

Introduction:

The dataset selected for this project is a collection of anime data, which provides detailed information about various anime series and movies. Anime, a popular form of entertainment originating from Japan, has gained global recognition for its diverse genres, compelling storytelling, and unique art styles. This dataset is particularly useful for exploring trends, analyzing audience preferences, and understanding the characteristics of highly-rated or popular anime.

Dataset Features:The dataset contains the following key attributes for each anime entry:

- **UID:** A unique identifier for each anime.
- **Title:** The name of the anime.
- **Synopsis:** A brief summary of the anime's plot or storyline.
- **Genre:** A list of genres associated with the anime (e.g., Action, Drama, Comedy).
- **Aired:** The airing period or release date of the anime.
- **Episodes:** The total number of episodes in the anime.
- **Members:** The number of members (fans) who have added the anime to their watchlist on a platform like MyAnimeList.
- **Popularity:** The popularity rank of the anime based on user interactions.
- **Ranked:** The overall rank of the anime based on its score.
- **Score:** The average user rating of the anime (on a scale of 1 to 10).
- **Img_url:** A URL link to the anime's cover image.
- **Link:** A URL link to the anime's detailed page on MyAnimeList.

Create a DataFrame

```
import pandas as pd
import matplotlib.pyplot as plt
from ast import literal_eval

import numpy as np
import os
import sys
df = pd.read_csv(r"C:\Users\Lenovo\OneDrive\Desktop\ids project\
archive (9)\animes.csv")

print(df)
```

	uid	title \
0	28891	Haikyuu!! Second Season
1	23273	Shigatsu wa Kimi no Uso
2	34599	Made in Abyss
3	5114	Fullmetal Alchemist: Brotherhood
4	31758	Kizumonogatari III: Reiketsu-hen
...
19306	32979	Flip Flappers

19307	123	Fushigi Yuugi
19308	1281	Gakkou no Kaidan
19309	450	InuYasha Movie 2: Kagami no Naka no Mugenjo
19310	87	Mobile Suit Gundam: Char's Counterattack

	synopsis \
0	Following their participation at the Inter-Hig...
1	Music accompanies the path of the human metron...
2	The Abyss—a gaping chasm stretching down into ...
3	"In order for something to be obtained, someth...
4	After helping revive the legendary vampire Kis...
...	...
19306	Cocona is an average middle schooler living wi...
19307	While visiting the National Library, junior-hi...
19308	Years ago, all of the ghosts in a haunted scho...
19309	Inuyasha and company have finally destroyed Na...
19310	The year is Universal Century 0093. Char Aznab...

	genre \
0	['Comedy', 'Sports', 'Drama', 'School', 'Shoun...
1	['Drama', 'Music', 'Romance', 'School', 'Shoun...
2	['Sci-Fi', 'Adventure', 'Mystery', 'Drama', 'F...
3	['Action', 'Military', 'Adventure', 'Comedy', ...
4	['Action', 'Mystery', 'Supernatural', 'Vampire']
...	...
19306	['Sci-Fi', 'Adventure', 'Comedy', 'Magic']
19307	['Adventure', 'Fantasy', 'Magic', 'Martial Art...
19308	['Mystery', 'Horror', 'Supernatural']
19309	['Action', 'Adventure', 'Comedy', 'Historical'...
19310	['Military', 'Sci-Fi', 'Space', 'Drama', 'Mecha']

	aired	episodes	members	popularity
ranked \				
0	Oct 4, 2015 to Mar 27, 2016	25.0	489888	141
25.0				
1	Oct 10, 2014 to Mar 20, 2015	22.0	995473	28
24.0				
2	Jul 7, 2017 to Sep 29, 2017	13.0	581663	98
23.0				
3	Apr 5, 2009 to Jul 4, 2010	64.0	1615084	4
1.0				
4	Jan 6, 2017	1.0	214621	502
22.0				
...
...				
19306	Oct 6, 2016 to Dec 29, 2016	13.0	134252	843
1070.0				
19307	Apr 6, 1995 to Mar 28, 1996	52.0	84407	1292
1071.0				
19308	Oct 22, 2000 to Mar 25, 2001	19.0	83093	1314

```

1073.0
19309          Dec 21, 2002          1.0    71989          1469
1077.0
19310          Mar 12, 1988          1.0    29248          2604
1081.0

```

```

          score                                img_url  \
0          8.82  https://cdn.myanimelist.net/images/anime/9/766...
1          8.83  https://cdn.myanimelist.net/images/anime/3/671...
2          8.83  https://cdn.myanimelist.net/images/anime/6/867...
3          9.23  https://cdn.myanimelist.net/images/anime/1223/...
4          8.83  https://cdn.myanimelist.net/images/anime/3/815...
...          ...                                ...
19306       7.73  https://cdn.myanimelist.net/images/anime/4/822...
19307       7.73  https://cdn.myanimelist.net/images/anime/2/201...
19308       7.73  https://cdn.myanimelist.net/images/anime/9/183...
19309       7.73  https://cdn.myanimelist.net/images/anime/1162/...
19310       7.73  https://cdn.myanimelist.net/images/anime/1523/...

```

```

                                link
0  https://myanimelist.net/anime/28891/Haikyuu_Se...
1  https://myanimelist.net/anime/23273/Shigatsu_w...
2  https://myanimelist.net/anime/34599/Made_in_Abyss
3  https://myanimelist.net/anime/5114/Fullmetal_A...
4  https://myanimelist.net/anime/31758/Kizumonoga...
...
19306  https://myanimelist.net/anime/32979/Flip_Flappers
19307  https://myanimelist.net/anime/123/Fushigi_Yuugi
19308  https://myanimelist.net/anime/1281/Gakkou_no_K...
19309  https://myanimelist.net/anime/450/InuYasha_Mov...
19310  https://myanimelist.net/anime/87/Mobile_Suit_G...

```

```
[19311 rows x 12 columns]
```

View Data

```
df.head()
```

```

      uid                                title  \
0  28891          Haikyuu!! Second Season
1  23273          Shigatsu wa Kimi no Uso
2  34599          Made in Abyss
3   5114  Fullmetal Alchemist: Brotherhood
4  31758  Kizumonogatari III: Reiketsu-hen

```

```

                                synopsis  \
0  Following their participation at the Inter-Hig...
1  Music accompanies the path of the human metron...
2  The Abyss—a gaping chasm stretching down into ...
3  "In order for something to be obtained, someth...

```

4 After helping revive the legendary vampire Kis...

```
                                genre \
0  ['Comedy', 'Sports', 'Drama', 'School', 'Shoun...
1  ['Drama', 'Music', 'Romance', 'School', 'Shoun...
2  ['Sci-Fi', 'Adventure', 'Mystery', 'Drama', 'F...
3  ['Action', 'Military', 'Adventure', 'Comedy', ...
4  ['Action', 'Mystery', 'Supernatural', 'Vampire']
```

	aired	episodes	members	popularity	ranked
score \					
0	Oct 4, 2015 to Mar 27, 2016	25.0	489888	141	25.0
8.82					
1	Oct 10, 2014 to Mar 20, 2015	22.0	995473	28	24.0
8.83					
2	Jul 7, 2017 to Sep 29, 2017	13.0	581663	98	23.0
8.83					
3	Apr 5, 2009 to Jul 4, 2010	64.0	1615084	4	1.0
9.23					
4	Jan 6, 2017	1.0	214621	502	22.0
8.83					

```
                                img_url \
0  https://cdn.myanimelist.net/images/anime/9/766...
1  https://cdn.myanimelist.net/images/anime/3/671...
2  https://cdn.myanimelist.net/images/anime/6/867...
3  https://cdn.myanimelist.net/images/anime/1223/...
4  https://cdn.myanimelist.net/images/anime/3/815...
```

```
                                link
0  https://myanimelist.net/anime/28891/Haikyuu_Se...
1  https://myanimelist.net/anime/23273/Shigatsu_w...
2  https://myanimelist.net/anime/34599/Made_in_Abyss
3  https://myanimelist.net/anime/5114/Fullmetal_A...
4  https://myanimelist.net/anime/31758/Kizumonoga...
```

df.tail()

	uid		title \
19306	32979		Flip Flappers
19307	123		Fushigi Yuugi
19308	1281		Gakkou no Kaidan
19309	450	InuYasha Movie 2: Kagami no Naka no Mugenjo	
19310	87	Mobile Suit Gundam: Char's Counterattack	

```
                                synopsis \
19306  Cocona is an average middle schooler living wi...
19307  While visiting the National Library, junior-hi...
19308  Years ago, all of the ghosts in a haunted scho...
19309  Inuyasha and company have finally destroyed Na...
```

```
19310 The year is Universal Century 0093. Char Aznab...
```

```
genre \
19306 ['Sci-Fi', 'Adventure', 'Comedy', 'Magic']
19307 ['Adventure', 'Fantasy', 'Magic', 'Martial Art...
19308 ['Mystery', 'Horror', 'Supernatural']
19309 ['Action', 'Adventure', 'Comedy', 'Historical'...
19310 ['Military', 'Sci-Fi', 'Space', 'Drama', 'Mecha']
```

```
aired episodes members popularity
ranked \
19306 Oct 6, 2016 to Dec 29, 2016 13.0 134252 843
1070.0
19307 Apr 6, 1995 to Mar 28, 1996 52.0 84407 1292
1071.0
19308 Oct 22, 2000 to Mar 25, 2001 19.0 83093 1314
1073.0
19309 Dec 21, 2002 1.0 71989 1469
1077.0
19310 Mar 12, 1988 1.0 29248 2604
1081.0
```

```
score img_url \
19306 7.73 https://cdn.myanimelist.net/images/anime/4/822...
19307 7.73 https://cdn.myanimelist.net/images/anime/2/201...
19308 7.73 https://cdn.myanimelist.net/images/anime/9/183...
19309 7.73 https://cdn.myanimelist.net/images/anime/1162/...
19310 7.73 https://cdn.myanimelist.net/images/anime/1523/...
```

```
link
19306 https://myanimelist.net/anime/32979/Flip_Flappers
19307 https://myanimelist.net/anime/123/Fushigi_Yuugi
19308 https://myanimelist.net/anime/1281/Gakkou_no_K...
19309 https://myanimelist.net/anime/450/InuYasha_Mov...
19310 https://myanimelist.net/anime/87/Mobile_Suit_G...
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 19311 entries, 0 to 19310
Data columns (total 12 columns):
#   Column      Non-Null Count  Dtype
---  -
0   uid         19311 non-null  int64
1   title       19311 non-null  object
2   synopsis    18336 non-null  object
3   genre       19311 non-null  object
4   aired       19311 non-null  object
5   episodes    18605 non-null  float64
6   members     19311 non-null  int64
```

```

7 popularity 19311 non-null int64
8 ranked    16099 non-null float64
9 score      18732 non-null float64
10 img_url   19131 non-null object
11 link      19311 non-null object
dtypes: float64(3), int64(3), object(6)
memory usage: 1.8+ MB

```

```
df.describe()
```

	uid	episodes	members	popularity
count	19311.000000	18605.000000	1.931100e+04	19311.000000
mean	19358.904096	11.460414	3.472609e+04	7720.830304
std	14271.446515	47.950386	1.121772e+05	4676.786104
min	1.000000	1.000000	2.500000e+01	1.000000
25%	4833.500000	1.000000	3.880000e+02	3725.000000
50%	18327.000000	2.000000	2.389000e+03	7539.000000
75%	33896.500000	12.000000	1.450150e+04	11613.000000
max	40960.000000	3057.000000	1.871043e+06	16338.000000

	score
count	18732.000000
mean	6.436107
std	1.007941
min	1.250000
25%	5.770000
50%	6.410000
75%	7.150000
max	9.230000

Access Columns

```
df['episodes']
```

```

0      25.0
1      22.0
2      13.0
3      64.0
4       1.0
...
19306   13.0

```

```

19307    52.0
19308    19.0
19309     1.0
19310     1.0
Name: episodes, Length: 19311, dtype: float64

```

```
df['ranked']
```

```

0         25.0
1         24.0
2         23.0
3          1.0
4         22.0
...
19306    1070.0
19307    1071.0
19308    1073.0
19309    1077.0
19310    1081.0
Name: ranked, Length: 19311, dtype: float64

```

Access Rows

```
df.iloc[0:5]
```

	index	uid	title \
0	0	28891	Haikyuu!! Second Season
1	1	23273	Shigatsu wa Kimi no Uso
2	2	34599	Made in Abyss
3	3	5114	Fullmetal Alchemist: Brotherhood
4	4	31758	Kizumonogatari III: Reiketsu-hen

	synopsis \
0	Following their participation at the Inter-Hig...
1	Music accompanies the path of the human metron...
2	The Abyss—a gaping chasm stretching down into ...
3	"In order for something to be obtained, someth...
4	After helping revive the legendary vampire Kis...

	genre \
0	[Comedy, Sports, Drama, School, Shounen]
1	[Drama, Music, Romance, School, Shounen]
2	[Sci-Fi, Adventure, Mystery, Drama, Fantasy]
3	[Action, Military, Adventure, Comedy, Drama, M...]
4	[Action, Mystery, Supernatural, Vampire]

	aired	episodes	members	popularity	ranked
score \					
0	Oct 4, 2015 to Mar 27, 2016	25.0	489888	141	25.0
8.82					

1	Oct 10, 2014 to Mar 20, 2015	22.0	995473	28	24.0
8.83					
2	Jul 7, 2017 to Sep 29, 2017	13.0	581663	98	23.0
8.83					
3	Apr 5, 2009 to Jul 4, 2010	64.0	1615084	4	1.0
9.23					
4	Jan 6, 2017	1.0	214621	502	22.0
8.83					

	img_url	\
0	https://cdn.myanimelist.net/images/anime/9/766...	
1	https://cdn.myanimelist.net/images/anime/3/671...	
2	https://cdn.myanimelist.net/images/anime/6/867...	
3	https://cdn.myanimelist.net/images/anime/1223/...	
4	https://cdn.myanimelist.net/images/anime/3/815...	

	link
0	https://myanimelist.net/anime/28891/Haikyuu_Se...
1	https://myanimelist.net/anime/23273/Shigatsu_w...
2	https://myanimelist.net/anime/34599/Made_in_Abyss
3	https://myanimelist.net/anime/5114/Fullmetal_A...
4	https://myanimelist.net/anime/31758/Kizumonoga...

Manipulate Data

```
# Calculate a new column: Popularity per Episode
df['Popularity_Per_Episode'] = df['popularity'] / df['episodes']
df.head()
```

	uid	title	\
0	28891	Haikyuu!! Second Season	
1	23273	Shigatsu wa Kimi no Uso	
2	34599	Made in Abyss	
3	5114	Fullmetal Alchemist: Brotherhood	
4	31758	Kizumonogatari III: Reiketsu-hen	

	synopsis	\
0	Following their participation at the Inter-Hig...	
1	Music accompanies the path of the human metron...	
2	The Abyss—a gaping chasm stretching down into ...	
3	"In order for something to be obtained, someth...	
4	After helping revive the legendary vampire Kis...	

	genre	\
0	['Comedy', 'Sports', 'Drama', 'School', 'Shoun...	
1	['Drama', 'Music', 'Romance', 'School', 'Shoun...	
2	['Sci-Fi', 'Adventure', 'Mystery', 'Drama', 'F...	
3	['Action', 'Military', 'Adventure', 'Comedy', ...	
4	['Action', 'Mystery', 'Supernatural', 'Vampire']	

	aired	episodes	members	popularity	ranked
score \					
0	Oct 4, 2015 to Mar 27, 2016	25.0	489888	141	25.0
8.82					
1	Oct 10, 2014 to Mar 20, 2015	22.0	995473	28	24.0
8.83					
2	Jul 7, 2017 to Sep 29, 2017	13.0	581663	98	23.0
8.83					
3	Apr 5, 2009 to Jul 4, 2010	64.0	1615084	4	1.0
9.23					
4	Jan 6, 2017	1.0	214621	502	22.0
8.83					

	img_url \
0	https://cdn.myanimelist.net/images/anime/9/766...
1	https://cdn.myanimelist.net/images/anime/3/671...
2	https://cdn.myanimelist.net/images/anime/6/867...
3	https://cdn.myanimelist.net/images/anime/1223/...
4	https://cdn.myanimelist.net/images/anime/3/815...

	link
Popularity_Per_Episode	
0	https://myanimelist.net/anime/28891/Haikyuu_Se...
5.640000	
1	https://myanimelist.net/anime/23273/Shigatsu_w...
1.272727	
2	https://myanimelist.net/anime/34599/Made_in_Abyss
7.538462	
3	https://myanimelist.net/anime/5114/Fullmetal_A...
0.062500	
4	https://myanimelist.net/anime/31758/Kizumonoga...
502.000000	

```
# Drop rows with missing values
df.dropna(inplace=True)
```

```
# Print a message and display the first few rows of the updated
DataFrame
print("After dropna (inplace=True):")
df.head()
```

After dropna (inplace=True):

	uid	title \
0	28891	Haikyuu!! Second Season
1	23273	Shigatsu wa Kimi no Uso
2	34599	Made in Abyss
3	5114	Fullmetal Alchemist: Brotherhood
4	31758	Kizumonogatari III: Reiketsu-hen

```

                                synopsis \
0 Following their participation at the Inter-Hig...
1 Music accompanies the path of the human metron...
2 The Abyss—a gaping chasm stretching down into ...
3 "In order for something to be obtained, someth...
4 After helping revive the legendary vampire Kis...

```

```

                                genre \
0 ['Comedy', 'Sports', 'Drama', 'School', 'Shoun...
1 ['Drama', 'Music', 'Romance', 'School', 'Shoun...
2 ['Sci-Fi', 'Adventure', 'Mystery', 'Drama', 'F...
3 ['Action', 'Military', 'Adventure', 'Comedy', ...
4 ['Action', 'Mystery', 'Supernatural', 'Vampire']

```

	aired	episodes	members	popularity	ranked
score \					
0	Oct 4, 2015 to Mar 27, 2016	25.0	489888	141	25.0
8.82					
1	Oct 10, 2014 to Mar 20, 2015	22.0	995473	28	24.0
8.83					
2	Jul 7, 2017 to Sep 29, 2017	13.0	581663	98	23.0
8.83					
3	Apr 5, 2009 to Jul 4, 2010	64.0	1615084	4	1.0
9.23					
4	Jan 6, 2017	1.0	214621	502	22.0
8.83					

```

                                img_url \
0 https://cdn.myanimelist.net/images/anime/9/766...
1 https://cdn.myanimelist.net/images/anime/3/671...
2 https://cdn.myanimelist.net/images/anime/6/867...
3 https://cdn.myanimelist.net/images/anime/1223/...
4 https://cdn.myanimelist.net/images/anime/3/815...

```

```

                                link
Popularity_Per_Episode
0 https://myanimelist.net/anime/28891/Haikyuu_Se...
5.640000
1 https://myanimelist.net/anime/23273/Shigatsu_w...
1.272727
2 https://myanimelist.net/anime/34599/Made_in_Abyss
7.538462
3 https://myanimelist.net/anime/5114/Fullmetal_A...
0.062500
4 https://myanimelist.net/anime/31758/Kizumonoga...
502.000000

```

```

# Drop rows with missing values without modifying the original
DataFrame
df_cleaned = df.dropna(inplace=False)

```

```
# Print a message and display the first few rows of the cleaned DataFrame
```

```
print("After dropna (inplace=False):")
```

```
df_cleaned.head()
```

```
After dropna (inplace=False):
```

	uid	title \
0	28891	Haikyuu!! Second Season
1	23273	Shigatsu wa Kimi no Uso
2	34599	Made in Abyss
3	5114	Fullmetal Alchemist: Brotherhood
4	31758	Kizumonogatari III: Reiketsu-hen

	synopsis \
0	Following their participation at the Inter-Hig...
1	Music accompanies the path of the human metron...
2	The Abyss—a gaping chasm stretching down into ...
3	"In order for something to be obtained, someth...
4	After helping revive the legendary vampire Kis...

	genre \
0	['Comedy', 'Sports', 'Drama', 'School', 'Shoun...
1	['Drama', 'Music', 'Romance', 'School', 'Shoun...
2	['Sci-Fi', 'Adventure', 'Mystery', 'Drama', 'F...
3	['Action', 'Military', 'Adventure', 'Comedy', ...
4	['Action', 'Mystery', 'Supernatural', 'Vampire']

	aired	episodes	members	popularity	ranked
score \					
0	Oct 4, 2015 to Mar 27, 2016	25.0	489888	141	25.0
8.82					
1	Oct 10, 2014 to Mar 20, 2015	22.0	995473	28	24.0
8.83					
2	Jul 7, 2017 to Sep 29, 2017	13.0	581663	98	23.0
8.83					
3	Apr 5, 2009 to Jul 4, 2010	64.0	1615084	4	1.0
9.23					
4	Jan 6, 2017	1.0	214621	502	22.0
8.83					

	img_url \
0	https://cdn.myanimelist.net/images/anime/9/766...
1	https://cdn.myanimelist.net/images/anime/3/671...
2	https://cdn.myanimelist.net/images/anime/6/867...
3	https://cdn.myanimelist.net/images/anime/1223/...
4	https://cdn.myanimelist.net/images/anime/3/815...

link

Popularity_Per_Episode

```
0 https://myanimelist.net/anime/28891/Haikyuu_Se...
5.640000
1 https://myanimelist.net/anime/23273/Shigatsu_w...
1.272727
2 https://myanimelist.net/anime/34599/Made_in_Abyss
7.538462
3 https://myanimelist.net/anime/5114/Fullmetal_A...
0.062500
4 https://myanimelist.net/anime/31758/Kizumonoga...
502.000000
```

Set the 'uid' column as the index

```
df.set_index('uid', inplace=True)
```

Display the first few rows of the updated DataFrame

```
df.head()
```

	title \
uid	
28891	Haikyuu!! Second Season
23273	Shigatsu wa Kimi no Uso
34599	Made in Abyss
5114	Fullmetal Alchemist: Brotherhood
31758	Kizumonogatari III: Reiketsu-hen

	synopsis \
uid	
28891	Following their participation at the Inter-Hig...
23273	Music accompanies the path of the human metron...
34599	The Abyss—a gaping chasm stretching down into ...
5114	"In order for something to be obtained, someth...
31758	After helping revive the legendary vampire Kis...

	genre \
uid	
28891	['Comedy', 'Sports', 'Drama', 'School', 'Shoun...
23273	['Drama', 'Music', 'Romance', 'School', 'Shoun...
34599	['Sci-Fi', 'Adventure', 'Mystery', 'Drama', 'F...
5114	['Action', 'Military', 'Adventure', 'Comedy', ...
31758	['Action', 'Mystery', 'Supernatural', 'Vampire']

	aired	episodes	members	popularity
ranked \				
uid				
28891	Oct 4, 2015 to Mar 27, 2016	25.0	489888	141
25.0				
23273	Oct 10, 2014 to Mar 20, 2015	22.0	995473	28
24.0				

34599	Jul 7, 2017 to Sep 29, 2017	13.0	581663	98
23.0				
5114	Apr 5, 2009 to Jul 4, 2010	64.0	1615084	4
1.0				
31758	Jan 6, 2017	1.0	214621	502
22.0				

	score	img_url \
uid		
28891	8.82	https://cdn.myanimelist.net/images/anime/9/766...
23273	8.83	https://cdn.myanimelist.net/images/anime/3/671...
34599	8.83	https://cdn.myanimelist.net/images/anime/6/867...
5114	9.23	https://cdn.myanimelist.net/images/anime/1223/...
31758	8.83	https://cdn.myanimelist.net/images/anime/3/815...

	link \
uid	
28891	https://myanimelist.net/anime/28891/Haikyuu_Se...
23273	https://myanimelist.net/anime/23273/Shigatsu_w...
34599	https://myanimelist.net/anime/34599/Made_in_Abyss
5114	https://myanimelist.net/anime/5114/Fullmetal_A...
31758	https://myanimelist.net/anime/31758/Kizumonoga...

	Popularity_Per_Episode
uid	
28891	5.640000
23273	1.272727
34599	7.538462
5114	0.062500
31758	502.000000

```
# Reset the index of the DataFrame
df.reset_index(inplace=True)
```

```
# Print a message and display the first few rows of the updated DataFrame
```

```
print("DataFrame after resetting the index:")
df.head()
```

DataFrame after resetting the index:

	index	uid	title \
0	0	28891	Haikyuu!! Second Season
1	1	23273	Shigatsu wa Kimi no Uso
2	2	34599	Made in Abyss
3	3	5114	Fullmetal Alchemist: Brotherhood
4	4	31758	Kizumonogatari III: Reiketsu-hen

	synopsis \
0	Following their participation at the Inter-Hig...

```
1 Music accompanies the path of the human metron...
2 The Abyss—a gaping chasm stretching down into ...
3 "In order for something to be obtained, someth...
4 After helping revive the legendary vampire Kis...
```

```

genre \
0      [Comedy, Sports, Drama, School, Shounen]
1      [Drama, Music, Romance, School, Shounen]
2      [Sci-Fi, Adventure, Mystery, Drama, Fantasy]
3      [Action, Military, Adventure, Comedy, Drama, M...
4      [Action, Mystery, Supernatural, Vampire]

```

	aired	episodes	members	popularity	ranked
score \					
0 8.82	Oct 4, 2015 to Mar 27, 2016	25.0	489888	141	25.0
1 8.83	Oct 10, 2014 to Mar 20, 2015	22.0	995473	28	24.0
2 8.83	Jul 7, 2017 to Sep 29, 2017	13.0	581663	98	23.0
3 9.23	Apr 5, 2009 to Jul 4, 2010	64.0	1615084	4	1.0
4 8.83	Jan 6, 2017	1.0	214621	502	22.0

```

                                img_url \
0  https://cdn.myanimelist.net/images/anime/9/766...
1  https://cdn.myanimelist.net/images/anime/3/671...
2  https://cdn.myanimelist.net/images/anime/6/867...
3  https://cdn.myanimelist.net/images/anime/1223/...
4  https://cdn.myanimelist.net/images/anime/3/815...

```

```

link
0 https://myanimelist.net/anime/28891/Haikyuu_Se...
1 https://myanimelist.net/anime/23273/Shigatsu_w...
2 https://myanimelist.net/anime/34599/Made_in_Abyss
3 https://myanimelist.net/anime/5114/Fullmetal_A...
4 https://myanimelist.net/anime/31758/Kizumonoga...

```

```
# Drop rows with missing values and create a new DataFrame
df_cleaned = df.dropna()
```

```
# Print the cleaned DataFrame
print(df_cleaned)
```

	uid	title
0	28891	Haikyuu!! Second Season
1	23273	Shigatsu wa Kimi no Uso
2	34599	Made in Abyss
3	5114	Fullmetal Alchemist: Brotherhood

4	31758	Kizumonogatari III: Reiketsu-hen		
...		
15182	32979	Flip Flappers		
15183	123	Fushigi Yuugi		
15184	1281	Gakkou no Kaidan		
15185	450	InuYasha Movie 2: Kagami no Naka no Mugenjo		
15186	87	Mobile Suit Gundam: Char's Counterattack		
synopsis \				
0	Following their participation at the Inter-Hig...			
1	Music accompanies the path of the human metron...			
2	The Abyss—a gaping chasm stretching down into ...			
3	"In order for something to be obtained, someth...			
4	After helping revive the legendary vampire Kis...			
...	...			
15182	Cocona is an average middle schooler living wi...			
15183	While visiting the National Library, junior-hi...			
15184	Years ago, all of the ghosts in a haunted scho...			
15185	Inuyasha and company have finally destroyed Na...			
15186	The year is Universal Century 0093. Char Aznab...			
genre \				
0	['Comedy', 'Sports', 'Drama', 'School', 'Shoun...			
1	['Drama', 'Music', 'Romance', 'School', 'Shoun...			
2	['Sci-Fi', 'Adventure', 'Mystery', 'Drama', 'F...			
3	['Action', 'Military', 'Adventure', 'Comedy', ...			
4	['Action', 'Mystery', 'Supernatural', 'Vampire']			
...	...			
15182	['Sci-Fi', 'Adventure', 'Comedy', 'Magic']			
15183	['Adventure', 'Fantasy', 'Magic', 'Martial Art...			
15184	['Mystery', 'Horror', 'Supernatural']			
15185	['Action', 'Adventure', 'Comedy', 'Historical'...			
15186	['Military', 'Sci-Fi', 'Space', 'Drama', 'Mecha']			
aired episodes members popularity				
ranked \				
0	Oct 4, 2015 to Mar 27, 2016	25.0	489888	141
25.0				
1	Oct 10, 2014 to Mar 20, 2015	22.0	995473	28
24.0				
2	Jul 7, 2017 to Sep 29, 2017	13.0	581663	98
23.0				
3	Apr 5, 2009 to Jul 4, 2010	64.0	1615084	4
1.0				
4	Jan 6, 2017	1.0	214621	502
22.0				
...
...				
15182	Oct 6, 2016 to Dec 29, 2016	13.0	134252	843
1070.0				

15183	Apr 6, 1995 to Mar 28, 1996	52.0	84407	1292
1071.0				
15184	Oct 22, 2000 to Mar 25, 2001	19.0	83093	1314
1073.0				
15185	Dec 21, 2002	1.0	71989	1469
1077.0				
15186	Mar 12, 1988	1.0	29248	2604
1081.0				

	score	img_url \
0	8.82	https://cdn.myanimelist.net/images/anime/9/766...
1	8.83	https://cdn.myanimelist.net/images/anime/3/671...
2	8.83	https://cdn.myanimelist.net/images/anime/6/867...
3	9.23	https://cdn.myanimelist.net/images/anime/1223/...
4	8.83	https://cdn.myanimelist.net/images/anime/3/815...
...
15182	7.73	https://cdn.myanimelist.net/images/anime/4/822...
15183	7.73	https://cdn.myanimelist.net/images/anime/2/201...
15184	7.73	https://cdn.myanimelist.net/images/anime/9/183...
15185	7.73	https://cdn.myanimelist.net/images/anime/1162/...
15186	7.73	https://cdn.myanimelist.net/images/anime/1523/...

	link \
0	https://myanimelist.net/anime/28891/Haikyuu_Se...
1	https://myanimelist.net/anime/23273/Shigatsu_w...
2	https://myanimelist.net/anime/34599/Made_in_Abyss
3	https://myanimelist.net/anime/5114/Fullmetal_A...
4	https://myanimelist.net/anime/31758/Kizumonoga...
...	...
15182	https://myanimelist.net/anime/32979/Flip_Flappers
15183	https://myanimelist.net/anime/123/Fushigi_Yuugi
15184	https://myanimelist.net/anime/1281/Gakkou_no_K...
15185	https://myanimelist.net/anime/450/InuYasha_Mov...
15186	https://myanimelist.net/anime/87/Mobile_Suit_G...

	Popularity_Per_Episode
0	5.640000
1	1.272727
2	7.538462
3	0.062500
4	502.000000
...	...
15182	64.846154
15183	24.846154
15184	69.157895
15185	1469.000000
15186	2604.000000

[15187 rows x 13 columns]

Check for missing values

```
# Check for missing values in each column
print("Missing values in each column before cleaning:")
print(df.isnull().sum())

Missing values in each column before cleaning:
uid                                0
title                             0
synopsis                           0
genre                             0
aired                             0
episodes                           0
members                           0
popularity                         0
ranked                             0
score                             0
img_url                           0
link                               0
Popularity_Per_Episode            0
dtype: int64

# Clean the 'genre' column by converting it from string to a list
df['genre'] = df['genre'].str.strip("[]").str.replace("'",
""").str.split(", ")

# Check for missing values
print("Missing values in each column:")
print(df.isnull().sum())

Missing values in each column:
uid                                0
title                             0
synopsis                           0
genre                             0
aired                             0
episodes                           0
members                           0
popularity                         0
ranked                             0
score                             0
img_url                           0
link                               0
Popularity_Per_Episode            0
dtype: int64
```

Visualization

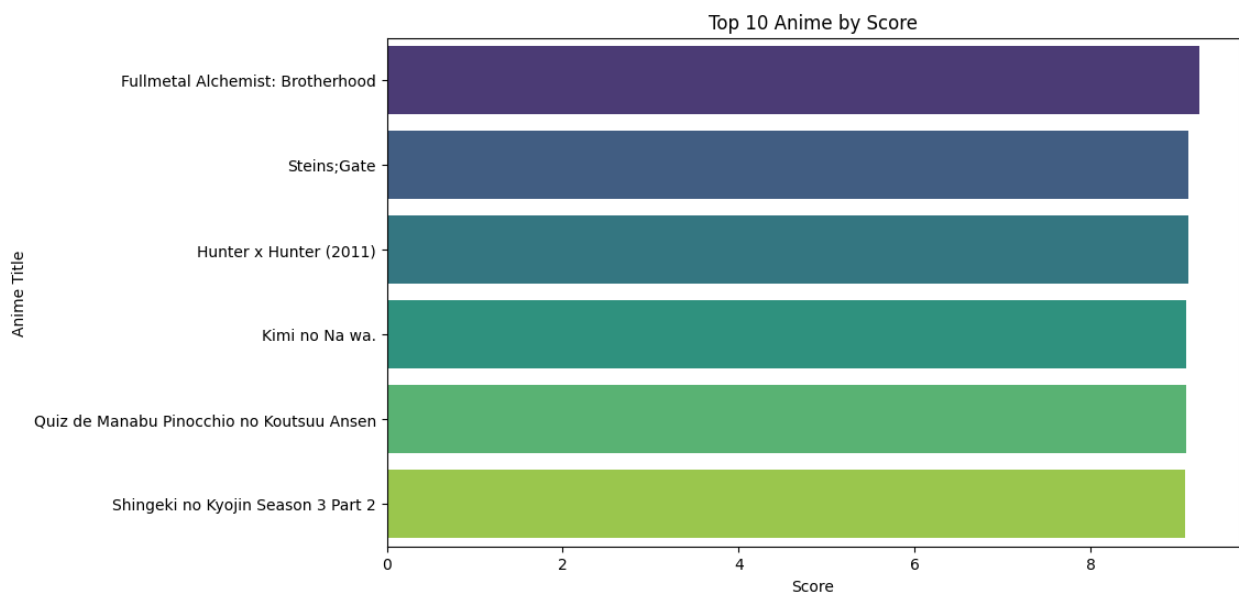
```
# Sort the dataset by score in descending order
top_anime = df.sort_values(by="score", ascending=False)
```

```
# Plot the top anime by score
plt.figure(figsize=(10, 6))
sns.barplot(x="score", y="title", data=top_anime.head(10),
palette="viridis")
plt.title("Top 10 Anime by Score")
plt.xlabel("Score")
plt.ylabel("Anime Title")
plt.show()
```

C:\Users\Lenovo\AppData\Local\Temp\ipykernel_12764\677738880.py:6:
FutureWarning:

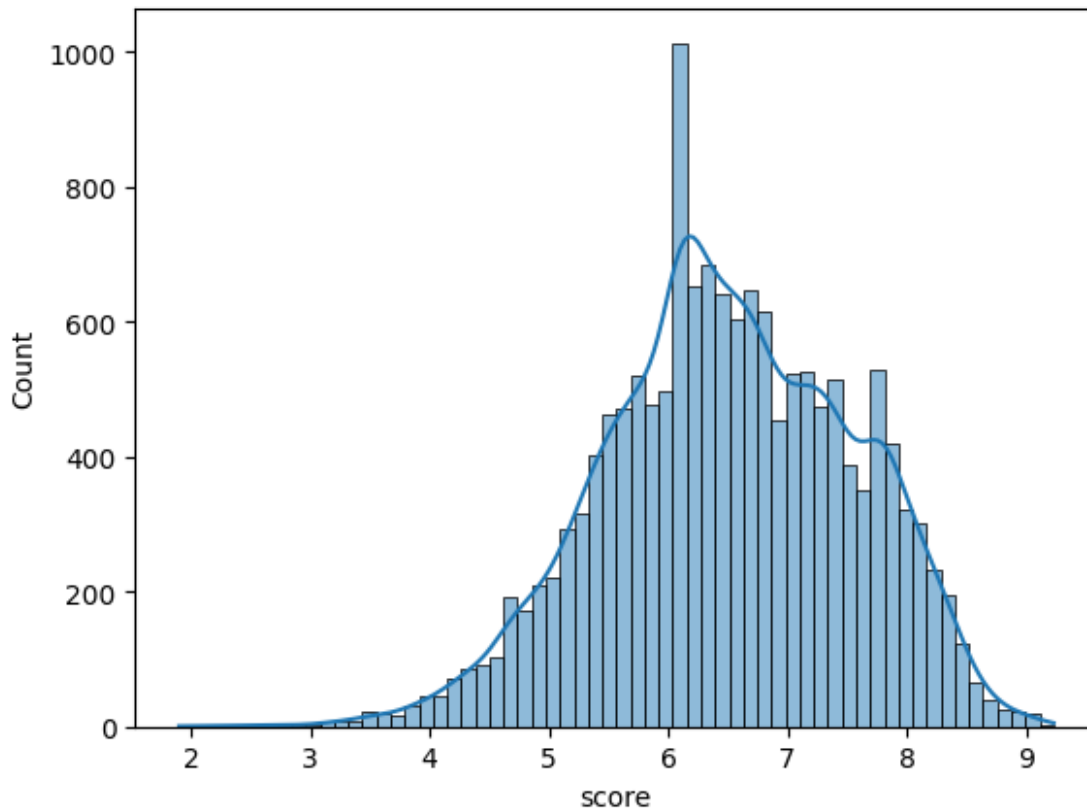
Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `y` variable to `hue` and set `legend=False` for the same effect.

```
sns.barplot(x="score", y="title", data=top_anime.head(10),
palette="viridis")
```



Visualizations

```
import seaborn as sns
sns.histplot(df['score'], kde=True)
<Axes: xlabel='score', ylabel='Count'>
```



Pie chart

```
import matplotlib.pyplot as plt

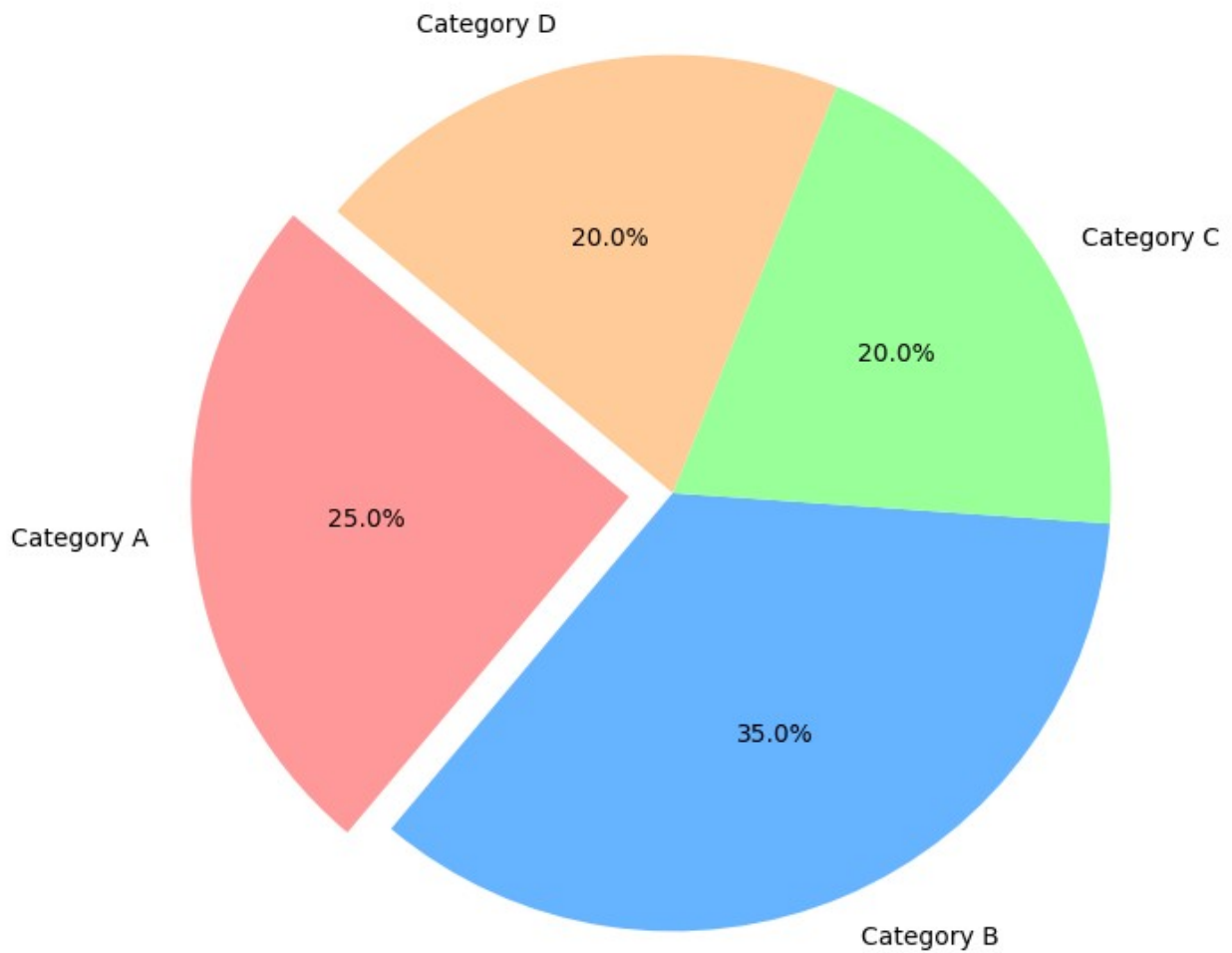
# Data for the pie chart
labels = ['Category A', 'Category B', 'Category C', 'Category D']
sizes = [25, 35, 20, 20] # Percentages or proportions
colors = ['#ff9999', '#66b3ff', '#99ff99', '#ffcc99'] # Optional: Custom colors
explode = (0.1, 0, 0, 0) # Optional: "Explode" the first slice (Category A)

# Create the pie chart
plt.figure(figsize=(8, 8)) # Optional: Adjust figure size
plt.pie(sizes, labels=labels, colors=colors, explode=explode,
autopct='%1.1f%%', startangle=140)

# Add a title
plt.title('Pie Chart Example')

# Display the chart
plt.show()
```

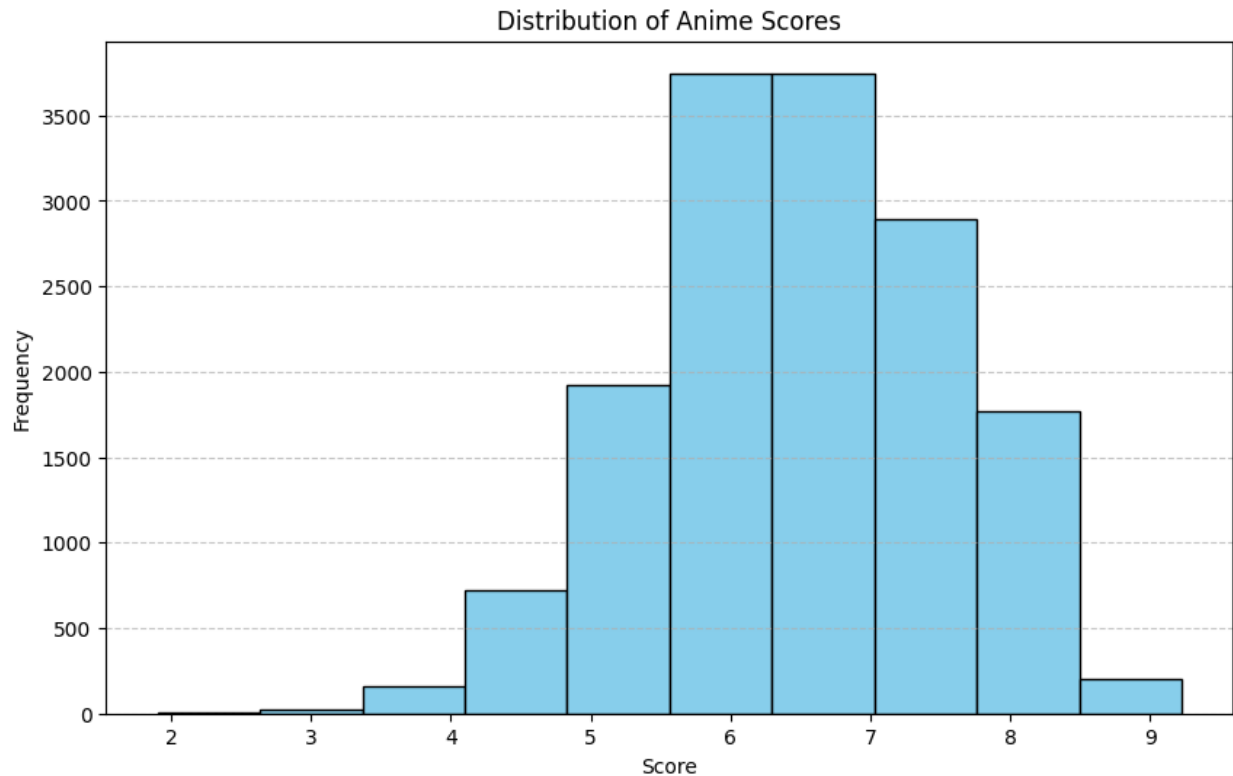
Pie Chart Example



Histogram

```
import matplotlib.pyplot as plt

# Plot a histogram for the 'score' column
plt.figure(figsize=(10, 6))
plt.hist(df['score'], bins=10, color='skyblue', edgecolor='black')
plt.title('Distribution of Anime Scores')
plt.xlabel('Score')
plt.ylabel('Frequency')
plt.grid(axis='y', linestyle='--', alpha=0.7)
plt.show()
```



Heatmap

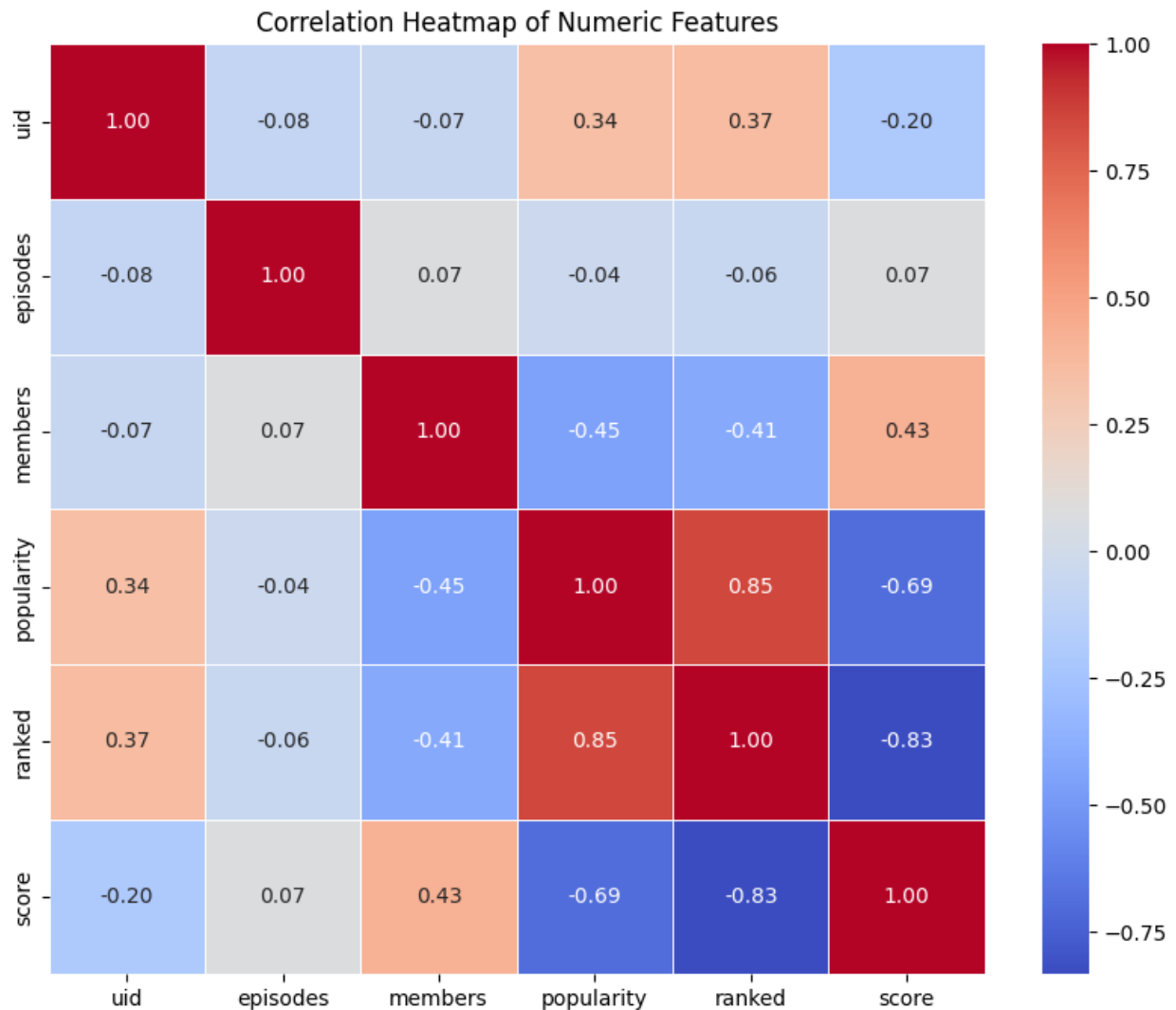
```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt

# Load the dataset
df = pd.read_csv(r"C:\Users\Lenovo\OneDrive\Desktop\ids project\
archive (9)\animes.csv")

# Select only numeric columns
numeric_df = df.select_dtypes(include=['float64', 'int64'])

# Compute the correlation matrix
correlation_matrix = numeric_df.corr()

# Plot the heatmap
plt.figure(figsize=(10, 8))
sns.heatmap(correlation_matrix, annot=True, cmap="coolwarm",
fmt=".2f", linewidths=0.5)
plt.title("Correlation Heatmap of Numeric Features")
plt.show()
```



Scatter plot

```
import matplotlib.pyplot as plt
import seaborn as sns

# Scatter plot for popularity vs score
plt.figure(figsize=(10, 6))
sns.scatterplot(x='popularity', y='score', data=df, hue='episodes',
size='members', palette='viridis', sizes=(20, 200))
plt.title('Popularity vs Score')
plt.xlabel('Popularity Rank')
plt.ylabel('Score')
plt.gca().invert_xaxis() # Invert x-axis for popularity (lower rank
is better)
plt.grid(True, linestyle='--', alpha=0.7)
plt.show()
```



```
False
19309  False  False    False  False  False    False  False
False
19310  False  False    False  False  False    False  False
False
```

```

ranked  score  img_url  link
0      False  False    False  False
1      False  False    False  False
2      False  False    False  False
3      False  False    False  False
4      False  False    False  False
...
19306   False  False    False  False
19307   False  False    False  False
19308   False  False    False  False
19309   False  False    False  False
19310   False  False    False  False
```

```
[19311 rows x 12 columns]
```

```
missing_count = df.isna().sum()
print("\nCount of missing values in each column:")
print(missing_count)
```

```
Count of missing values in each column:
```

```
uid          0
title        0
synopsis     975
genre        0
aired        0
episodes    706
members      0
popularity   0
ranked      3212
score        579
img_url      180
link         0
```

```
dtype: int64
```

```
# Convert the 'genre' column from string to list
df['genre'] = df['genre'].apply(literal_eval)
```

```
# Display the updated DataFrame
print(df[['title', 'genre']].head())
```

```

              title \
0      Haikyuu!! Second Season
1      Shigatsu wa Kimi no Uso
2      Made in Abyss
```



```
3 Fullmetal Alchemist: Brotherhood
4 Kizumonogatari III: Reiketsu-hen
```

```
                                genre
0      [Comedy, Sports, Drama, School, Shounen]
1      [Drama, Music, Romance, School, Shounen]
2      [Sci-Fi, Adventure, Mystery, Drama, Fantasy]
3      [Action, Military, Adventure, Comedy, Drama, M...
4      [Action, Mystery, Supernatural, Vampire]
```

```
# Flatten the list of genres and count occurrences
```

```
all_genres = [genre for sublist in df['genre'] for genre in sublist]
genre_counts = pd.Series(all_genres).value_counts()
```

```
# Display the genre counts
```

```
print(genre_counts)
```

Comedy	6461
Action	4215
Fantasy	3466
Adventure	3143
Drama	3004
Sci-Fi	2832
Hentai	2574
Kids	2549
Shounen	2322
Romance	2152
Slice of Life	2056
Music	1993
School	1912
Supernatural	1719
Historical	1218
Mecha	1197
Magic	1174
Seinen	982
Mystery	874
Sports	811
Ecchi	805
Shoujo	788
Super Power	716
Parody	702
Military	678
Demons	605
Space	564
Horror	511
Harem	435
Martial Arts	424
Dementia	419
Psychological	415
Game	395

```

Police           301
Samurai          238
Vampire          165
Thriller         161
Cars             133
Josei            115
Shounen Ai       113
Shoujo Ai        87
Yuri             79
Yaoi            78
Name: count, dtype: int64

```

```

# Plot the genre distribution
plt.figure(figsize=(10, 6))
genre_counts.plot(kind="bar", color="skyblue", edgecolor="black")
plt.title("Genre Distribution")
plt.xlabel("Genre")
plt.ylabel("Count")
plt.xticks(rotation=45)
plt.show()

```

