IMDB Movie Analysis

Final Project-1

Description:

For the Final Project, we are having a dataset having various columns of different IMDB Movies. We are required to Frame the problem. For this task, we will need to define a problem you want to shed some light on.

We can do this by asking 'What?' This is where we frame the problem i.e. What is the problem?

Using these questions which guide our thinking:

- What do you see happening?
- What is your hypothesis for the cause of the problem? (this will be broadly based on intuition initially)
- What is the impact of the problem on stakeholders?
- What is the impact of the problem not being solved?

Answering these questions will help you define a problem we are trying to solve and will allow you to find the right data to solve it.
Once we have defined a problem, clean the data as necessary, and use our Data Analysis skills to explore the data set and derive insights.

Make sure to use 5 Whys Analysis in your analysis and using this to create a report which conveys a data story.

Once we have framed the problem and gathered initial insights from the data, we can ask the following questions as you dig deeper into your analysis.

- What do you see happening?
- What are the specific symptoms of the problem?
- What is your hypothesis for the cause of the problem?

Five 'Whys' approach

Once you have the problem better defined, you can use 5 Whys technique to determine

its root cause by repeatedly asking the question “Why”.

It's also called the Root Cause Analysis, developed by Sakichi Toyoda, founder of Toyota Industries. Here’s an example of how this technique could be used to figure out the cause of the following problem: A business went over budget on a recent project.

Q: “Why did we go over budget on our project?”

A: It took much longer than we expected to complete.

Q: “Why did it take longer than expected to complete?”

A: We had to redesign several elements of the product.

Q: “Why did we have to redesign elements of the product?”

A: Features of the product were confusing to use.

Q: “Why were the features of the product confusing to use?”

A: We made incorrect assumptions about what users wanted.

Q: “Why did we make incorrect assumptions about what users wanted?”

A: Our user experience research team didn’t ask effective questions.

As you see above, what looked like a budgeting problem turned out to be a problem with the user experience team not working effectively.

While asking Why is easy, what we're interested in is the answer. Each time you answer why the next time gets more difficult as you must think deeper behind the reasons for this. As you ask why, you may find that you have multiple answers for the same question.

A. **Cleaning the data:** This is one of the most important step to perform before moving forward with the analysis. Using our knowledge learned till now to do this like Dropping columns, removing null values, etc.
   To Clean the data.

Handling Duplicate Values

- Press Ctrl+A to select the entire data
- Goto the data section
- Click on remove duplicates button
- Select all data and Select My data has headers in the pop-up menu
- Press ok to remove the duplicates value
- My data set had 44 duplicate rows , after removal 4999 unique rows exists.

Delete Empty Cells

- Select the entire dataset by pressing Ctrl+A
- Select the 'find and select button' from home section.
- Then select go to special/ press F5 to access goto dialog box then click special
- Click blanks
- Click ok

Now the empty cells will get selected and we can modify it.

- To delete the empty cells
- Right click on one of the selected cell
- Click on delete option on the pop-up menu
- Now select delete entire row
- This will delete rows with empty cells

After deleting the empty cell rows we are having 3724 rows.

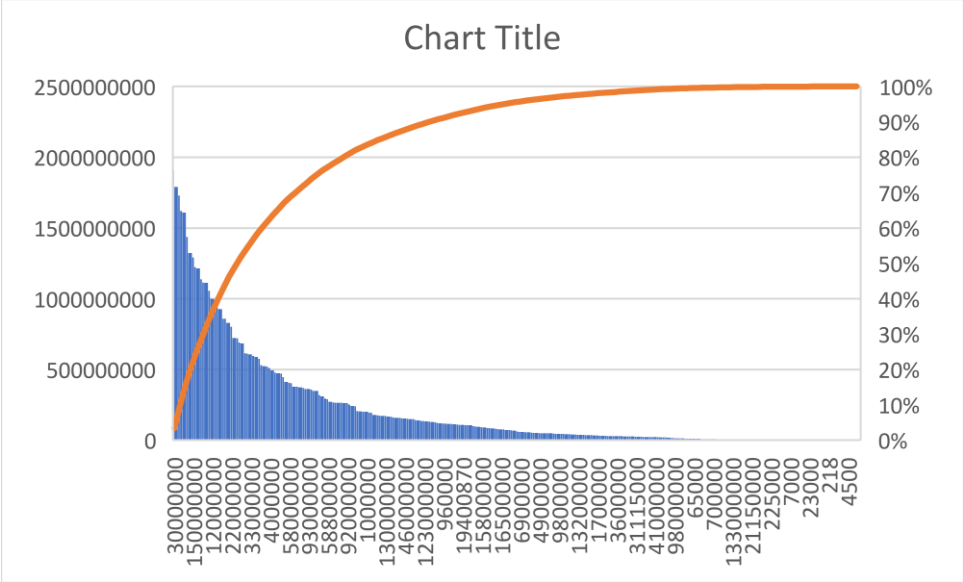
To Check Whether Empty Cells Exists

- Select the entire column
- Press Ctrl+down
- If the pointer moves to the bottom last of the same column the empty cells does not exist.
- If it points to any empty cell in between again follow the process of deleting the empty rows
- I performed deleting the cells twice
- Then I checked until there is no empty cells by following these steps.

Alignment Of Data

- To align the entire column
- Click on to the select column
- Now in the home section select left align option.
- Performing this operation will let us to align the data properly.

B. **Movies with highest profit:** Create a new column called profit which contains the difference of the two columns: gross and budget. Sort the column using the profit column as reference. Plot profit (y-axis) vs budget (x- axis) and observe the outliers using the appropriate chart type.



C. **Top 250:** Create a new column IMDb_Top_250 and store the top 250 movies with the highest IMDb Rating (corresponding to the column: imdb_score). Also make sure that for all of these movies, the num_voted_users is greater than 25,000. Also add a Rank column containing the values 1 to 250 indicating the ranks of the corresponding films.

movie_title	**imdb_score**	RANK	num_voted_users
AvatarÂ	9.3	1	886204
Pirates of the Caribbean: At World's EndÂ	9.2	2	471220
SpectreÂ	9	3	275868
The Dark Knight RisesÂ	9	4	1144337
John CarterÂ	8.9	5	212204
Spider-Man 3Â	8.9	6	383056
TangledÂ	8.9	7	294810
Avengers: Age of UltronÂ	8.9	8	462669
Harry Potter and the Half-Blood PrinceÂ	8.8	9	321795
Batman v Superman: Dawn of JusticeÂ	8.8	10	371639
Superman ReturnsÂ	8.8	11	240396
Quantum of SolaceÂ	8.8	12	330784
Pirates of the Caribbean: Dead Man's ChestÂ	8.8	13	522040

The Lone RangerÂ	8.7	14	181792
Man of SteelÂ	8.7	15	548573
The Chronicles of Narnia: Prince CaspianÂ	8.7	16	149922
The AvengersÂ	8.7	17	995415
Pirates of the Caribbean: On Stranger TidesÂ	8.7	18	370704
Men in Black 3Â	8.7	19	268154
The Hobbit: The Battle of the Five ArmiesÂ	8.7	20	354228
The Amazing Spider-ManÂ	8.6	21	451803
Robin HoodÂ	8.6	22	211765
The Hobbit: The Desolation of SmaugÂ	8.6	23	483540
The Golden CompassÂ	8.6	24	149019
King KongÂ	8.6	25	316018
TitanicÂ	8.6	26	793059
Captain America: Civil WarÂ	8.6	27	272670
BattleshipÂ	8.6	28	202382
Jurassic WorldÂ	8.5	29	418214
SkyfallÂ	8.5	30	522030
Spider-Man 2Â	8.5	31	411164
Iron Man 3Â	8.5	32	557489
Alice in WonderlandÂ	8.5	33	306320
X-Men: The Last StandÂ	8.5	34	383427
Monsters UniversityÂ	8.5	35	235025
Transformers: Revenge of the FallenÂ	8.5	36	323207
Transformers: Age of ExtinctionÂ	8.5	37	242420
Oz the Great and PowerfulÂ	8.5	38	175409
The Amazing Spider-Man 2Â	8.5	39	321227
TRON: LegacyÂ	8.5	40	264183
Cars 2Â	8.5	41	101178
Green LanternÂ	8.5	42	223393
Toy Story 3Â	8.5	43	544884
Terminator SalvationÂ	8.5	44	286095
Furious 7Â	8.5	45	278232
World War ZÂ	8.5	46	465019
X-Men: Days of Future PastÂ	8.5	47	514125
Star Trek Into DarknessÂ	8.4	48	395573
Jack the Giant SlayerÂ	8.4	49	106416
The Great GatsbyÂ	8.4	50	362912
Prince of Persia: The Sands of TimeÂ	8.4	51	222403
Pacific RimÂ	8.4	52	381148
Transformers: Dark of the MoonÂ	8.4	53	326180
Indiana Jones and the Kingdom of the Crystal SkullÂ	8.4	54	333847
BraveÂ	8.4	55	273556
Star Trek BeyondÂ	8.4	56	53607
WALLÂ·EÂ	8.4	57	718837
Rush Hour 3Â	8.4	58	121084
2012Â	8.4	59	283418
A Christmas CarolÂ	8.4	60	72809

Jupiter AscendingÂ	8.4	61	139593
The Legend of TarzanÂ	8.3	62	42372
The Chronicles of Narnia: The Lion, the Witch and the WardrobeÂ	8.3	63	286506
X-Men: ApocalypseÂ	8.3	64	148379
The Dark KnightÂ	8.3	65	1676169
UpÂ	8.3	66	665575
Monsters vs. AliensÂ	8.3	67	114553
Iron ManÂ	8.3	68	696338
HugoÂ	8.3	69	245333
Wild Wild WestÂ	8.3	70	129601
The Mummy: Tomb of the Dragon EmperorÂ	8.3	71	117927
Suicide SquadÂ	8.3	72	118992
Evan AlmightyÂ	8.3	73	115099
Edge of TomorrowÂ	8.3	74	431620
WaterworldÂ	8.3	75	144337
G.I. Joe: The Rise of CobraÂ	8.3	76	174578
Inside OutÂ	8.3	77	345198
The Jungle BookÂ	8.3	78	106072
Iron Man 2Â	8.3	79	522371
Snow White and the HuntsmanÂ	8.3	80	228554
MaleficentÂ	8.3	81	252257
Dawn of the Planet of the ApesÂ	8.3	82	317542
47 RoninÂ	8.3	83	116994
Captain America: The Winter SoldierÂ	8.3	84	496749
Shrek Forever AfterÂ	8.3	85	138661
TomorrowlandÂ	8.2	86	128306
Big Hero 6Â	8.2	87	279093
Wreck-It RalphÂ	8.2	88	272534
The Polar ExpressÂ	8.2	89	120798
Independence Day: ResurgenceÂ	8.2	90	58137
How to Train Your DragonÂ	8.2	91	485430
Terminator 3: Rise of the MachinesÂ	8.2	92	305340
Guardians of the GalaxyÂ	8.2	93	682155
InterstellarÂ	8.2	94	928227
InceptionÂ	8.2	95	1468200
The Fast and the FuriousÂ	8.2	96	272223
The Curious Case of Benjamin ButtonÂ	8.2	97	459346
X-Men: First ClassÂ	8.2	98	518537
The Hunger Games: Mockingjay - Part 2Â	8.2	99	166137
The Sorcerer's ApprenticeÂ	8.2	100	124185
PoseidonÂ	8.2	101	82380
WarcraftÂ	8.2	103	211971
Terminator GenisysÂ	8.2	104	111609
The Chronicles of Narnia: The Voyage of the Dawn TreaderÂ	8.2	105	188457
Pearl HarborÂ	8.2	106	106446
TransformersÂ	8.2	107	254111

AlexanderÂ	8.2	108	513158
Harry Potter and the Order of the PhoenixÂ	8.2	109	138863
Harry Potter and the Goblet of FireÂ	8.1	110	355137
HancockÂ	8.1	111	385670
I Am LegendÂ	8.1	112	343648
Charlie and the Chocolate FactoryÂ	8.1	113	530870
RatatouilleÂ	8.1	114	320284
Batman BeginsÂ	8.1	115	473887
Madagascar: Escape 2 AfricaÂ	8.1	116	980946
Night at the Museum: Battle of the SmithsonianÂ	8.1	117	146019
X-Men Origins: WolverineÂ	8.1	118	130272
The Matrix RevolutionsÂ	8.1	119	361924
FrozenÂ	8.1	120	364948
The Matrix ReloadedÂ	8.1	121	421658
Thor: The Dark WorldÂ	8.1	122	421818
Mad Max: Fury RoadÂ	8.1	123	414070
Angels & DemonsÂ	8.1	124	552503
ThorÂ	8.1	125	207839
BoltÂ	8.1	126	536314
G-ForceÂ	8.1	127	146766
Wrath of the TitansÂ	8.1	128	33042
Dark ShadowsÂ	8.1	129	152826
Mission: Impossible - Rogue NationÂ	8.1	130	199039
The WolfmanÂ	8.1	131	232187
Bee MovieÂ	8.1	132	89442
Kung Fu Panda 2Â	8.1	133	105902
The Last AirbenderÂ	8.1	134	182718
Mission: Impossible IIIÂ	8.1	135	118951
White House DownÂ	8.1	136	256695
Flushed AwayÂ	8.1	137	164238
Mr. Peabody & ShermanÂ	8.1	139	85086
TroyÂ	8.1	140	39956
Madagascar 3: Europe's Most WantedÂ	8.1	141	47900
Die Another DayÂ	8.1	142	381672
GhostbustersÂ	8.1	143	119213
ArmageddonÂ	8.1	144	169914
Men in Black IIÂ	8.1	145	69757
BeowulfÂ	8.1	146	322395
Kung Fu Panda 3Â	8.1	147	270207
Mission: Impossible - Ghost ProtocolÂ	8.1	148	142440
Rise of the GuardiansÂ	8.1	149	64322
Fun with Dick and JaneÂ	8.1	150	365104
The Last SamuraiÂ	8.1	151	123553
Exodus: Gods and KingsÂ	8.1	152	110788
Star TrekÂ	8.1	153	317166
Spider-ManÂ	8.1	154	128682
How to Train Your Dragon 2Â	8.1	155	504419

Gods of EgyptÂ	8.1	156	544665
StealthÂ	8	157	221128
WatchmenÂ	8	158	51892
Lethal Weapon 4Â	8	159	45455
HulkÂ	8	160	392474
G.I. Joe: RetaliationÂ	8	161	127497
SaharaÂ	8	162	212106
Final Fantasy: The Spirits WithinÂ	8	163	146352
Captain America: The First AvengerÂ	8	164	77673
The World Is Not EnoughÂ	8	165	72259
Master and Commander: The Far Side of the WorldÂ	8	166	508818
The Twilight Saga: Breaking Dawn - Part 2Â	8	167	157519
Happy Feet 2Â	8	168	168207
The Incredible HulkÂ	8	169	185394
The RevenantÂ	8	170	32399
TurboÂ	8	171	326286
Penguins of MadagascarÂ	8	173	406020
The Bourne UltimatumÂ	8	174	62424
Kung Fu PandaÂ	8	175	183208
Ant-ManÂ	8	176	60230
The Hunger Games: Catching FireÂ	8	177	491077
HomeÂ	8	178	307029
War of the WorldsÂ	8	179	313866
Bad Boys IIÂ	8	180	498397
Puss in BootsÂ	8	181	70121
SaltÂ	8	182	334345
NoahÂ	8	183	178126
The Adventures of TintinÂ	8	184	114287
Harry Potter and the Prisoner of AzkabanÂ	8	185	245621
AustraliaÂ	8	186	200022
After EarthÂ	8	187	177383
DinosaurÂ	8	188	382255
Night at the Museum: Secret of the TombÂ	8	189	102338
MegamindÂ	8	190	158720
Harry Potter and the Sorcerer's StoneÂ	8	191	38438
R.I.P.D.Â	8	192	67223
Pirates of the Caribbean: The Curse of the Black PearlÂ	8	193	172754
The Hunger Games: Mockingjay - Part 1Â	8	194	444683
The Da Vinci CodeÂ	8	195	91640
Rio 2Â	8	196	809474
X-Men 2Â	8	197	305008
Fast FiveÂ	8	198	314253
Sherlock Holmes: A Game of ShadowsÂ	8	199	58498
Clash of the TitansÂ	8	200	405973
Total RecallÂ	8	201	284792
The 13th WarriorÂ	8	202	338635
The Bourne LegacyÂ	8	203	229679

Batman & RobinÂ	8	204	240241
How the Grinch Stole ChristmasÂ	8	205	101411
The Day After TomorrowÂ	8	206	229823
Mission: Impossible IIÂ	8	207	189855
The Perfect StormÂ	8	208	141414
Fantastic 4: Rise of the Silver SurferÂ	8	209	333248
Life of PiÂ	8	210	242188
Ghost RiderÂ	7.9	211	133076
Jason BourneÂ	7.9	212	213275
Charlie's Angels: Full ThrottleÂ	7.9	213	440084
PrometheusÂ	7.9	214	182661
Stuart Little 2Â	7.9	215	40123
ElysiumÂ	7.9	216	100821
The Chronicles of RiddickÂ	7.9	217	456260
RoboCopÂ	7.9	218	36471
Speed RacerÂ	7.9	219	338087
How Do You KnowÂ	7.9	220	183909
Knight and DayÂ	7.9	221	182899
OblivionÂ	7.9	222	57873
Star Wars: Episode III - Revenge of the SithÂ	7.9	223	35066
Star Wars: Episode II - Attack of the ClonesÂ	7.9	224	148280
Monsters, Inc.Â	7.9	225	387436
The WolverineÂ	7.9	226	520104
Star Wars: Episode I - The Phantom MenaceÂ	7.9	227	464310
The CroodsÂ	7.9	228	585659
WindtalkersÂ	7.9	229	328067
The Huntsman: Winter's WarÂ	7.9	230	534658
Teenage Mutant Ninja TurtlesÂ	7.9	231	150618
GravityÂ	7.9	232	55994
Dante's PeakÂ	7.9	233	37750
Fantastic FourÂ	7.9	234	167085
Night at the MuseumÂ	7.9	235	582917
San AndreasÂ	7.9	236	62271
Tomorrow Never DiesÂ	7.9	237	110486
The PatriotÂ	7.9	238	234480
Ocean's TwelveÂ	7.9	239	147497
Mr. & Mrs. SmithÂ	7.9	240	149680
InsurgentÂ	7.9	241	207613
The AviatorÂ	7.9	242	284852
Gulliver's TravelsÂ	7.9	243	348861
The Green HornetÂ	7.9	244	154621
300: Rise of an EmpireÂ	7.9	245	264318
The SmurfsÂ	7.9	246	53160
AllegiantÂ	7.9	247	136019
Real SteelÂ	7.9	248	225273
The Smurfs 2Â	7.9	249	66593
Ender's GameÂ	7.9	250	44296

Extract all the movies in the IMDb_Top_250 column which are not in the English language and store them in a new column named Top_Foreign_Lang_Film. You can use your own imagination also!

Rank	language	movie_title
1	Mandarin	The Flowers of WarÂ
2	Aboriginal	The InterpreterÂ
3	Spanish	The Legend of ZorroÂ
4	French	OceansÂ
5	Mandarin	Dragon BladeÂ
6	Filipino	The Great RaidÂ
7	French	A Very Long EngagementÂ
8	Mandarin	Curse of the GoldenFlowerÂ
9	Mandarin	HeroÂ
10	French	MicmacsÂ
11	Maya	ApocalyptoÂ
12	French	AmÃ©lieÂ
13	Mandarin	The WarlordsÂ
14	Kazakh	Nomad: The WarriorÂ
15	Mandarin	Red CliffÂ
16	Mandarin	The GrandmasterÂ
17	Cantonese	Ip Man 3Â
18	language	movie_title
19	Mandarin	The Flowers of WarÂ
20	Aboriginal	The InterpreterÂ
21	Spanish	The Legend of ZorroÂ
22	French	OceansÂ
23	Mandarin	Dragon BladeÂ
24	Filipino	The Great RaidÂ
25	French	A Very Long EngagementÂ
26	Mandarin	Curse of the GoldenFlowerÂ
27	Mandarin	HeroÂ
28	French	MicmacsÂ
29	Maya	ApocalyptoÂ
30	French	AmÃ©lieÂ
31	Mandarin	The WarlordsÂ
32	Kazakh	Nomad: The WarriorÂ
33	Mandarin	Red CliffÂ
34	Mandarin	The GrandmasterÂ
35	Cantonese	Ip Man 3Â
36	language	movie_title
37	Mandarin	The Flowers of WarÂ
38	Aboriginal	The InterpreterÂ

39	Spanish	The Legend of ZorroÂ
40	French	OceansÂ
41	Mandarin	Dragon BladeÂ
42	language	movie_title
43	Mandarin	The Flowers of WarÂ

D. **Best Directors:** TGroup the column using the director_name column.

Finding out the top 10 directors for whom the mean of imdb_score is the highest and store them in a new column top10director. In case of a tie in IMDb score between two directors, sort them alphabetically.

director_name	imdb_score
Christopher Nolan	9
Christopher Nolan	8.8
David Fincher	8.8
Francis Ford Coppola	9
Francis Ford Coppola	9.2
Frank Darabont	9.3
Irvin Kershner	8.8
Peter Jackson	8.8
Peter Jackson	8.9
Quentin Tarantino	8.9
Robert Zemeckis	8.8
Sergio Leone	8.9
Steven Spielberg	8.9

E. **Popular Genres:** Perform this step using the knowledge gained while performing previous steps.

genres
Action|Crime|Drama|Thriller
Action|Adventure|Sci-Fi|Thriller
Action|Adventure|Drama|Fantasy
Action|Adventure|Drama|Fantasy
Action|Sci-Fi
Drama
Comedy|Drama

Crime|Drama|Sci-Fi
Crime|Drama
Crime|Drama|Thriller

F. **Charts:** Create three new columns namely, Meryl_Streep, Leo_Caprio, and Brad_Pitt which contain the movies in which the actors: 'Meryl Streep', 'Leonardo DiCaprio', and 'Brad Pitt' are the lead actors. Use only the actor_1_name column for extraction. Also, make sure that you use the names 'Meryl Streep', 'Leonardo DiCaprio', and 'Brad Pitt' for the said extraction.

Meryl_Streep	Leo_Caprio	Brad_Pitt
It's ComplicatedÂ	TitanicÂ	The Curious Case of Benjamin ButtonÂ
The River WildÂ	The Great GatsbyÂ	TroyÂ
Julie & JuliaÂ	InceptionÂ	Ocean's TwelveÂ
The Devil Wears PradaÂ	The RevenantÂ	Mr. & Mrs. SmithÂ
Lions for LambsÂ	The AviatorÂ	Spy GameÂ
Out of AfricaÂ	Django UnchainedÂ	Ocean's ElevenÂ
Hope SpringsÂ	Blood DiamondÂ	FuryÂ
One True ThingÂ	The Wolf of Wall StreetÂ	Seven Years in TibetÂ
The HoursÂ	Gangs of New YorkÂ	Fight ClubÂ
The Iron LadyÂ	The DepartedÂ	Sinbad: Legend of the Seven SeasÂ
A Prairie Home CompanionÂ	Shutter IslandÂ	Interview with the Vampire: The Vampire ChroniclesÂ
	Body of LiesÂ	The Tree of LifeÂ
	Catch Me If You CanÂ	The Assassination of Jesse James by the Coward Robert FordÂ
	The BeachÂ	BabelÂ
	Revolutionary RoadÂ	By the SeaÂ
	The Man in the Iron MaskÂ	Killing Them SoftlyÂ
	J. EdgarÂ	True RomanceÂ
	The Quick and the DeadÂ	
	Marvin's RoomÂ	
	Romeo + JulietÂ	
	The Great GatsbyÂ	

Append the rows of all these columns and store them in a new column named Combined.

Group the combined column using the actor_1_name column.

ACTOR	COMBINED
Meryl_Streep	It's ComplicatedÂ
Meryl_Streep	The River WildÂ
Meryl_Streep	Julie & JuliaÂ
Meryl_Streep	The Devil Wears PradaÂ
Meryl_Streep	Lions for LambsÂ
Meryl_Streep	Out of AfricaÂ
Meryl_Streep	Hope SpringsÂ
Meryl_Streep	One True ThingÂ
Meryl_Streep	The HoursÂ
Meryl_Streep	The Iron LadyÂ
Meryl_Streep	A Prairie Home CompanionÂ
Leo_Caprio	TitanicÂ
Leo_Caprio	The Great GatsbyÂ
Leo_Caprio	InceptionÂ
Leo_Caprio	The RevenantÂ
Leo_Caprio	The AviatorÂ
Leo_Caprio	Django UnchainedÂ
Leo_Caprio	Blood DiamondÂ
Leo_Caprio	The Wolf of Wall StreetÂ
Leo_Caprio	Gangs of New YorkÂ
Leo_Caprio	The DepartedÂ
Leo_Caprio	Shutter IslandÂ
Leo_Caprio	Body of LiesÂ
Leo_Caprio	Catch Me If You CanÂ
Leo_Caprio	The BeachÂ
Leo_Caprio	Revolutionary RoadÂ
Leo_Caprio	The Man in the Iron MaskÂ
Leo_Caprio	J. EdgarÂ
Leo_Caprio	The Quick and the DeadÂ
Leo_Caprio	Marvin's RoomÂ
Leo_Caprio	Romeo + JulietÂ
Leo_Caprio	The Great GatsbyÂ
Brad_Pitt	The Curious Case of Benjamin ButtonÂ
Brad_Pitt	TroyÂ
Brad_Pitt	Ocean's TwelveÂ
Brad_Pitt	Mr. & Mrs. SmithÂ
Brad_Pitt	Spy GameÂ
Brad_Pitt	Ocean's ElevenÂ
Brad_Pitt	FuryÂ
Brad_Pitt	Seven Years in TibetÂ

Brad_Pitt	Fight ClubÂ
Brad_Pitt	Sinbad: Legend of the Seven SeasÂ
Brad_Pitt	Interview with the Vampire: The Vampire ChroniclesÂ
Brad_Pitt	The Tree of LifeÂ
Brad_Pitt	The Assassination of Jesse James by the Coward Robert FordÂ
Brad_Pitt	BabelÂ
Brad_Pitt	By the SeaÂ
Brad_Pitt	Killing Them SoftlyÂ
Brad_Pitt	True RomanceÂ

Find the mean of the num_critic_for_reviews and num_users_for_review and identify the actors which have the highest mean.

G. **num_critic_for_reviews**

MEAN MERYL STREEP - 181.4545

MEAN Leo_Caprio - 330.1905

MEAN Brad_Pitt - 245

H. num_users_for_review

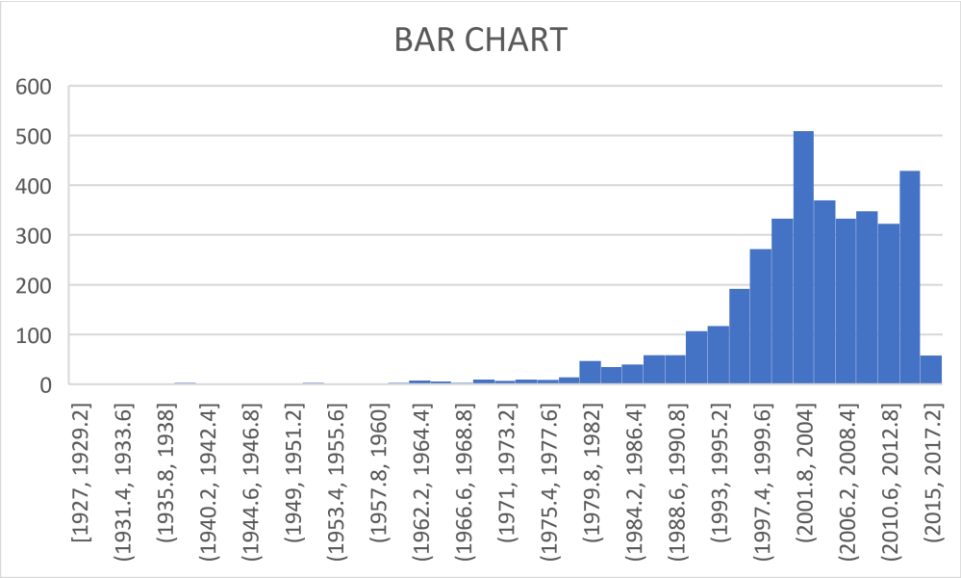
MEAN MERYL STREEP- 297.1818

MEAN Leo_Caprio- 914.4762

MEAN Brad_Pitt - 742.3529

Observe the change in number of voted users over decades using a bar chart. Create a column called decade which represents the decade to which every movie belongs to. For example, the title_year year 1923, 1925 should be stored as 1920s. Sort the column based on the column decade, group it by decade and

find the sum of users voted in each decade. Store this in a new data frame called df_by_decade.



The critic-favorite and audience-favorite actor is Leo_Caprio!