Actividad 3: Sergio Buitrago

Materia: Diplomado de Analisis de datos con Python

1. Importando libreria pandas, cargando fuentes de datos y haciendo analisis descriptivo Fuente de información: https://raw.githubusercontent.com/shecho30/Diplomado_python/main/Data/Video_Game.csv

Resumen DataSet Sales Video Game: Este dataset hace referencia a la venta y calificacion de los video juegos

Librerias

```
import pandas as pd
import missingno as msno
from numpy import nan as np
import matplotlib.pyplot as plt
from pandas.core.groupby import groupby
import datetime
import plotly.graph_objs as gro
from collections import Counter as co
import seaborn as sns
from plotly.offline import init_notebook_mode, iplot
from sklearn.preprocessing import StandardScaler
import matplotlib.patches as mpatches
```

Fuente de información

```
url = 'https://raw.githubusercontent.com/shecho30/Diplomado_python/main/Data/Video_Game.csv'
```

```
df = pd.read_csv(url, sep=',')
```

Análisis Descriptivo

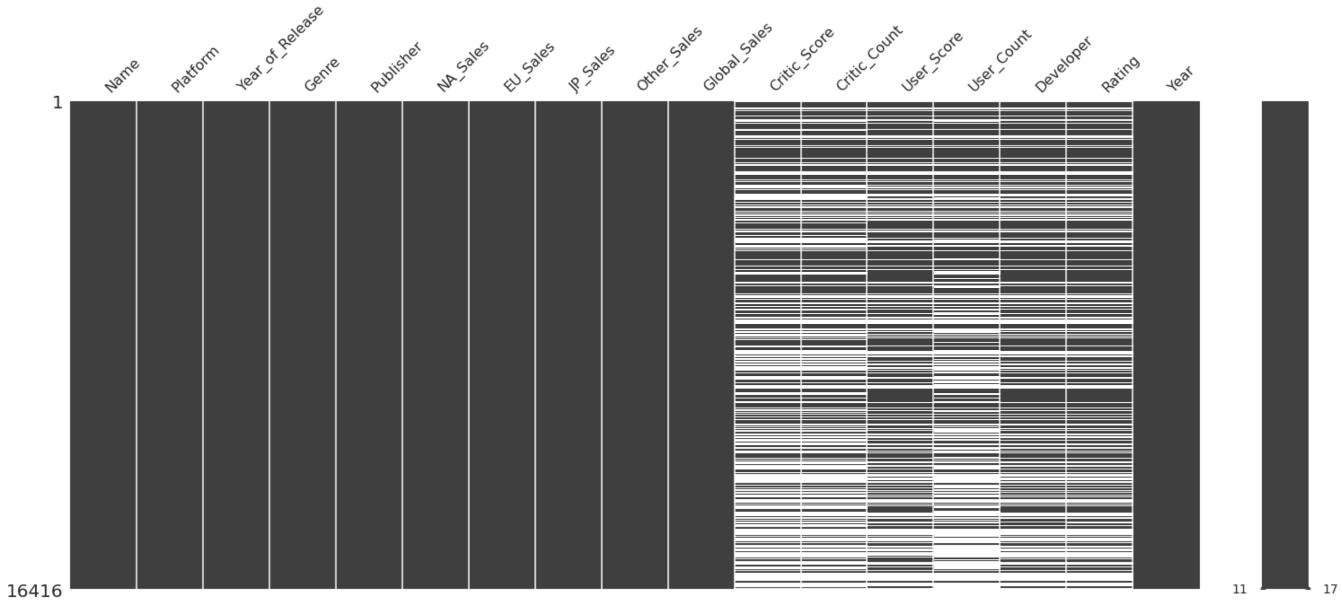
[ ] ↳ *6 celdas ocultas*

Limpieza de Datos

```
df = df[df["Year_of_Release"].notnull()]
df = df[df["Genre"].notnull()]
df = df[df["Publisher"].notnull()]
df['Year_of_Release']=df['Year_of_Release'].astype('int64')
df['User_Score']=df['User_Score'].replace('tbd',0).astype('float64')
```

```
msno.matrix(df)
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f12b89549d0>
```



```
df['Platform'].value_counts()
```

```
PS2     2161
DS      2152
PS3     1331
Wii     1320
X360    1262
PSP     1209
PS      1197
PC       974
XB       824
GBA      822
GC       556
3DS      520
PSV      432
PS4      393
N64      319
XOne     247
SNES     239
SAT      173
WiiU     147
2600     133
NES       98
GB        98
DC        52
GEN       29
NG        12
SCD        6
WS         6
3DO        3
TG16       2
GG         1
PCFX       1
Name: Platform, dtype: int64
```

```
df['Year_of_Release'].value_counts()
```

```
2008.0    1427
2009.0    1426
2010.0    1255
2007.0    1197
2011.0    1136
2006.0    1006
2005.0     939
2002.0     829
2003.0     775
2004.0     762
2012.0     653
2015.0     606
2014.0     581
2013.0     544
2016.0     502
2001.0     482
```

```
1998.0     379
2000.0     350
1999.0     338
1997.0     289
1996.0     263
1995.0     219
1994.0     121
1993.0      62
1981.0      46
1992.0      43
1991.0      41
1982.0      36
1986.0      21
1989.0      17
1983.0      17
1990.0      16
1987.0      16
1988.0      15
1985.0      14
1984.0      14
1980.0       9
2017.0       3
2020.0       1
Name: Year_of_Release, dtype: int64
```

```
df[df['Year_of_Release'] == 2020]
```

	Name	Platform	Year_of_Release	Genre	Publisher	NA_Sales	EU_Sales	JP_S
	Imagine:							

```
df.Platform[df['Year_of_Release'] == 2008].value_counts()
```

```
DS      492
Wii     282
PS2     191
X360    146
PS3     138
PSP     100
PC       76
XB        1
DC        1
Name: Platform, dtype: int64
```

```
df['Genre'].value_counts()
```

```
Action          3370
Sports          2348
Misc            1750
Role-Playing    1500
Shooter         1323
Adventure       1303
```

```
     Racing          1249
     Platform         888
     Simulation       874
     Fighting         849
     Strategy         683
     Puzzle           580
     Name: Genre, dtype: int64
```

```
pd.unique(df['Developer'])
```

```
     array(['Nintendo', nan, 'Good Science Studio', ..., 'Big Red Software',
            'Atomic Games', 'Interchannel-Holon'], dtype=object)
```

```
df['Global_Sales'].describe()
```

```
     count    16719.000000
     mean         0.533543
     std          1.547935
     min          0.010000
     25%          0.060000
     50%          0.170000
     75%          0.470000
     max         82.530000
     Name: Global_Sales, dtype: float64
```

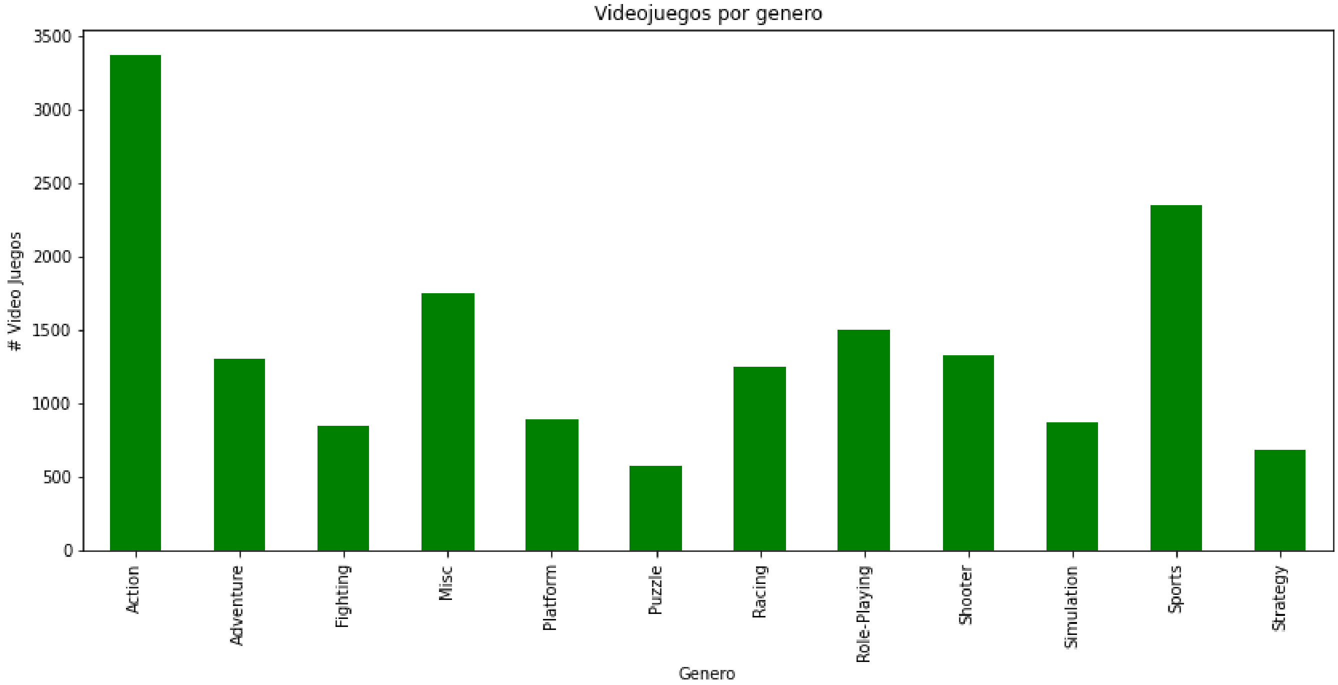
Graficos

```
genre = df.groupby('Genre')['Genre'].count()
genre
```

```
     Genre
     Action          3370
     Adventure       1303
     Fighting         849
     Misc            1750
     Platform         888
     Puzzle           580
     Racing          1249
     Role-Playing    1500
     Shooter         1323
     Simulation       874
     Sports          2348
     Strategy         683
     Name: Genre, dtype: int64
```

```
plt.figure(figsize=(14,6))
genre.plot(kind='bar', color='Green')
plt.xlabel('Genero')
plt.ylabel('# Video Juegos')
plt.title('Videojuegos por genero')
```

```
Text(0.5, 1.0, 'Videojuegos por genero')
```



```
df['Year'] = df.Year_of_Release.astype(int,errors='ignore')
```

```
Sales = df.groupby('Year')['Global_Sales'].sum()
Sales.head(20)
```

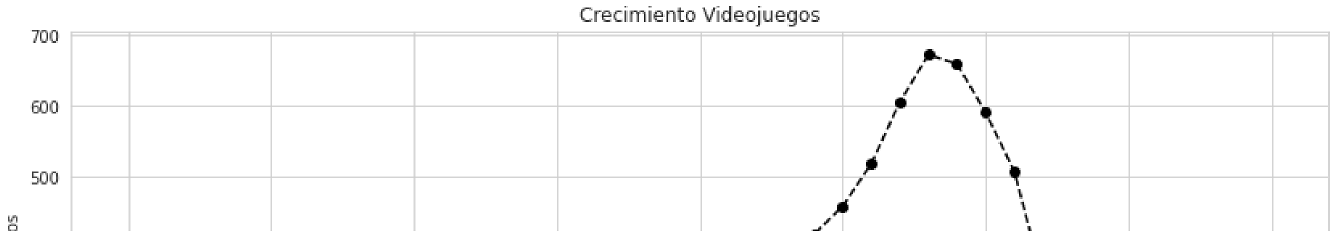
```
Year
1980.0     11.38
1981.0     35.77
1982.0     28.86
1983.0     16.79
1984.0     50.36
1985.0     53.94
1986.0     37.07
1987.0     21.74
1988.0     47.22
1989.0     73.45
1990.0     49.39
1991.0     32.23
1992.0     76.17
1993.0     45.98
1994.0     79.18
1995.0     88.11
1996.0    199.15
1997.0    200.98
1998.0    256.45
```

```
    1999.0    251.25
    2000.0    201.58
    2001.0    331.47
    2002.0    395.51
    2003.0    357.80
    2004.0    413.75
    2005.0    456.88
    2006.0    518.22
    2007.0    604.16
    2008.0    671.79
    2009.0    658.88
    2010.0    590.43
    Name: Global_Sales, dtype: float64
```

```
Years_ = [1980, 1985, 1990, 1995, 2000, 2005, 2010]
Sales_Years_ = df.query('Year in @Years_')
Sales_Years_.head(5)

Sales_2 = Sales_Years_.groupby('Year')['Global_Sales'].sum()
Sales_2.head(20)
```

```
    Year
    1980.0     11.38
    1985.0     53.94
    1990.0     49.39
    1995.0     88.11
    2000.0    201.58
    2005.0    456.88
    2010.0    590.43
    Name: Global_Sales, dtype: float64
```

```
plt.figure(figsize=(14,6))
Sales.plot(style='--',color = 'black', marker = 'o')
plt.ylabel('Ventas Video Juegos')
plt.title('Crecimiento Videojuegos')
plt.xlabel("Años",fontsize=15);
```



Dev

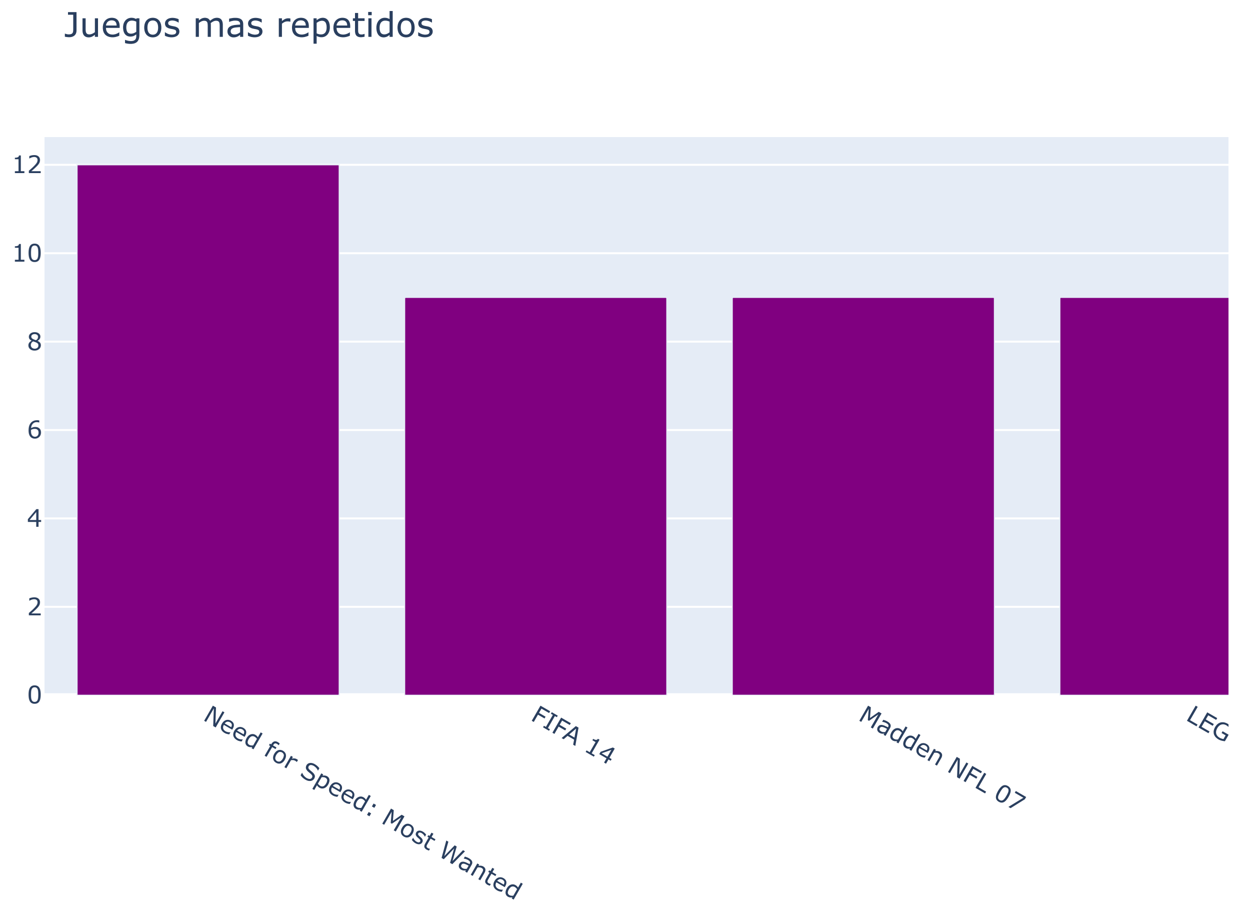
```
co(df["Name"].tolist()).most_common(8)
```

```
[('Need for Speed: Most Wanted', 12),
 ('FIFA 14', 9),
 ('Madden NFL 07', 9),
 ('LEGO Marvel Super Heroes', 9),
 ('Ratatouille', 9),
 ('FIFA Soccer 13', 8),
 ('FIFA 15', 8),
 ('LEGO Star Wars II: The Original Trilogy', 8)]
```

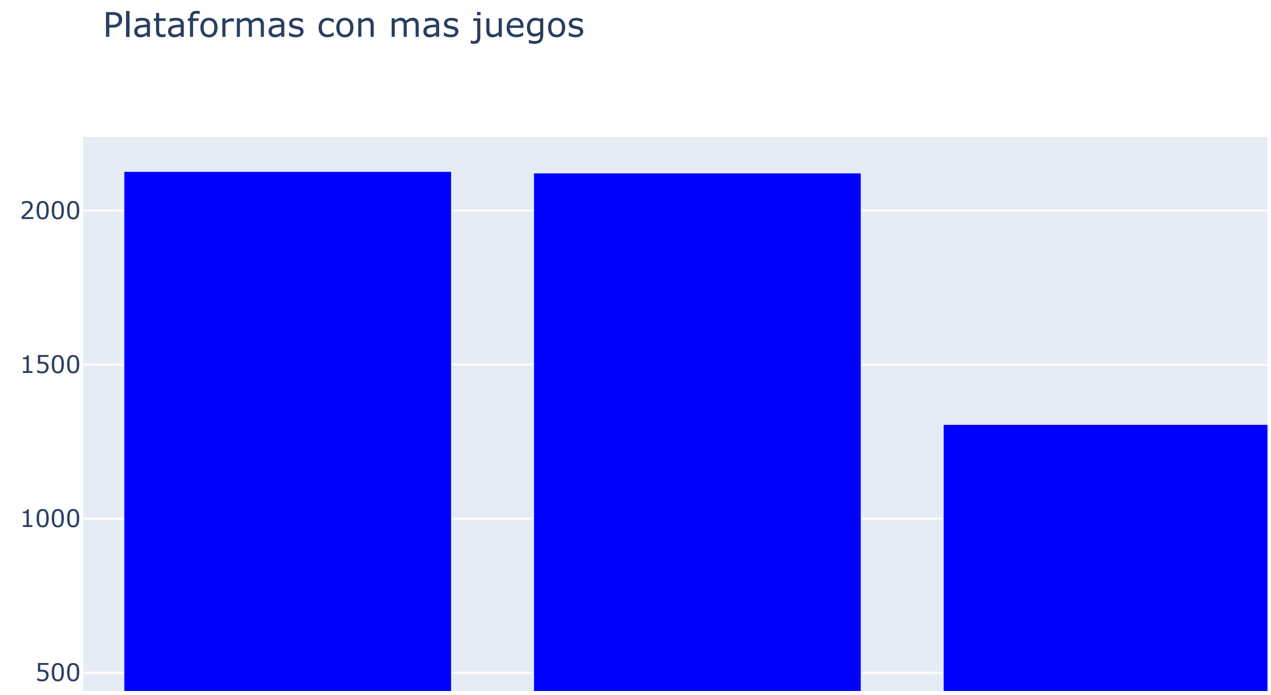
```
co(df["Platform"].tolist()).most_common(8)
```

```
[('PS2', 2161),
 ('DS', 2152),
 ('PS3', 1331),
 ('Wii', 1320),
 ('X360', 1262),
 ('PSP', 1209),
 ('PS', 1197),
 ('PC', 974)]
```

```
game = co(df['Name'].tolist()).most_common(10)
x = [x[0] for x in game]
y = [x[1] for x in game]

fig = gro.Bar(x = x,
             y = y,
             marker = dict(color = 'Purple'))

layout = gro.Layout()

fig = gro.Figure(data = fig, layout = layout)

fig.update_layout(title_text='Juegos mas repetidos')

fig.show()
```

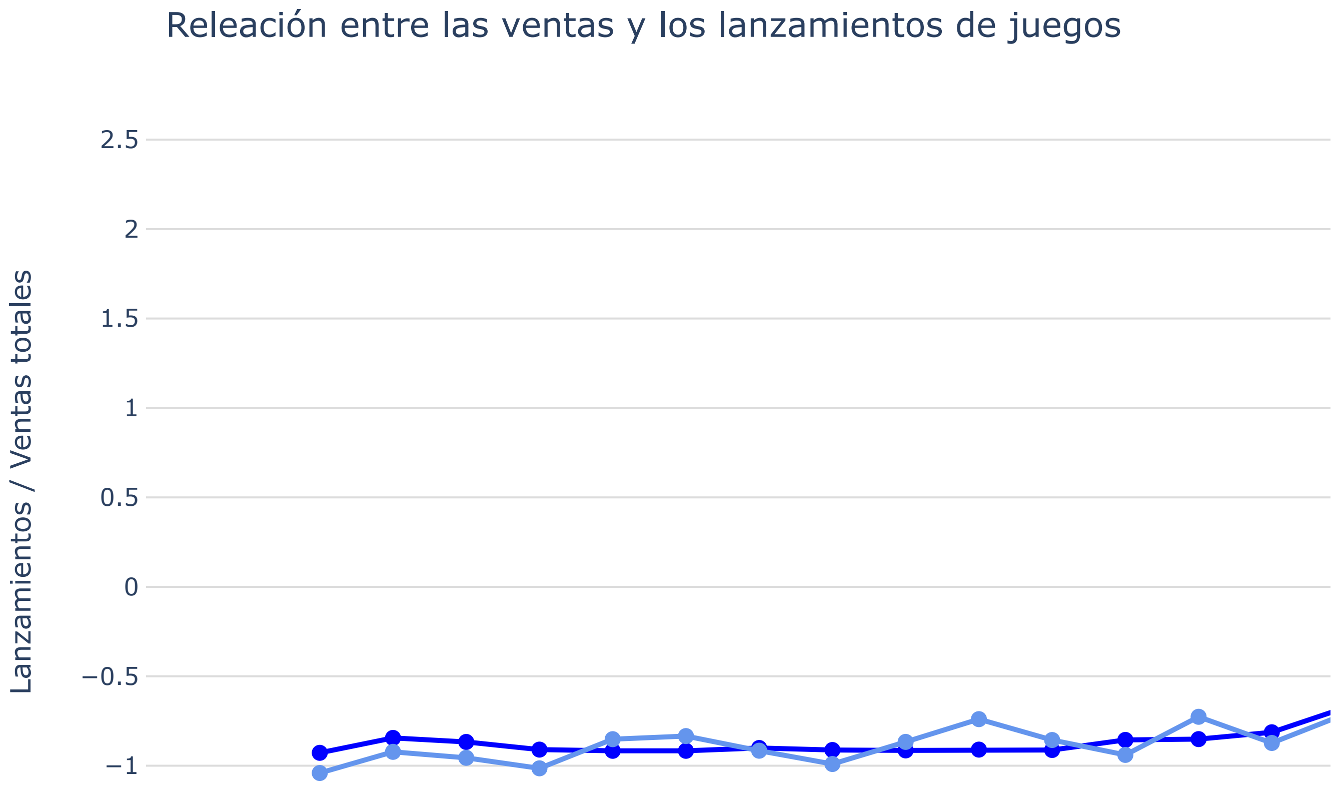


```
game = co(df["Platform"].tolist()).most_common(8)
x = [x[0] for x in game]
y = [x[1] for x in game]

fig = gro.Bar(x = x,
             y = y,
             marker = dict(color = 'blue'))

layout = gro.Layout()

fig = gro.Figure(data = fig, layout = layout)

fig.update_layout(title_text='Plataformas con mas juegos')

fig.show()
```

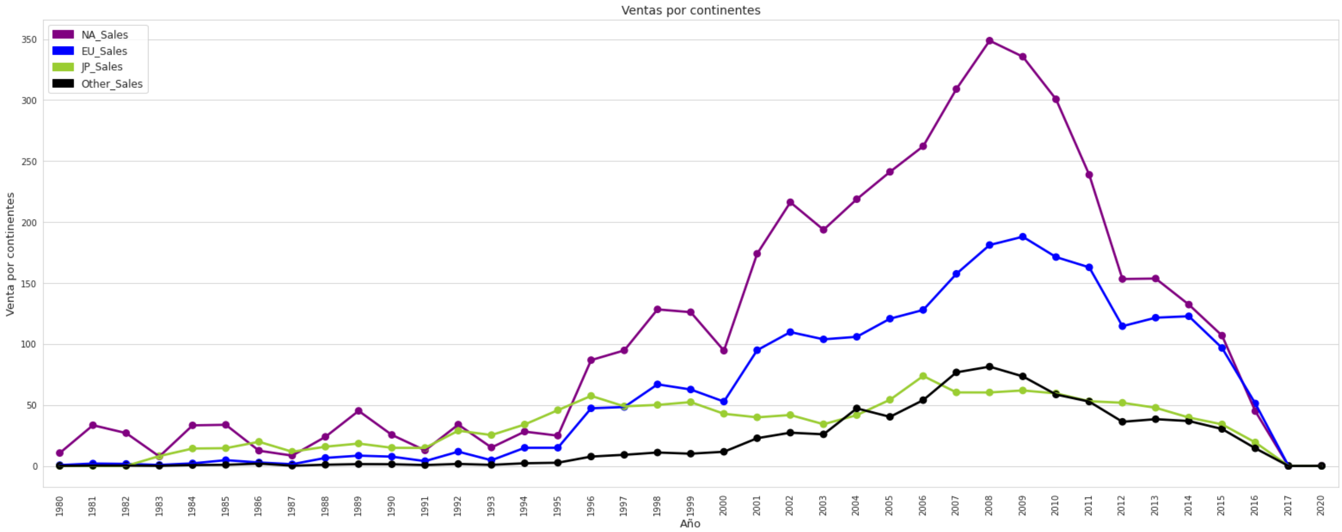


```
plt.style.use("seaborn")

fig, ax = plt.subplots(figsize=(15,8))
sns.histplot(df["Year_of_Release"], color="darkgreen", kde=True, bins=25)
plt.title("Games Published Anually", fontsize=18, y=1.02)
ax.set_xlabel("Year",fontsize=15);
```

```
sc = StandardScaler()
Year_Sales = df.groupby(df['Year']).apply(lambda x: pd.Series({
    'Count'       : x['Name'].count(),
    'Global_Sales'       : x['Global_Sales'].sum()})).reset_index()

Year_Sales_2 = pd.concat([Year_Sales['Year'],pd.DataFrame(sc.fit_transform(Year_Sales[['Count

fig = gro.Figure(data=[
    gro.Scatter(
                x=Year_Sales_2['Year'],
                y=Year_Sales_2['Count'],
                mode='lines+markers',
                name='Juegos Lanzados en el año',
                marker = dict(size=8),
                line=dict(color = 'blue',width=2.5),
                text=Year_Sales['Count'],

                hovertemplate = '<i>Año: </i>: %{x}'
                                '<br><i>Numero de juegos</i>: %{text}<br>'),
    gro.Scatter(
                x=Year_Sales_2['Year'],
                y=Year_Sales_2['Global_Sales'],
                mode='lines+markers',
                name='Ventas',
                marker = dict(size=8),
                line=dict(color = '#6495ED',width=2.5),
                text = Year_Sales['Global_Sales'],
                hovertemplate = '<i>Año: </i>: %{x}'
                                '<br><i>Numero de juegos</i>: %{text}<br>')

],layout=dict(legend=dict(x=0.73, y=1.15, font=dict(size=10)),legend_orientation="v",title="R
            xaxis=dict(tickmode = 'linear',tickangle=-90,tickfont=dict(size=10),title="Año de
             showline=True),
            yaxis=dict(title="Lanzamientos / Ventas totales",zeroline=True,showline=True,grid
                         showgrid=True,
        zerolinecolor='#DCDCDC',
        zerolinewidth=1)
            ,plot_bgcolor='white'))

fig.show()
```


Releación entre las ventas y los lanzamientos de juegos

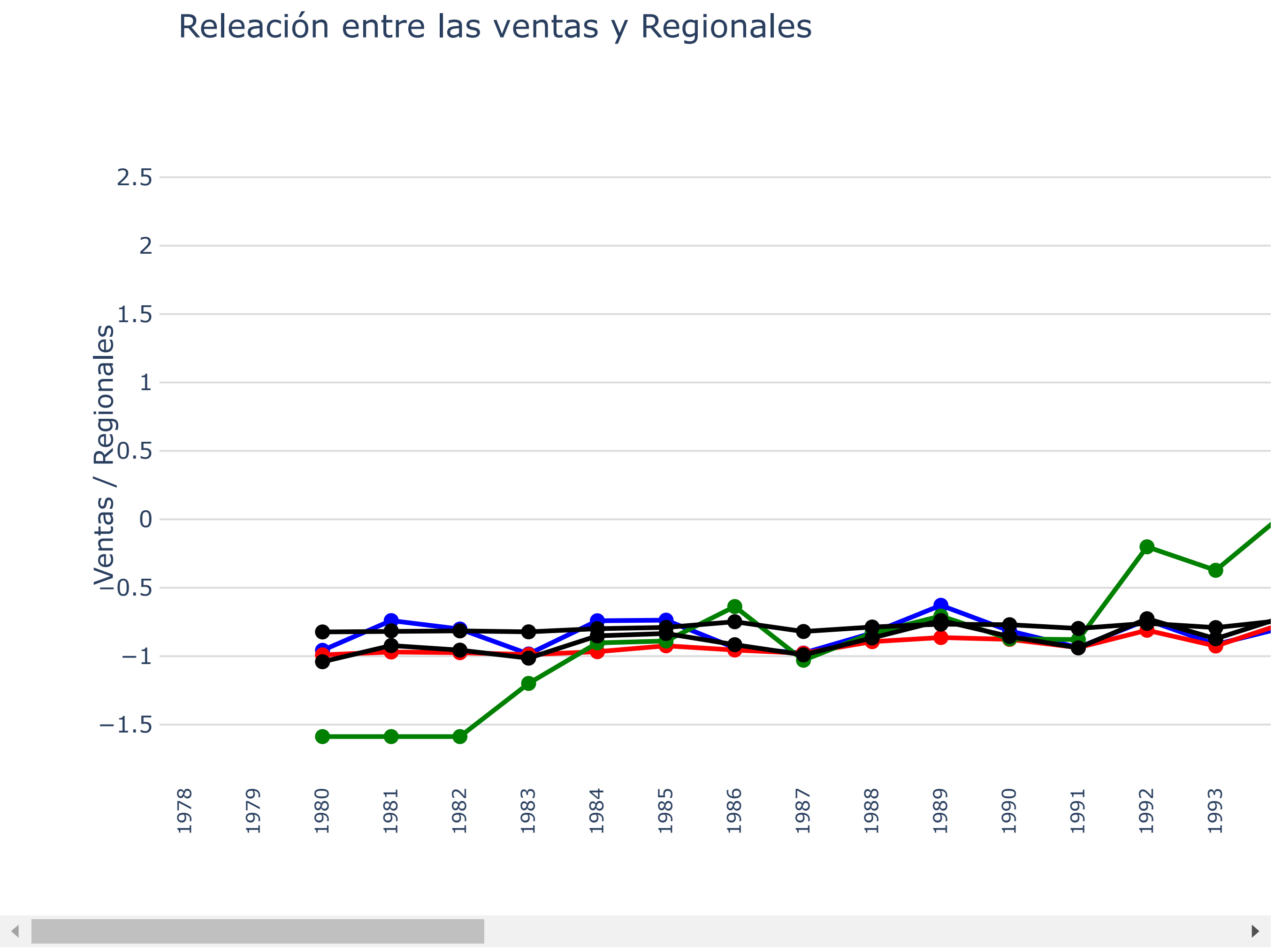
```
sns.set_style("whitegrid")
fig=plt.figure(figsize=(27,10))
plt.xticks(rotation=90)
colo='purple'
plt.title('Ventas por continentes',fontdict={'fontsize':14})
for i in range(0,len(df[['NA_Sales','EU_Sales','JP_Sales','Other_Sales']].sum().sort_values(a
    sns.pointplot(x='Year_of_Release',y=df[['NA_Sales','EU_Sales','JP_Sales','Other_Sales']].
    i=i+1
    if i == 1:
      colo='blue'
    elif i == 2:
      colo ='yellowgreen'
    elif i == 3:
      colo='black'



plt.legend(handles=[mpatches.Patch(color='purple', label=df[['NA_Sales','EU_Sales','JP_Sales'
                       mpatches.Patch(color='blue', label=df[['NA_Sales','EU_Sales','JP_Sales
                       mpatches.Patch(color='yellowgreen', label=df[['NA_Sales','EU_Sales','J
                       mpatches.Patch(color='black', label=df[['NA_Sales','EU_Sales','JP_Sale

plt.ylabel('Venta por continentes',fontdict={'fontsize':13})
plt.xlabel('Año',fontdict={'fontsize':13});
```



En desarrollo

```
_# Me esta dando los datos malos
sc2 = StandardScaler()
Year_Sales_Regional = df.groupby(df['Year']).apply(lambda x: pd.Series({
    'Count'       : x['Name'].count(),
    'Global_Sales'       : x['Global_Sales'].sum(),
    'America_Sales'       : x['NA_Sales'].sum(),
    'Europe_Sales'       : x['EU_Sales'].sum(),
    'Japon_Sales'       : x['JP_Sales'].sum(),
    'Otras_Sales'       : x['Other_Sales'].sum()
    })).reset_index()

Year_Sales_Regional_2 = pd.concat([Year_Sales_Regional['Year'],pd.DataFrame(
    sc.fit_transform(Year_Sales_Regional[['Count','Global_Sales','America_Sales','Europe_Sale
    columns=['Count', 'Global_Sales','America_Sales','Europe_Sales','Japon_Sales','Otras_Sale
```

```
fig2 = gro.Figure(data=[
    gro.Scatter(
                x=Year_Sales_Regional_2['Year'],
                y=Year_Sales_Regional_2['America_Sales'],
                mode='lines+markers',
                name='Ventas Norte de America',
                marker = dict(size=8),
                line=dict(color = 'blue',width=2.5),
                text = Year_Sales_Regional['America_Sales'],
                hovertemplate = '<i>Año: </i>: %{x}'
                                '<br><i>Ventas Norte de America</i>: %{text}<br>'),
    gro.Scatter(
                x=Year_Sales_Regional_2['Year'],
                y=Year_Sales_Regional_2['Europe_Sales'],
                mode='lines+markers',
                name='Ventas Europa',
                marker = dict(size=8),
                line=dict(color = 'red',width=2.5),
                text = Year_Sales_Regional['Europe_Sales'],
                hovertemplate = '<i>Año: </i>: %{x}'
                                '<br><i>Ventas Europa</i>: %{text}<br>'),
     gro.Scatter(
                x=Year_Sales_Regional_2['Year'],
                y=Year_Sales_Regional_2['Japon_Sales'],
                mode='lines+markers',
                name='Ventas Japon',
                marker = dict(size=8),
                line=dict(color = 'green',width=2.5),
                text = Year_Sales_Regional['Japon_Sales'],
                hovertemplate = '<i>Año: </i>: %{x}'
                                '<br><i>Ventas Japon</i>: %{text}<br>'),

     gro.Scatter(
                x=Year_Sales_Regional_2['Year'],
                y=Year_Sales_Regional_2['Otras_Sales'],
                mode='lines+markers',
                name='Ventas Otras',
                marker = dict(size=8),
                line=dict(color = 'black',width=2.5),
                text = Year_Sales_Regional['Otras_Sales'],
                hovertemplate = '<i>Año: </i>: %{x}'
                                '<br><i>Ventas Otras</i>: %{text}<br>'),

        gro.Scatter(
                x=Year_Sales_Regional_2['Year'],
                y=Year_Sales_Regional_2['Global_Sales'],
                mode='lines+markers',
                name='Ventas Global',
                marker = dict(size=8),
                line=dict(color = 'black',width=2.5),
                text = Year_Sales_Regional['Global_Sales'],
                hovertemplate = '<i>Año: </i>: %{x}'
                                '<br><i>Ventas Otras</i>: %{text}<br>'),

],layout=dict(legend=dict(x=0.73, y=1.15, font=dict(size=10)),legend_orientation="v",title="R
            xaxis=dict(tickmode = 'linear',tickangle=-90,tickfont=dict(size=10),title="Ventas
             showline=True),
            yaxis=dict(title="Ventas / Regionales",zeroline=True,showline=True,gridcolor="#DC
                         showgrid=True,
        zerolinecolor='#DCDCDC',
        zerolinewidth=1)
            ,plot_bgcolor='white'))

fig2.show()
```

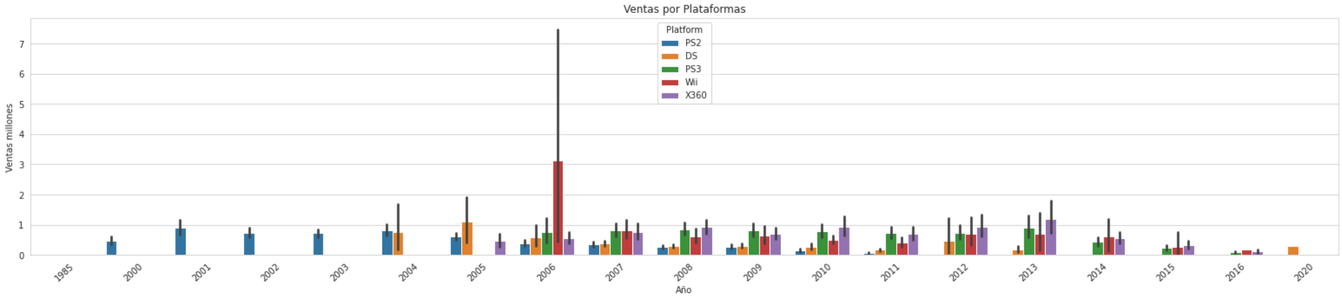


Next

```
Plataformas = ['PS2', 'DS', 'PS3', 'Wii', 'X360']
Principales = df.query('Platform in @lead_platforms')
Principales.head(5)
```

	Name	Platform	Year_of_Release	Genre	Publisher	NA_Sales	EU_Sales	JP_Sales
0	Wii Sports	Wii	2006	Sports	Nintendo	41.36	28.96	3.77
2	Mario Kart Wii	Wii	2008	Racing	Nintendo	15.68	12.76	3.79
3	Wii Sports	Wii	2009	Sports	Nintendo	15.61	10.93	3.28

```
plt.figure(figsize=(27, 5))
sns.barplot(y='Global_Sales',
            x='Year_of_Release',
            hue='Platform',
            data = Principales,
            hue_order = Plataformas
           )

plt.title('Ventas por Plataformas')
plt.xticks(rotation=42)
plt.xlabel('Año')
plt.ylabel('Ventas millones')
plt.show()
```



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