In [80]:
```
#Simple Recommenders simple recommenders are basic systems that rec
ommends the top items based on
#a certain metric or score.

#Conisdering Movie rating as a metric to recomment the top movies:
#However, it does not take into consideration the popularity of a m
ovie.
#Thus, a movie with a rating of 9 from 5 voters will be considered
'better' than a movie with a rating of
#8.8 from 10,000 voters i.e this metric  favors movies with smaller
number of voters with skewed
#or extremely high ratings.Since as the number of voters increase,
the rating of a movie regularizes
#and approaches towards a value that reflects the movie's quality.

#weighted rating : To avoid the above shortcomings, we'll use the w
eighted raing formula as a metric/score which is
# often used by IMDB. Mathematically, it is represented as follows:
#Weighted Rating (WR) = (v/v+m).R+(m/v+m).C
#where
#v is the number of votes for the movie;
#m is the minimum votes required to be listed in the chart;
#R is the average rating of the movie
#C is the mean vote across the whole report



#There is no right value for m. You can view it as a preliminary ne
gative filter that ignores movies
#which have less than a certain number of votes. The selectivity of
your filter is up to your discretion.
```

In [81]:
```
import pandas as pd
import numpy as np
import warnings
warnings.filterwarnings('ignore')
```

In [82]:
```
#Reading movies data
movies=pd.read_csv("movies.csv")
```

In [83]:
```
movies.head()
```

Out[83]:

	movieId	title	genres
0	1	Toy Story (1995)	Adventure|Animation|Children|Comedy|Fantasy
1	2	Jumanji (1995)	Adventure|Children|Fantasy
2	3	Grumpier Old Men (1995)	Comedy|Romance
3	4	Waiting to Exhale (1995)	Comedy|Drama|Romance
4	5	Father of the Bride Part II (1995)	Comedy

In [84]:
```
ratings=pd.read_csv("ratings.csv")
```

In [85]:
```
ratings.head()
```

Out[85]:

	userId	movieId	rating	timestamp
0	1	1	4.0	964982703
1	1	3	4.0	964981247
2	1	6	4.0	964982224
3	1	47	5.0	964983815
4	1	50	5.0	964982931

In [86]:
```
#C is the mean vote across the whole report
c=ratings.rating.mean()
```

In [112]:
```
#v is the number of votes for the movie
v=ratings.groupby('movieId').size()
v.head()
```

Out[112]:
```
Int64Index([     1,      2,      3,      4,      5,      6,      7
,      8,
                 9,     10,
            ...
            193565, 193567, 193571, 193573, 193579, 193581, 193583
, 193585,
            193587, 193609],
           dtype='int64', name='movieId', length=9724)
```

In [88]:
```
#m is the minimum votes required to be listed in the chart. Let m b
e in the 90th percentile.
m=v.quantile(0.90)
print(m)
```

```
27.0
```

In [89]:
```
#R is the average rating of the movie
r=ratings.groupby('movieId')['rating'].mean()
r.head()
```

Out[89]:
```
movieId
1    3.920930
2    3.431818
3    3.259615
4    2.357143
5    3.071429
Name: rating, dtype: float64
```

In [125]:
```
def weighted_rating(x,averageV=r,countV=v, m=m, C=c):

    v = countV[x.movieId]
    R = averageV[x.movieId]
    # Calculation based on the IMDB formula
    return (v/(v+m) * R) + (m/(m+v) * C)
```

In [127]:
```
movies['score']=movies.apply(weighted_rating,axis=1)
```

In [132]:
```
movies.head()
```

Out[132]:

	movieId	title	genres	score
0	1	Toy Story (1995)	Adventure|Animation|Children|Comedy|Fantasy	3.874141
1	2	Jumanji (1995)	Adventure|Children|Fantasy	3.445562
2	3	Grumpier Old Men (1995)	Comedy|Romance	3.342304
3	4	Waiting to Exhale (1995)	Comedy|Drama|Romance	3.265942
4	5	Father of the Bride Part II (1995)	Comedy	3.224237

In [135]:
```
movies.sort_values(['score'],ascending=False,inplace=True)
```

In [137]:
```
movies.head(10)
```

Out[137]:

	movieId	title	genres	score
277	318	Shawshank Redemption, The (1994)	Crime|Drama	4.356227
659	858	Godfather, The (1972)	Crime|Drama	4.191973
2226	2959	Fight Club (1999)	Action|Crime|Drama|Thriller	4.187927
224	260	Star Wars: Episode IV - A New Hope (1977)	Action|Adventure|Sci-Fi	4.160223
46	50	Usual Suspects, The (1995)	Crime|Mystery|Thriller	4.151697
461	527	Schindler's List (1993)	Drama|War	4.145919
257	296	Pulp Fiction (1994)	Comedy|Crime|Drama|Thriller	4.140844
898	1196	Star Wars: Episode V - The Empire Strikes Back...	Action|Adventure|Sci-Fi	4.134630
1939	2571	Matrix, The (1999)	Action|Sci-Fi|Thriller	4.131285
922	1221	Godfather: Part II, The (1974)	Crime|Drama	4.128475

In [ ]:
```

```