EDA(Exploratory Data Analysis)

EDA is used to explore data and summarize the key insights.

```
import numpy as np
import pandas as pd
import matplotlib as mpl
%matplotlib inline
```

```
# Ignore warnings
import warnings
warnings.filterwarnings('ignore')
```

```
[]
```

```
# Configure display options to show all columns and rows
pd.set_option('display.max_columns', None)
pd.set_option('display.max_rows', None)
```

```
[]
```

```
# Load the dataset
df = pd.read_csv('netflix_titles.csv')
df.head(20)
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	TV Show	3%	NaN	João Miguel, Bianca Comparato, Michel Gomes, Rodolfo Valente, Vaner Cordeiro, Nesh Silva, Pedro Sol, Leandro Lima, Flávia Reis, Silvio Guindane, Jéssica Córdeo, Bruno Gagliasso, Marina Ruy Barbosa, Vidal Bittencourt	Brazil	September 24, 2021	2020	TV-MA	4 Seasons	International TV Shows, TV Dramas, TV Sci-Fi & Fantasy	In a future where the elite inhabit an island paradise far from the crowded, toxic mainland, some dream of a life among the "perfected." When Joel is mysteriously rejected by the island, he and his friends decide to take a chance on a new life.
1	s2	Movie	7:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, Azalia Ortiz, Octavio Michel, Carmen Beato	United States, Intl.	December 23, 2016	2016	TV-MA	93 min	Dramas, International Movies	After the death of a postal worker, his friends and family are thrown into a tailspin. Their lives will never be the same as they try to cope with the aftermath of his untimely demise.
2	s3	Movie	23:59	Gilbert Chan	Tetsu Sakuma, Kimiko Yo, Akira Emoto, Takumi Saitoh, Yoko Maki	Japan, Hong Kong	December 20, 2019	2011	R	78 min	Horror Movies, International Movies	When an army recruit is found dead, his fellow soldiers are forced to face a horrifying enemy that only they can see.
3	s4	Movie	9	Shane Acker	Elijah Wood, John C. Reilly, Jennifer Connelly, Christopher Plummer, Martin Landau, Fred Tatasciore, Alan Oppenheimer, Tom Kenny, Crispin Glover,董	United States	November 16, 2017	2009	PG-13	80 min	Children & Family Movies, Cult Movies, Dramas, Independent Movies, Action & Adventure	In a post-apocalyptic world, a rag-doll robot learns to think and feel, but also to kill. Stunning CGI, high-octane action and a haunting musical score add up to a thought-provoking, visceral ride.
4	s5	TV Show	9-1-1	NaN	Angela Bassett, Peter Krause, Connie Britton, Aaron Yoo, Eric Winter, Jennifer Love Hewitt, Rockmond Dunbar, Oliver Stark, Gavin Stenhouse, Gavin Macleod, Marisol Nichols, Ronald Gabriel, Ronald Guttman, Ronald Guttman, Ronald Guttman

—

1	Mamoun	2017	Action, Drama, Thriller	6.4	1	Dreamchaser Productions, Mamoun Films	Dreamchaser Productions, Mamoun Films	88,750	500
2	Crystal Maze	2017	Comedy, Drama	7.1	2	The Lantern Entertainment, Crystal Maze Productions	Dreamchaser Productions, Mamoun Films	88,750	1000
3	Kaleidoscope	2017	Adventure, Drama, Thriller	7.1	3	A mysterious adventurer's journal of treasure	Dreamchaser Productions, Mamoun Films	1,257,000	1,000,000
4	Dual Obsession	2016	Crime, Drama, Thriller	7.1	4	Chasing the dark side of a dual personality	Dreamchaser Productions, Mamoun Films	17,000	800
5	Mamoun Ali Mohamed Ali Alhamdi Alhamdi	2016	Action, Drama, Thriller	6.4	5	A mysterious adventurer's journal of treasure	Dreamchaser Productions, Mamoun Films	88,750	500
6	Mamoun Ali Mohamed Ali Alhamdi Alhamdi	2016	Action, Drama, Thriller	6.4	6	The Lantern Entertainment, Mamoun Films	Dreamchaser Productions, Mamoun Films	88,750	500
7	Kaleidoscope	2016	Adventure, Drama, Thriller	7.1	7	The Lantern Entertainment, Mamoun Films	Dreamchaser Productions, Mamoun Films	88,750	500

```
budget
   budget
0  500.00
1  500.00
2  1000.00
3  1,000,000.00
4  800.00
5  500.00
6  500.00
7  500.00
```

```
revenue
   revenue
0     0.00
1     0.00
2     0.00
3     0.00
4     0.00
5     0.00
6     0.00
7     0.00
```

```
Data types (before fillna):
budget    int64
revenue   int64
dtype: int64
Missing budget: 0
Missing revenue: 0
```

```
Data types (after fillna):
budget    int64
revenue   int64
dtype: int64
Missing budget: 0
Missing revenue: 0
```

```
Data Shape: (8, 10)
```

```
Data Sample:
   movie_id  title  year  genres  budget  revenue  \
0         0  Mamoun  2017  Action, Drama, Thriller     500        0
1         1  Crystal Maze  2017  Comedy, Drama     500        0
2         2  Kaleidoscope  2017  Adventure, Drama, Thriller    1000        0
3         3  Dual Obsession  2016  Crime, Drama, Thriller    1000        0
4         4  Mamoun Ali Mohamed Ali Alhamdi Alhamdi  2016  Action, Drama, Thriller     500        0
5         5  Mamoun Ali Mohamed Ali Alhamdi Alhamdi  2016  Action, Drama, Thriller     500        0
6         6  Kaleidoscope  2016  Adventure, Drama, Thriller    1000        0
7         7  Kaleidoscope  2016  Adventure, Drama, Thriller    1000        0
                                                 keywords  \
0  Dreamchaser Productions, Mamoun Films
1  Dreamchaser Productions, Mamoun Films
2  Dreamchaser Productions, Mamoun Films
3  Dreamchaser Productions, Mamoun Films
4  Dreamchaser Productions, Mamoun Films
5  Dreamchaser Productions, Mamoun Films
6  Dreamchaser Productions, Mamoun Films
7  Dreamchaser Productions, Mamoun Films
                                                   cast  \
0  The Lantern Entertainment, Crystal Maze Productions
1  A mysterious adventurer's journal of treasure
2  Chasing the dark side of a dual personality
3  A mysterious adventurer's journal of treasure
4  The Lantern Entertainment, Mamoun Films
5  The Lantern Entertainment, Mamoun Films
6  The Lantern Entertainment, Mamoun Films
7  The Lantern Entertainment, Mamoun Films
                                                   crew  \
0  Dreamchaser Productions, Mamoun Films
1  Dreamchaser Productions, Mamoun Films
2  Dreamchaser Productions, Mamoun Films
3  Dreamchaser Productions, Mamoun Films
4  Dreamchaser Productions, Mamoun Films
5  Dreamchaser Productions, Mamoun Films
6  Dreamchaser Productions, Mamoun Films
7  Dreamchaser Productions, Mamoun Films
   popularity  vote_average  vote_count
0       88.750           6.4           1
1       88.750           7.1           2
2    1,257,000           7.1           3
3       17,000           7.1           1
4       88.750           6.4           1
5       88.750           6.4           1
6       88.750           7.1           1
7       88.750           7.1           1
```

```
Duplicate movie_id: 0
Duplicate title: 0
Duplicate year: 0
Duplicate genres: 0
Duplicate budget: 0
Duplicate revenue: 0
Duplicate keywords: 0
Duplicate cast: 0
Duplicate crew: 0
Duplicate popularity: 0
Duplicate vote_average: 0
Duplicate vote_count: 0
```

```
Numeric columns: ['movie_id', 'year', 'budget', 'revenue', 'popularity', 'vote_average', 'vote_count']
Text columns: ['title', 'genres', 'keywords', 'cast', 'crew']
```

```
Sample of text columns:
title: ['Mamoun', 'Crystal Maze', 'Kaleidoscope']
genres: ['Action, Drama, Thriller', 'Comedy, Drama', 'Adventure, Drama, Thriller']
keywords: ['Dreamchaser Productions, Mamoun Films', 'Dreamchaser Productions, Mamoun Films', 'Dreamchaser Productions, Mamoun Films']
cast: ['The Lantern Entertainment, Crystal Maze Productions', 'A mysterious adventurer's journal of treasure', 'Chasing the dark side of a dual personality']
crew: ['Dreamchaser Productions, Mamoun Films', 'Dreamchaser Productions, Mamoun Films', 'Dreamchaser Productions, Mamoun Films']
```

```
Text columns: ['title', 'genres', 'keywords', 'cast', 'crew']
Numeric columns: ['movie_id', 'year', 'budget', 'revenue', 'popularity', 'vote_average', 'vote_count
```