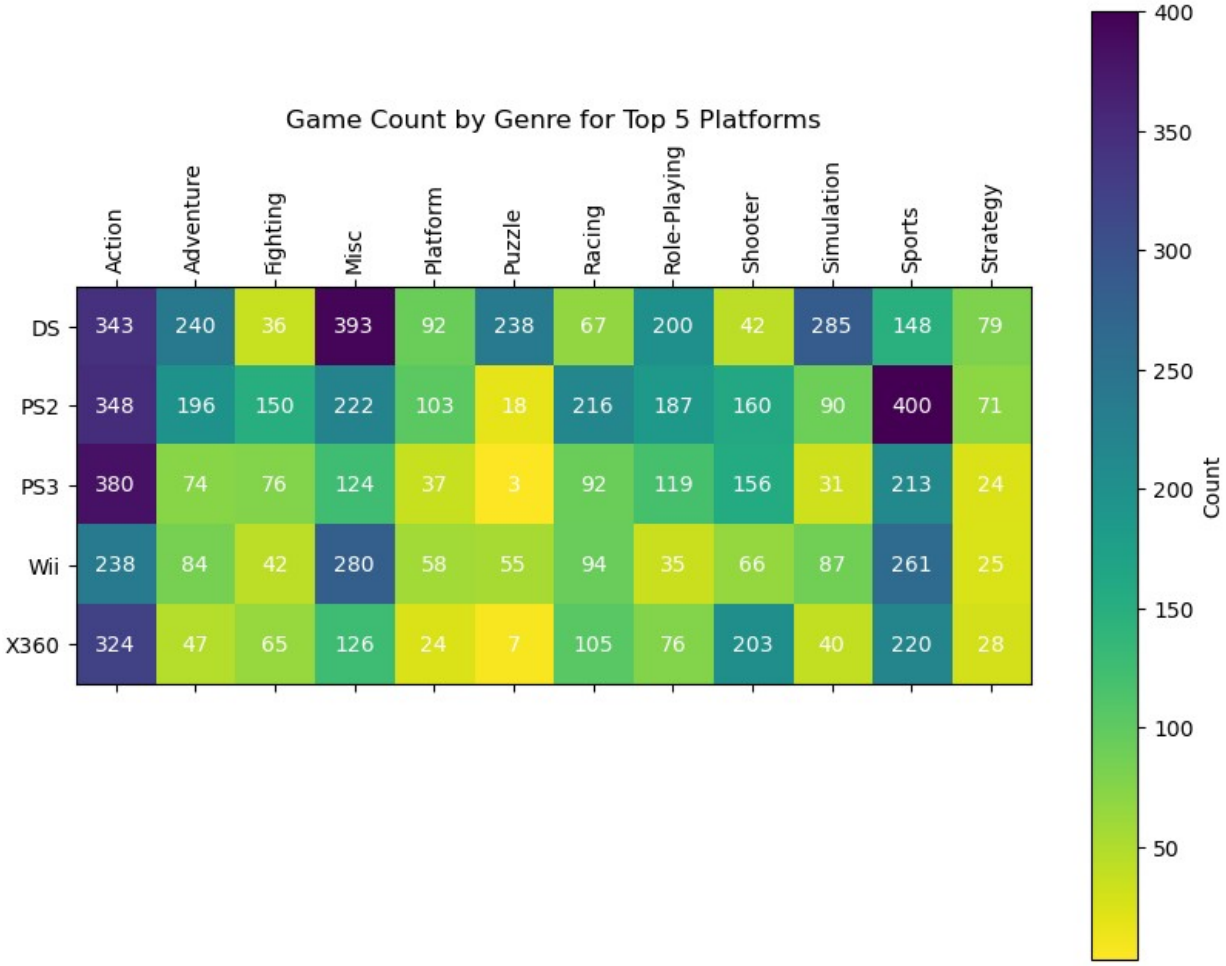
```
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np

# Load the dataset into a DataFrame named 'vgsales'
vgsales = pd.read_csv('vgsales.csv')

# Filter the dataset for PC games and identify top 5 genres
pc_games = vgsales[vgsales['Platform'] == 'PC']
top_5_genres = pc_games['Genre'].value_counts().head(5).index.tolist()

# Filter again to include only top 5 genres
filtered_data = pc_games[pc_games['Genre'].isin(top_5_genres)]

# Group by 'Year' and 'Genre', and sum the 'Global_Sales'
grouped_data = filtered_data.groupby(['Year',
'Genre']).agg({'Global_Sales': 'sum'}).reset_index()

# Create scatter plot and linear regression for each genre
plt.figure(figsize = (12, 8))
colors = ['red', 'blue', 'green', 'orange', 'purple']

for i, genre in enumerate(top_5_genres):
    genre_data = grouped_data[grouped_data['Genre'] == genre]
    plt.scatter(genre_data['Year'], genre_data['Global_Sales'], label
= genre, color = colors[i])

    # Linear regression
    m, b = np.polyfit(genre_data['Year'], genre_data['Global_Sales'],
1)
    plt.plot(genre_data['Year'], m*genre_data['Year'] + b, color =
colors[i], linestyle = '--')

plt.xlabel('')
plt.ylabel('')
plt.title('Global Sales (in millions) over Years by Top 5 Genres of PC
Games')
plt.legend(loc = "upper left")
plt.show()
```



Strategy: The regression line's slope shows constant trend, indicating a consistent interest in strategy games. Has a steady sales rise, peaking around 2015. Action: The regression line suggests a slight increase over time, pointing to a growing but somewhat fluctuating market for action games. Blue dotS display varied sales. Shooter: The regression line display moderate growth, with a few sales spikes in later years. Simulation: Represented by the orange dots, 'Simulation' games seem to have maintained increase sales over the years. Their regression line displays a slight upward trend, showing gradual growth in this genre. Role-Playing: The purple dots representing games show a considerable spread in sales figures. While some years witnessed lower sales, there's a clear surge in the later years, especially post-2010. This is further supported by the regression line's steeper slope for this genre.

```
# Filter top 5 platforms
top_5_platforms =
vgsales['Platform'].value_counts().head(5).index.tolist()

# Filter the dataframe for those platforms
df_top_5 = vgsales[vgsales['Platform'].isin(top_5_platforms)]

# Pivot the dataframe for heatmap
heatmap_data = df_top_5.groupby(['Platform',
'Genre']).size().unstack(fill_value = 0)

fig, ax = plt.subplots(figsize = (10, 8))
```

```
cax = ax.matshow(heatmap_data, cmap ='viridis_r')
plt.xticks(np.arange(len(heatmap_data.columns)), heatmap_data.columns,
rotation = 90)
plt.yticks(np.arange(len(heatmap_data.index)), heatmap_data.index)
plt.colorbar(cax, label = 'Count')
plt.title('Game Count by Genre for Top 5 Platforms')

# Loop to add counts on each cell
for i in range(len(heatmap_data.index)):
    for j in range(len(heatmap_data.columns)):
        ax.text(j, i, str(heatmap_data.iloc[i, j]), ha = 'center', va
= 'center', color = 'w')

plt.show()
```



DS Platform: Dominates in the 'Misc' genre with 393 games. It also has a significant number of games in the "Action" genre at 343.

PS2 Platform: The "Sports" genre stands out with 400 games, making it the highest across all platforms for this genre. It also has a strong showing in "Action" with 348 games.

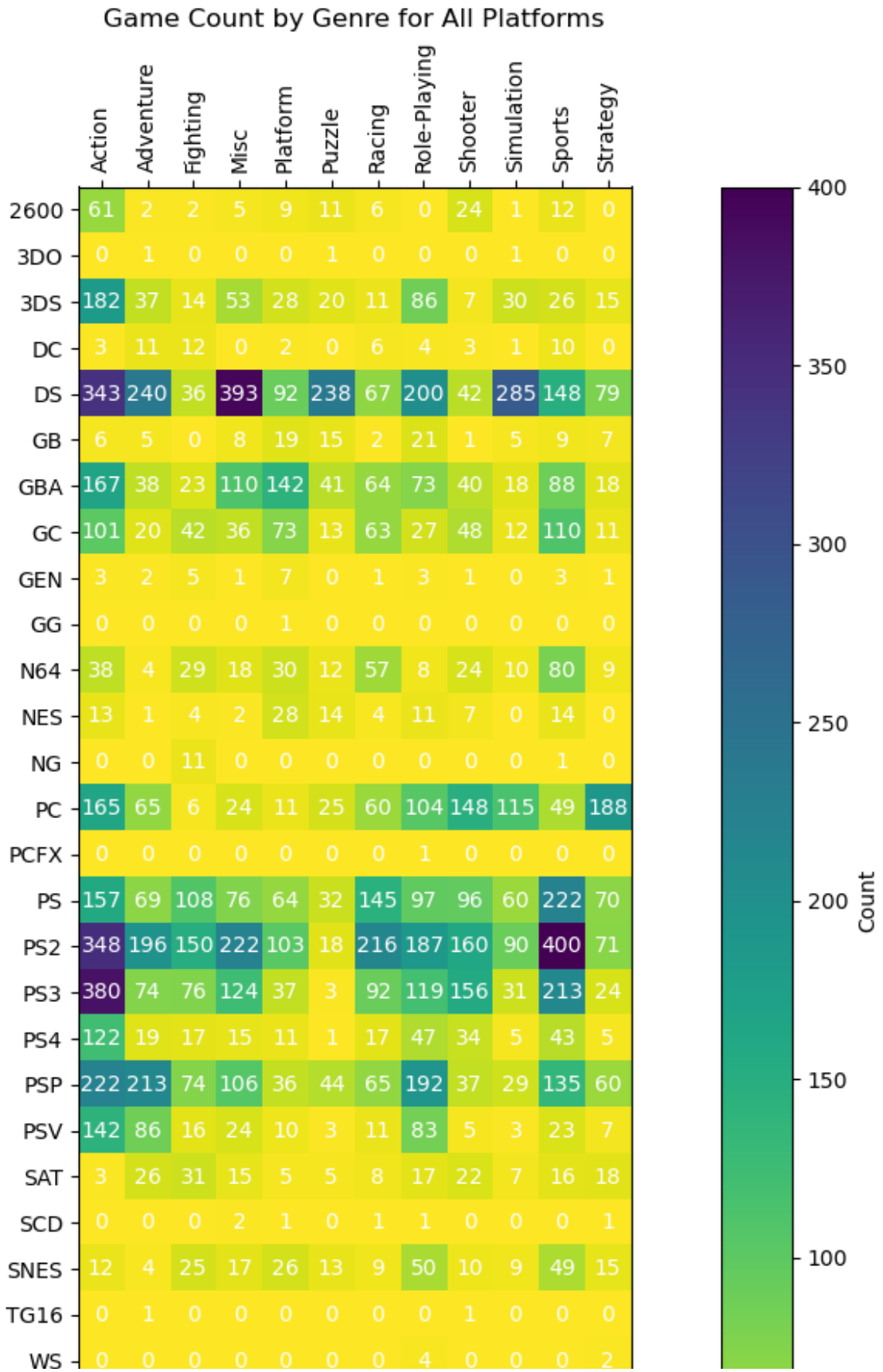
PS3 Platform: Leads in the "Action" genre with 380 games, while other genres like "Platform" and "Puzzle" have a relatively lower count, with just 3 and 37 games respectively.

Wii Platform: The "Simulation" genre is notably high with 261 games, making it the highest for this genre across the platforms.

X360 Platform: The "Shooter" genre is prominent with 203 games, which is the highest count among the platforms for this genre. The "Action" genre also has a significant representation with 324 games.

In general, the "Action" genre is prevalent across all platforms, highlighting its widespread popularity. The variation in game counts for other genres provides insight into the distinct audience preferences and game development strategies for each platform.

```
# The heatmap for all
heatmap_data_all = vgsales.groupby(['Platform',
'Genre']).size().unstack(fill_value = 0)

fig, ax = plt.subplots(figsize = (15, 12))
cax = ax.matshow(heatmap_data_all, cmap = 'viridis_r')
plt.xticks(np.arange(len(heatmap_data_all.columns)),
heatmap_data_all.columns, rotation = 90)
plt.yticks(np.arange(len(heatmap_data_all.index)),
heatmap_data_all.index)
plt.colorbar(cax, label = 'Count')
plt.title('Game Count by Genre for All Platforms')

# Loop to add counts on each cell
for i in range(len(heatmap_data_all.index)):
    for j in range(len(heatmap_data_all.columns)):
        ax.text(j, i, str(heatmap_data_all.iloc[i, j]), ha = 'center',
va = 'center', color = 'w')

plt.show()
```


Game Count by Genre for All Platforms
Action
Adventure
Fighting
Misc
Platform
Puzzle
Racing
Role-Playing
Shooter
Simulation
Sports
Strategy
2600 61 2 2 5 9 11 6 0 24 1 12 0
3DO 0 1 0 0 0 1 0 0 0 1 0 0
3DS 182 37 14 53 28 20 11 86 7 30 26 15
DC 3 11 12 0 2 0 6 4 3 1 10 0
DS 343 240 36 393 92 238 67 200 42 285 148 79
GB 6 5 0 8 19 15 2 21 1 5 9 7
GBA 167 38 23 110 142 41 64 73 40 18 88 18
GC 101 20 42 36 73 13 63 27 48 12 110 11
GEN 3 2 5 1 7 0 1 3 1 0 3 1
GG 0 0 0 0 1 0 0 0 0 0 0 0
N64 38 4 29 18 30 12 57 8 24 10 80 9
NES 13 1 4 2 28 14 4 11 7 0 14 0
NG 0 0 11 0 0 0 0 0 0 0 1 0
PC 165 65 6 24 11 25 60 104 148 115 49 188
PCFX 0 0 0 0 0 0 0 1 0 0 0 0
PS 157 69 108 76 64 32 145 97 96 60 222 70
PS2 348 196 150 222 103 18 216 187 160 90 400 71
PS3 380 74 76 124 37 3 92 119 156 31 213 24
PS4 122 19 17 15 11 1 17 47 34 5 43 5
PSP 222 213 74 106 36 44 65 192 37 29 135 60
PSV 142 86 16 24 10 3 11 83 5 3 23 7
SAT 3 26 31 15 5 5 8 17 22 7 16 18
SCD 0 0 0 2 1 0 1 1 0 0 0 1
SNES 12 4 25 17 26 13 9 50 10 9 49 15
TG16 0 1 0 0 0 0 0 0 1 0 0 0
WS 0 0 0 0 0 0 0 4 0 0 0 2
400
350
300
250
200
150
100
Count

Platform Variation: The second graph extends the data from the first one by providing a comprehensive view of game counts across various platforms. It allows for a more detailed comparison among a larger set of gaming consoles/platforms.

Genre Popularity: Both graphs highlight the "Action" genre as a dominant category across most platforms. This suggests that action games have a widespread appeal irrespective of the platform.

In the second graph, platforms like the "3DS", "GBA", "PSP", and "PSV" have a substantial number of games in the "Misc" and "Role-playing" genres, indicating a possible preference or strategy for these genres on handheld consoles. Legacy platforms like the "NES" and "GEN" have limited game counts across all genres, likely due to their age and the number of games produced during their active years. Modern platforms like the "PS4" and "XOne" are leaning more towards "Action", "Shooter", and "Sports" genres, which might be indicative of current gaming trends. Dominant Platforms: In the first graph, the top 5 platforms were highlighted. However, in the second graph, we can identify other platforms like "PSP", "3DS", and "PC" that have a significant number of games in various genres, suggesting their importance in the gaming market.

Sparse Platforms: There are certain platforms in the second graph, like "3DO", "GG", and "WS", which have very few games, potentially indicating their limited success or niche market presence.

Potential Uses: Market Analysis: These graphs can be used by game developers and publishers to identify market trends. By understanding which genres are popular on which platforms, they can strategize their game development accordingly.