In [ ]:

```
#This project describes video game sales around the world and what games are most popular, we learn about the most powerful video games, and game developers across emerging economi
Various console/platforms, such as PlayStation, Xbox and Windows PC, which are combined into a single product that is provided to players through the cloud platform. The world is c
# the purpose of this project to predict video games sales
```

In [1]:

```
# importing python libraries
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

In [2]:

```
# loading datasets and showing the head of the data
data = pd.read_csv("vgsales.csv")
data.head()
```

Out[2]:

	Rank	Name	Platform	Year	Genre	Publisher	NA_Sales	EU_Sales	JP_Sales	Other_Sales	Global_Sales
0	259	Asteroids	2600	1980	Shooter	Atari	4.00	0.26	0.0	0.05	4.31
1	545	Missile Command	2600	1980	Shooter	Atari	2.56	0.17	0.0	0.03	2.76
2	1768	Kaboom!	2600	1980	Misc	Activision	1.07	0.07	0.0	0.01	1.15
3	1971	Defender	2600	1980	Misc	Atari	0.99	0.05	0.0	0.01	1.05
4	2671	Boxing	2600	1980	Fighting	Activision	0.72	0.04	0.0	0.01	0.77

In [3]:

```
# checking for shape
data.shape
```

Out[3]:

```
(16324, 11)
```

In [4]:

```
# checking for null values
data.isnull().sum()
```

Out[4]:

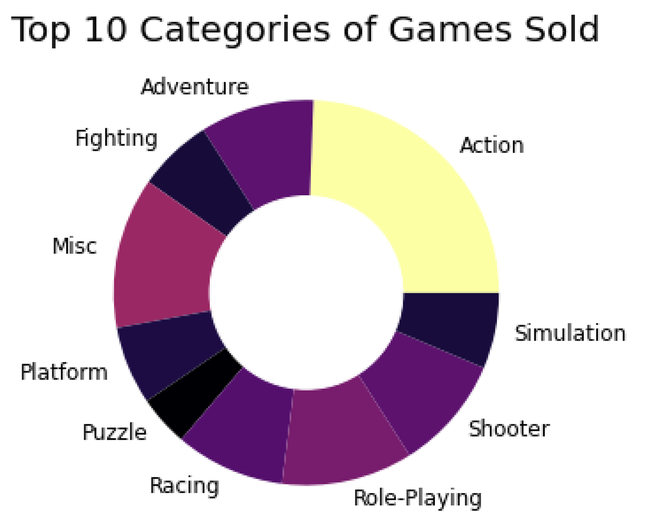
```
Rank             0
Name             0
Platform         0
Year             0
Genre            0
Publisher       36
NA_Sales         0
EU_Sales         0
JP_Sales         0
Other_Sales      0
Global_Sales     0
dtype: int64
```

In [5]:

```
# droping null values
data = data.dropna()
```

In [26]:

```
# ploting the Top 10 Categories of Games Sold
import matplotlib as mpl
game = data.groupby("Genre")["Global_Sales"].count().head(10)
custom_colors = mpl.colors.Normalize(vmin=min(game), vmax=max(game))
colours = [mpl.cm.inferno(custom_colors(i)) for i in game]
plt.figure(figsize=(5,5))
plt.pie(game, labels=game.index, colors=colours)
central_circle = plt.Circle((0, 0), 0.5, color='white')
fig = plt.gcf()
fig.gca().add_artist(central_circle)
plt.rc('font', size=12)
plt.title("Top 10 Categories of Games Sold", fontsize=20)
plt.show()
```



In [9]:

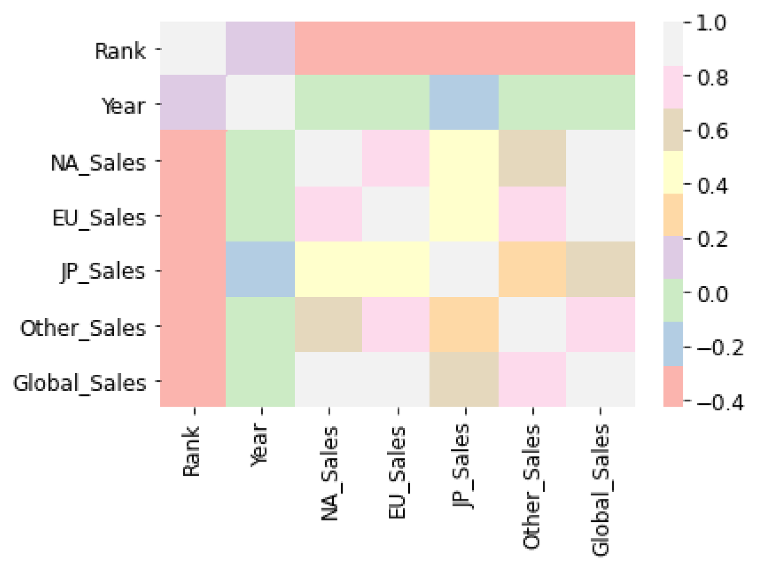
```
# printing correlation between numerical features
data.corr()
```

Out[9]:

	Rank	Year	NA_Sales	EU_Sales	JP_Sales	Other_Sales	Global_Sales
Rank	1.000000	0.177655	-0.400317	-0.379143	-0.269326	-0.332739	-0.426979
Year	0.177655	1.000000	-0.091233	0.006236	-0.169391	0.041248	-0.074565
NA_Sales	-0.400317	-0.091233	1.000000	0.768919	0.451278	0.634513	0.941268
EU_Sales	-0.379143	0.006236	0.768919	1.000000	0.436373	0.726253	0.903262
JP_Sales	-0.269326	-0.169391	0.451278	0.436373	1.000000	0.290553	0.612770
Other_Sales	-0.332739	0.041248	0.634513	0.726253	0.290553	1.000000	0.747960
Global_Sales	-0.426979	-0.074565	0.941268	0.903262	0.612770	0.747960	1.000000

In [10]:

```
# ploting correlation matrix
sns.heatmap(data.corr(), cmap="Pastel1")
plt.show()
```



In [11]:

```
# defining parameters
x = data[["Rank", "NA_Sales", "EU_Sales", "JP_Sales", "Other_Sales"]]
y = data["Global_Sales"]
```

In [12]:

```
# spliting data and building ML linear regression model
from sklearn.model_selection import train_test_split
xtrain, xtest, ytrain, ytest = train_test_split(x, y, test_size=0.2, random_state=42)

from sklearn.linear_model import LinearRegression
model = LinearRegression()
model.fit(xtrain, ytrain)
predictions = model.predict(xtest)
```

In [14]:

```
# Training and Testing Accuracy
print("Training Accuracy :", model.score(xtrain, ytrain))
print("Testing Accuracy :", model.score(xtest, ytest))
```

```
Training Accuracy : 0.9999870440457412
Testing Accuracy : 0.9999929293537628
```

In [15]:

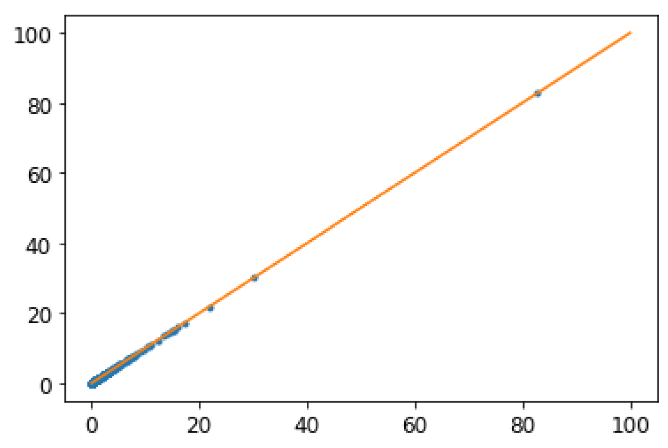
```
from sklearn.metrics import mean_squared_error, r2_score
# The coefficients
print("Coefficients: \n", model.coef_)
# The mean squared error
print("Mean squared error: %.2f" % mean_squared_error(ytest, predictions))
# The coefficient of determination:
print("Coefficient of determination: %.2f" % r2_score(ytest, predictions))
```

```
Coefficients: 
 [8.02400864e-08 1.00008732e+00 9.99930916e-01 9.99985443e-01
 1.00005120e+00]
Mean squared error: 0.00
Coefficient of determination: 1.00
```

In [16]:

```
# ploting predictions values
predictions = model.predict(xtest)
plt.plot(ytest, predictions,'.')

# plot a line, a perfit predict would all fall on this line
x = np.linspace(0, 100,10)
y = x
plt.plot(x, y)
plt.show()
```



In [19]:

```
# printing predctions values
print("Predictions: ", model.predict(xtest))
```

```
Predictions:  [0.0705823  1.66975138 2.29967932 ... 1.48979017 0.06059278 1.32974684]
```

In [20]:

```
# checking for input and printing prediction output
model.predict([[259,4,0.26,0.0,0.05]])
```

Out[20]:

```
array([4.3099538])
```

In [21]:

```
# comparing between actual values and predictied values and finding the difference between them
Prdiction_values_df = pd.DataFrame({'Actual Value':ytest,'Predictied value':predictions, 'Difference':ytest-predictions })
Prdiction_values_df[0:10]
```

Out[21]:

	Actual Value	Predictied value	Difference
7949	0.07	0.070582	-0.000582
2380	1.67	1.669751	0.000249
13607	2.30	2.299679	0.000321
2252	0.09	0.090480	-0.000480
7272	0.93	0.929851	0.000149
15724	0.06	0.060593	-0.000593
10793	0.06	0.060589	-0.000589
11344	0.76	0.769806	-0.009806
13300	0.06	0.060607	-0.000607
3921	0.30	0.310075	-0.010075

In [ ]: