

2020-09-30-221223

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## 1 Exploratory Data Analysis

## 2 The Miner League

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```
[23]: import pandas as pd
import numpy as np
import seaborn as sn
import matplotlib.pyplot as plt
```

### 2.3.1 Reading data from all 4 tables

```
[3]: # Read data from file 'filename.csv'
# (in the same directory that your python process is based)
# Control delimiters, rows, column names with read_csv (see later)
Movies = pd.read_csv("IMDb movies.csv")
# Preview the first 5 lines of the loaded data
Movies.head()
```

```
[3]:  imdb_title_id                                title \
0      tt0000574          The Story of the Kelly Gang
1      tt0001892          Den sorte drøm
2      tt0002101          Cleopatra
3      tt0002130          L'Inferno
4      tt0002199  From the Manger to the Cross; or, Jesus of Naz...

                                original_title  year  date_published \
0      The Story of the Kelly Gang      1906      1906-12-26
1      Den sorte drøm      1911      1911-08-19
2      Cleopatra      1912      1912-11-13
3      L'Inferno      1911      1911-03-06
4  From the Manger to the Cross; or, Jesus of Naz...      1912      1913
```

	genre	duration	country	language	\
0	Biography, Crime, Drama	70	Australia	NaN	
1	Drama	53	Germany, Denmark	NaN	
2	Drama, History	100	USA	English	
3	Adventure, Drama, Fantasy	68	Italy	Italian	
4	Biography, Drama	60	USA	English	

	director	...	\
0	Charles Tait	...	
1	Urban Gad	...	
2	Charles L. Gaskill	...	
3	Francesco Bertolini, Adolfo Padovan	...	
4	Sidney Olcott	...	

	actors	\
0	Elizabeth Tait, John Tait, Norman Campbell, Be...	
1	Asta Nielsen, Valdemar Psilander, Gunnar Helse...	
2	Helen Gardner, Pearl Sindelar, Miss Fielding, ...	
3	Salvatore Papa, Arturo Pirovano, Giuseppe de L...	
4	R. Henderson Bland, Percy Dyer, Gene Gauntier,...	

	description	avg_vote	votes	budget	\
0	True story of notorious Australian outlaw Ned ...	6.1	537	\$ 2250	
1	Two men of high rank are both wooing the beaut...	5.9	171	NaN	
2	The fabled queen of Egypt's affair with Roman ...	5.2	420	\$ 45000	
3	Loosely adapted from Dante's Divine Comedy and...	7.0	2019	NaN	
4	An account of the life of Jesus Christ, based ...	5.7	438	NaN	

	usa_gross_income	worldwide_gross_income	metascore	reviews_from_users	\
0	NaN	NaN	NaN	7.0	
1	NaN	NaN	NaN	4.0	
2	NaN	NaN	NaN	24.0	
3	NaN	NaN	NaN	28.0	
4	NaN	NaN	NaN	12.0	

	reviews_from_critics
0	7.0
1	2.0
2	3.0
3	14.0
4	5.0

[5 rows x 22 columns]

```
[4]: Names = pd.read_csv("IMDb_names.csv")
# Preview the first 5 lines of the loaded data
Names.head()
```

```
[4]:  imdb_name_id      name      birth_name  height  \
0      nm0000001      Fred Astaire  Frederic Austerlitz Jr.  177.0
1      nm0000002      Lauren Bacall      Betty Joan Perske  174.0
2      nm0000003  Brigitte Bardot      Brigitte Bardot  166.0
3      nm0000004      John Belushi      John Adam Belushi  173.0
4      nm0000005      Ingmar Bergman      Ernst Ingmar Bergman  179.0
```

```
                                bio  \
0  Fred Astaire was born in Omaha, Nebraska, to J...
1  Lauren Bacall was born Betty Joan Perske on Se...
2  Brigitte Bardot was born on September 28, 1934...
3  John Belushi was born in Chicago, Illinois, US...
4  Ernst Ingmar Bergman was born July 14, 1918, t...
```

```
                                birth_details  birth_year  \
0                        May 10, 1899 in Omaha, Nebraska, USA      1899.0
1  September 16, 1924 in The Bronx, New York City...      1924.0
2                        September 28, 1934 in Paris, France      1934.0
3      January 24, 1949 in Chicago, Illinois, USA      1949.0
4      July 14, 1918 in Uppsala, Uppsala län, Sweden      1918.0
```

```
    date_of_birth      place_of_birth  \
0      1899-05-10      Omaha, Nebraska, USA
1      1924-09-16  The Bronx, New York City, New York, USA
2      1934-09-28      Paris, France
3      1949-01-24      Chicago, Illinois, USA
4      1918-07-14      Uppsala, Uppsala län, Sweden
```

```
                                death_details  death_year  \
0  June 22, 1987 in Los Angeles, California, USA ...      1987.0
1  August 12, 2014 in New York City, New York, US...      2014.0
2                        NaN                        NaN
3  March 5, 1982 in Hollywood, Los Angeles, Calif...      1982.0
4      July 30, 2007 in Fårö, Gotlands län, Sweden      2007.0
```

```
    date_of_death      place_of_death  \
0      1987-06-22      Los Angeles, California, USA
1      2014-08-12      New York City, New York, USA
2      NaN                        NaN
3      1982-03-05  Hollywood, Los Angeles, California, USA
4      2007-07-30      Fårö, Gotlands län, Sweden
```

```
                                reason_of_death  spouses  divorces  \
0                        pneumonia              2          0
1                        stroke              2          1
2                        NaN              4          3
3  acute cocaine and heroin intoxication      1          0
```

4			NaN	5	4
---	--	--	-----	---	---

	spouses_with_children	children	primary_profession \
0	1	2	soundtrack,actor,miscellaneous
1	2	3	actress,soundtrack
2	1	1	actress,soundtrack,producer
3	0	0	actor,writer,soundtrack
4	5	8	writer,director,actor

	known_for_titles
0	tt0050419,tt0053137,tt0072308,tt0043044
1	tt0037382,tt0038355,tt0117057,tt0071877
2	tt0054452,tt0059956,tt0057345,tt0049189
3	tt0078723,tt0072562,tt0080455,tt0077975
4	tt0050976,tt0083922,tt0069467,tt0050986

```
[5]: Ratings = pd.read_csv("IMDb_ratings.csv")
# Preview the first 5 lines of the loaded data
Ratings.head()
```

```
[5]:  imdb_title_id  weighted_average_vote  total_votes  mean_vote  median_vote \
0      tt0000574                6.1           537         6.3         6.0
1      tt0001892                5.9           171         6.1         6.0
2      tt0002101                5.2           420         5.2         5.0
3      tt0002130                7.0          2019         6.9         7.0
4      tt0002199                5.7           438         5.8         6.0

      votes_10  votes_9  votes_8  votes_7  votes_6  ...  females_30age_avg_vote \
0          54      17      55      121      122  ...                6.0
1           5       6      17       41       52  ...                5.8
2          12       8      16       60       89  ...                5.5
3         194     208     386      571      308  ...                7.3
4          28      15      42       75      114  ...                4.8

      females_30age_votes  females_45age_avg_vote  females_45age_votes \
0                19.0                6.6                14.0
1                 4.0                6.5                 8.0
2                14.0                6.2                20.0
3                74.0                7.4                75.0
4                10.0                6.5                15.0

      top1000_voters_rating  top1000_voters_votes  us_voters_rating \
0                 6.3                64.0                6.0
1                 5.9                29.0                6.2
2                 4.9                57.0                5.5
3                 7.0               126.0                7.1
4                 5.7                56.0                5.9
```

	us_voters_votes	non_us_voters_rating	non_us_voters_votes
0	89.0	6.2	309.0
1	27.0	6.0	114.0
2	197.0	4.7	103.0
3	452.0	7.0	1076.0
4	161.0	5.7	164.0

[5 rows x 49 columns]

```
[8]: TitleP = pd.read_csv("IMDb_title_principals.csv")
# Preview the first 5 lines of the loaded data
TitleP.head()
```

	imdb_title_id	ordering	imdb_name_id	category	job	characters
0	tt0000574	1	nm0846887	actress	NaN	["Kate Kelly"]
1	tt0000574	2	nm0846894	actor	NaN	["School Master"]
2	tt0000574	3	nm3002376	actor	NaN	["Steve Hart"]
3	tt0000574	4	nm0170118	actress	NaN	NaN
4	tt0000574	5	nm0846879	director	NaN	NaN

### 2.3.2 Filtering to movies only after 2005 for analysis

```
[9]: greater_than_2005 = Movies['year']>2005
new_movies=Movies[greater_than_2005]
print(new_movies.shape)
new_movies.head()
```

(34785, 22)

	imdb_title_id		title	original_title	\
15090	tt0069049	The Other Side of the Wind	The Other Side of the Wind		
20324	tt0085953	Mo tai	Mo tai		
24705	tt0100275	La Telenovela Errante	La Telenovela Errante		
29800	tt0119231	The Junior Defenders	The Junior Defenders		
30117	tt0119970	Quality Time	Quality Time		

	year	date_published	genre	duration	\
15090	2018	2018-11-02	Drama	122	
20324	2019	2019-10-22	Horror	84	
24705	2017	2018-09-06	Comedy, Drama, Fantasy	80	
29800	2007	2007-10-23	Comedy	83	
30117	2008	2008	Comedy, Drama, Sci-Fi	82	

	country	language	director	...	\
15090	France, Iran, USA	English, German	Orson Welles	...	
20324	Hong Kong	Cantonese	Hung-Chuen Lau	...	

24705	Chile	Spanish	Raoul Ruiz, Valeria Sarmiento	...
29800	USA	English	Keith Spiegel	...
30117	India, USA	English	Chris LaMont	...

	actors \
15090	John Huston, Oja Kodar, Peter Bogdanovich, Sus...
20324	Eddie Chan, Yung-Chang Chin, Pak-Kwong Ho, Men...
24705	Luis Alarcón, Patricia Rivadeneira, Francisco ...
29800	Ally Sheedy, Brian O'Halloran, Justin Henry, J...
30117	Corin Nemec, Bruce Weitz, Nancy Allen, John de...

	description	avg_vote	votes \
15090	A Hollywood director emerges from semi-exile w...	6.9	5014
20324	A woman becomes possessed and dies after a mon...	6.2	262
24705	The film revolves around the concept of soap o...	6.6	121
29800	A deranged fan goes on a mission to kidnap the...	4.3	136
30117	In an apocalyptic future, a serial killer hold...	3.8	100

	budget	usa_gross_income	worldwide_gross_income	metascore \
15090	NaN	NaN	NaN	78.0
20324	NaN	NaN	NaN	NaN
24705	NaN	\$ 3624	\$ 3624	NaN
29800	\$ 125000	NaN	NaN	NaN
30117	NaN	NaN	NaN	NaN

	reviews_from_users	reviews_from_critics
15090	70.0	88.0
20324	16.0	14.0
24705	NaN	26.0
29800	2.0	1.0
30117	2.0	2.0

[5 rows x 22 columns]

### 2.3.3 Removing Rows with NaN values

```
[10]: new_movies=new_movies.dropna()
print(new_movies.shape)
print(new_movies.head())
```

```
(3262, 22)
<bound method NDFrame.head of
original_title  year  \
34961          tt0200465      The Bank Job      The Bank Job  2008
35307          tt0206634  Children of Men  Children of Men  2006
35546          tt0211933              Awake              Awake  2007
37623          tt0259324      Ghost Rider      Ghost Rider  2007
```

38931	tt0283503	Brooklyn Rules	Brooklyn Rules	2007
...	...	...	...	...
80665	tt8772262	Midsommar	Midsommar	2019
80858	tt9024106	Unplanned	Unplanned	2019
80908	tt9082020	Cold Blood Legacy	Cold Blood Legacy	2019
80946	tt9134216	Playing with Fire	Playing with Fire	2019
81059	tt9354944	Jexi	Jexi	2019

	date_published	genre	duration	\
34961	2008-02-29	Crime, Thriller	111	
35307	2006-09-22	Drama, Thriller	109	
35546	2008-04-04	Crime, Drama, Mystery	84	
37623	2007-03-02	Action, Fantasy, Thriller	114	
38931	2009-05-28	Crime, Drama	99	
...	...	...	...	
80665	2019-07-03	Drama, Horror, Mystery	147	
80858	2019-10-04	Biography, Drama	109	
80908	2019-05-15	Action, Thriller	91	
80946	2019-11-08	Comedy, Family	96	
81059	2019-10-11	Comedy	84	

	country	\
34961	UK, USA, Australia	
35307	USA, UK, Japan	
35546	USA	
37623	USA, Australia	
38931	USA	
...	...	
80665	USA, Sweden, Hungary	
80858	USA	
80908	France, Ukraine, Belgium	
80946	USA	
81059	USA	

	language	\
34961	English, Latin	
35307	English, German, Italian, Romanian, Spanish, A...	
35546	English, Japanese	
37623	English	
38931	English	
...	...	
80665	English, Swedish	
80858	English	
80908	French, English	
80946	English	
81059	English	

director ... \

34961	Roger Donaldson	...
35307	Alfonso Cuarón	...
35546	Joby Harold	...
37623	Mark Steven Johnson	...
38931	Michael Corrente	...
...	...	...
80665	Ari Aster	...
80858	Chuck Konzelman, Cary Solomon	...
80908	Frédéric Petitjean	...
80946	Andy Fickman	...
81059	Jon Lucas, Scott Moore	...

actors \

34961	Jason Statham, Saffron Burrows, Stephen Campbe...
35307	Clive Owen, Juan Gabriel Yacuzzi, Michael Cain...
35546	Hayden Christensen, Jessica Alba, Terrence How...
37623	Matt Long, Raquel Alessi, Brett Cullen, Peter ...
38931	Paulo Araujo, Daniel Tay, Ty Thomas Reed, Bria...
...	...
80665	Florence Pugh, Jack Reynor, Vilhelm Blomgren, ...
80858	Ashley Bratcher, Brooks Ryan, Robia Scott, Jar...
80908	Jean Reno, Sarah Lind, Joe Anderson, David Gya...
80946	John Cena, Keegan-Michael Key, John Leguizamo,...
81059	Adam Devine, Alexandra Shipp, Rose Byrne, Ron ...

description avg\_vote votes \

34961	Martine offers Terry a lead on a foolproof ban...	7.2	167682
35307	In 2027, in a chaotic world in which women hav...	7.9	437150
35546	A wealthy young man undergoing heart transplan...	6.5	70300
37623	When motorcycle rider Johnny Blaze sells his s...	5.2	212991
38931	Brooklyn, 1985. With the mob world as a backdr...	6.3	5347
...	...	...	...
80665	A couple travels to Sweden to visit a rural ho...	7.2	78830
80858	All Abby Johnson ever wanted to do was help wo...	5.8	10783
80908	A hit-man lives isolated in a cabin at the edg...	4.5	2193
80946	A crew of rugged firefighters meet their match...	4.5	1067
81059	A comedy about what can happen when you love y...	6.6	3674

	budget	usa_gross_income	worldwide_gross_income	metascore	\
34961	\$ 20000000	\$ 30060660	\$ 64828421	69.0	
35307	\$ 76000000	\$ 35552383	\$ 70099445	84.0	
35546	\$ 8600000	\$ 14377198	\$ 32685679	33.0	
37623	\$ 110000000	\$ 115802596	\$ 228738393	35.0	
38931	\$ 8000000	\$ 458232	\$ 458232	53.0	
...	...	...	...	...	
80665	\$ 10000000	\$ 27426361	\$ 41123770	72.0	
80858	\$ 6000000	\$ 19005109	\$ 19320481	10.0	
80908	\$ 2700000	\$ 5083	\$ 1009888	25.0	



80946	\$ 29900000	\$ 18847824	\$ 21788746	24.0
81059	\$ 5000000	\$ 6546159	\$ 7257918	39.0

	reviews_from_users	reviews_from_critics
34961	202.0	231.0
35307	1310.0	315.0
35546	207.0	133.0
37623	703.0	283.0
38931	48.0	40.0
...	...	...
80665	1454.0	365.0
80858	531.0	32.0
80908	72.0	26.0
80946	49.0	16.0
81059	46.0	24.0

[3262 rows x 22 columns]>

### 2.3.4 Analysing the correlation of various quantitative data

```
[11]: new_movies.corr()
```

```
[11]:
```

	year	duration	avg_vote	votes	metascore	\
year	1.000000	0.097212	0.033968	-0.023544	0.037554	
duration	0.097212	1.000000	0.399483	0.356525	0.267495	
avg_vote	0.033968	0.399483	1.000000	0.421946	0.715855	
votes	-0.023544	0.356525	0.421946	1.000000	0.287502	
metascore	0.037554	0.267495	0.715855	0.287502	1.000000	
reviews_from_users	0.143548	0.346309	0.259371	0.687401	0.188581	
reviews_from_critics	0.161950	0.364427	0.431228	0.742867	0.411304	

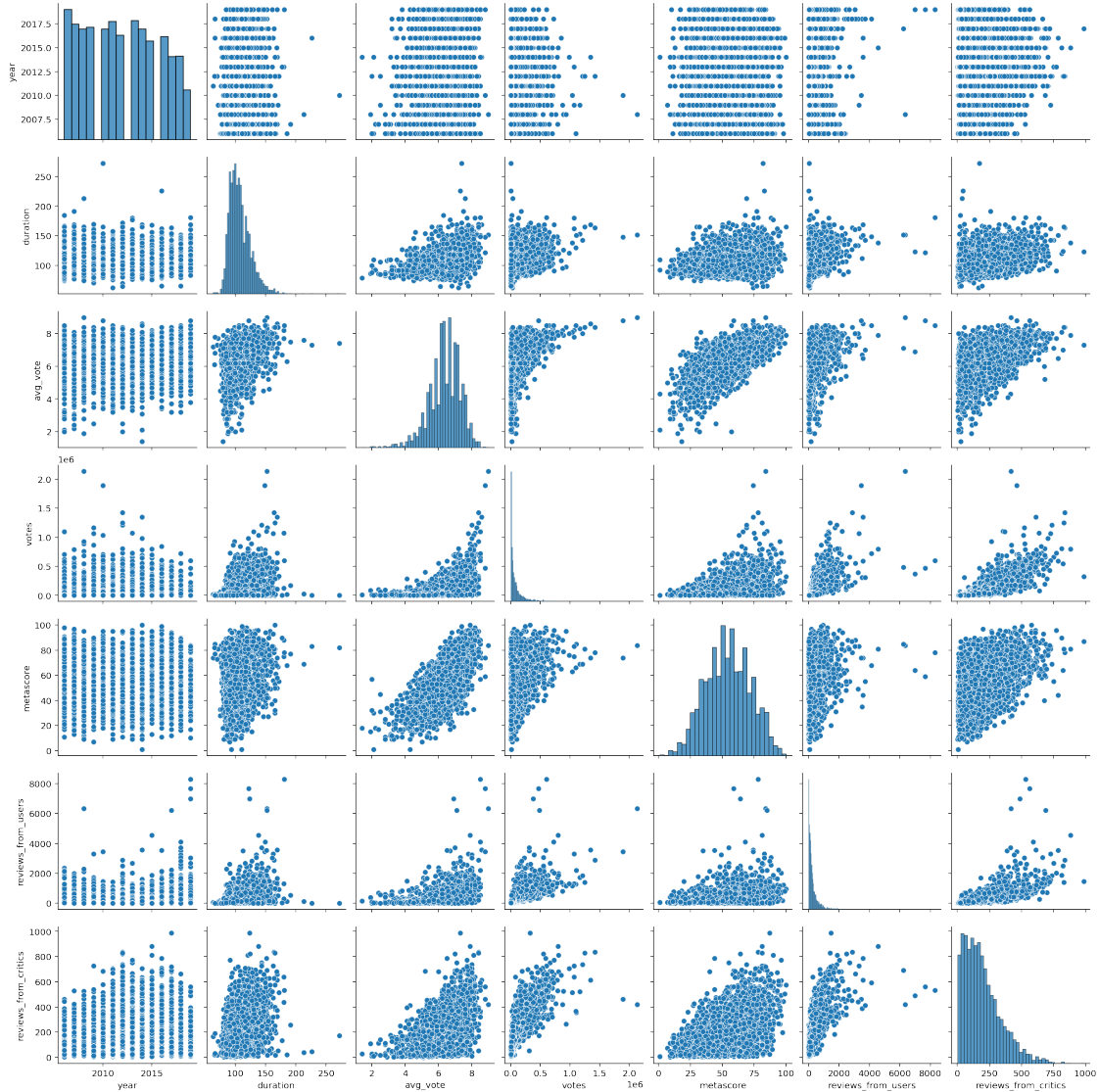
	reviews_from_users	reviews_from_critics
year	0.143548	0.161950
duration	0.346309	0.364427
avg_vote	0.259371	0.431228
votes	0.687401	0.742867
metascore	0.188581	0.411304
reviews_from_users	1.000000	0.647450
reviews_from_critics	0.647450	1.000000

It is seen that the movies with greater critics reviews and greater user reviews have more votes. However, these two categories of reviews are highly correlated to each other which causes multi collinearity and also brings a need for multiple linear regression.

```
[32]: sn.pairplot(new_movies)
```

```
[32]: <seaborn.axisgrid.PairGrid at 0x7f7ff427c730>
```

[32]:



```
[14]: new_names = Names.dropna()
print(new_names.shape)
print(new_names.head)
```

(3654, 20)

```
<bound method NDFrame.head of      imdb_name_id      name
birth_name height \
0      nm0000001      Fred Astaire      Frederic Austerlitz Jr.      177.0
1      nm0000002      Lauren Bacall      Betty Joan Perske      174.0
3      nm0000004      John Belushi      John Adam Belushi      173.0
5      nm0000006      Ingrid Bergman      Ingrid Bergman      175.0
6      nm0000007      Humphrey Bogart      Humphrey DeForest Bogart      173.0
...      ...      ...      ...      ...
```

163420	nm5937849	Tatsuo Inoue	Tatsuo Inoue	200.0
166483	nm6649402	Salman Shah	Shahriar Chowdhury Emon	200.0
167829	nm7014999	Jay Bowdy	Jay Bowdy	200.0
169090	nm7390393	Aachi Manorama	Gopishantha	200.0
175063	nm9626717	Noelle Balfour	Noëlle Marie Balfour	200.0

bio \

0	Fred Astaire was born in Omaha, Nebraska, to J...
1	Lauren Bacall was born Betty Joan Perske on Se...
3	John Belushi was born in Chicago, Illinois, US...
5	Ingrid Bergman was one of the greatest actress...
6	Humphrey DeForest Bogart was born in New York ...
...	...
163420	Tatsuo Inoue was born on November 8, 1941 in A...
166483	Salman Shah was born on September 19, 1971 in ...
167829	Frederick Jay Bowdy was born in San Antonio, T...
169090	Manorama is a veteran Tamil actress who has ac...
175063	Noelle Balfour was born on December 11, 1984 i...

birth\_details birth\_year \

0	May 10, 1899 in Omaha, Nebraska, USA	1899.0
1	September 16, 1924 in The Bronx, New York City...	1924.0
3	January 24, 1949 in Chicago, Illinois, USA	1949.0
5	August 29, 1915 in Stockholm, Sweden	1915.0
6	December 25, 1899 in New York City, New York, USA	1899.0
...	...	...
163420	November 8, 1941 in Amagasaki, Hyogo, Japan	1941.0
166483	September 19, 1971 in Daria para, Sylhet, Bang...	1971.0
167829	August 26, 1983 in San Antonio, Texas, USA	1983.0
169090	May 26, 1937 in Mannargudi, Madras Presidency,...	1937.0
175063	December 11, 1984 in Reno, Nevada, USA	1984.0

date\_of\_birth place\_of\_birth \

0	1899-05-10	Omaha, Nebraska, USA
1	1924-09-16	The Bronx, New York City, New York, USA
3	1949-01-24	Chicago, Illinois, USA
5	1915-08-29	Stockholm, Sweden
6	1899-12-25	New York City, New York, USA
...	...	...
163420	1941-11-08	Amagasaki, Hyogo, Japan
166483	1971-09-19	Daria para, Sylhet, Bangladesh
167829	1983-08-26	San Antonio, Texas, USA
169090	1937-05-26	Mannargudi, Madras Presidency, British India
175063	1984-12-11	Reno, Nevada, USA

death\_details death\_year \

0	June 22, 1987 in Los Angeles, California, USA ...	1987.0
1	August 12, 2014 in New York City, New York, US...	2014.0

3	March 5, 1982 in Hollywood, Los Angeles, Calif...	1982.0
5	August 29, 1982 in Chelsea, London, England, U...	1982.0
6	January 14, 1957 in Los Angeles, California, U...	1957.0
...	...	...
163420	October 5, 2016 in Nishinomiya, Hyôgo, Japan ...	2016.0
166483	September 6, 1996 in Dhaka, Bangladesh (suicide)	1996.0
167829	January 23, 2017 in North Hollywood, Los Angel...	2017.0
169090	October 10, 2015 in Chennai, Tamil Nadu, India...	2015.0
175063	October 11, 2017 in Escondido, California, USA...	2017.0

	date_of_death	place_of_death \
0	1987-06-22	Los Angeles, California, USA
1	2014-08-12	New York City, New York, USA
3	1982-03-05	Hollywood, Los Angeles, California, USA
5	1982-08-29	Chelsea, London, England, UK
6	1957-01-14	Los Angeles, California, USA
...	...	...
163420	2016-10-05	Nishinomiya, Hyôgo, Japan
166483	1996-09-06	Dhaka, Bangladesh
167829	2017-01-23	North Hollywood, Los Angeles, California, USA
169090	2015-10-10	Chennai, Tamil Nadu, India
175063	2017-10-11	Escondido, California, USA

	reason_of_death	spouses	divorces \
0	pneumonia	2	0
1	stroke	2	1
3	acute cocaine and heroin intoxication	1	0
5	lymphoma complications following a breast canc...	3	3
6	esophageal cancer	4	3
...	...	...	...
163420	emphysema	0	0
166483	suicide	1	0
167829	suicide - gun	0	0
169090	heart attack	1	1
175063	complications from injuries sustained in a car...	0	0

	spouses_with_children	children	primary_profession \
0	1	2	soundtrack,actor,miscellaneous
1	2	3	actress,soundtrack
3	0	0	actor,writer,soundtrack
5	2	4	actress,soundtrack,producer
6	1	2	actor,soundtrack,producer
...	...	...	...
163420	0	0	actor
166483	0	0	actor,music_department
167829	0	0	actor
169090	1	1	actress,music_department
175063	0	0	actress,casting_director,producer

```

                                known_for_titles
0      tt0050419,tt0053137,tt0072308,tt0043044
1      tt0037382,tt0038355,tt0117057,tt0071877
3      tt0078723,tt0072562,tt0080455,tt0077975
5      tt0038109,tt0036855,tt0077711,tt0038787
6      tt0037382,tt0043265,tt0034583,tt0033870
...
163420  tt1105523,tt3825360,tt1438515,tt3178076
166483  tt5125172,tt5107670,tt3902736,tt5111408
167829                                     tt3903826,tt4943562
169090  tt0097416,tt0320736,tt0482389,tt1361809
175063  tt0942886,tt1723123,tt1332000,tt3467332

```

[3654 rows x 20 columns]>

```

[16]: new_ratings = Ratings.dropna()
      print(new_ratings.shape)
      print(new_ratings.head)

```

(9948, 49)

```

<bound method NDFrame.head of
total_votes  mean_vote  \
3            tt0002130      7.0      2019      6.9
45           tt0004972      6.4     20885      6.5
73           tt0006864      7.8     13116      7.9
132          tt0009892      5.9       941      7.1
155          tt0010323      8.1     51644      7.9
...
81227        tt9783778      1.7       998      2.2
81234        tt9799992      6.6       867      6.9
81242        tt9817070      7.9     3210      8.1
81246        tt9831136      5.0     1691      5.1
81253        tt9860728      5.6     9816      5.7

```

```

      median_vote  votes_10  votes_9  votes_8  votes_7  votes_6  ...  \
3              7.0       194      208      386      571      308  ...
45              7.0      3548     1668     3176     3789     2680  ...
73              8.0      3372     2133     3011     2080     1085  ...
132             10.0       562       13       23       34       15  ...
155             8.0     10756    10493    14688     8134     3239  ...
...
81227           1.0        51        9       14        9       16  ...
81234           7.0        79       97      174      216      132  ...
81242           8.0       920      580      831      429      195  ...
81246           5.0       115       30      112      196      279  ...
81253           6.0       565      277      757     1632     2449  ...

```

	females_30age_avg_vote	females_30age_votes	females_45age_avg_vote	\
3	7.3	74.0	7.4	
45	5.9	1000.0	6.0	
73	7.5	599.0	8.1	
132	7.5	60.0	8.0	
155	8.2	3361.0	8.1	
...	...	...	...	
81227	1.6	32.0	2.6	
81234	6.6	43.0	7.1	
81242	7.9	81.0	7.1	
81246	5.1	49.0	5.3	
81253	5.7	1552.0	5.9	

	females_45age_votes	top1000_voters_rating	top1000_voters_votes	\
3	75.0	7.0	126.0	
45	687.0	6.6	357.0	
73	637.0	7.5	324.0	
132	36.0	6.1	27.0	
155	1224.0	7.5	553.0	
...	...	...	...	
81227	17.0	1.5	29.0	
81234	10.0	4.7	22.0	
81242	13.0	7.0	9.0	
81246	42.0	4.9	58.0	
81253	339.0	4.4	59.0	

	us_voters_rating	us_voters_votes	non_us_voters_rating	\
3	7.1	452.0	7.0	
45	6.3	7233.0	6.5	
73	7.7	4150.0	7.8	
132	7.3	112.0	5.0	
155	8.0	12670.0	8.1	
...	...	...	...	
81227	1.9	86.0	1.7	
81234	6.4	63.0	6.4	
81242	7.9	125.0	7.7	
81246	5.2	534.0	4.9	
81253	5.8	1073.0	5.4	

	non_us_voters_votes
3	1076.0
45	7837.0
73	5657.0
132	347.0
155	23911.0
...	...
81227	385.0
81234	354.0

81242	1135.0
81246	459.0
81253	3843.0

[9948 rows x 49 columns]>

[0]:

[0]: