In [6]:
```
import pandas as pd
from scipy.sparse import csr_matrix
from sklearn.neighbors import NearestNeighbors
from fuzzywuzzy import process
```

In [2]:
```
!pip install python-Levenshtein
```

```
Collecting python-Levenshtein
  Downloading python_Levenshtein-0.20.5-py3-none-any.whl (9.4 kB)
Collecting Levenshtein==0.20.5
  Downloading Levenshtein-0.20.5-cp39-cp39-win_amd64.whl (98 kB)
     ---------------------------------------- 98.5/98.5 kB 156.8 kB/s eta 0:00:00
Collecting rapidfuzz<3.0.0,>=2.3.0
  Downloading rapidfuzz-2.11.1-cp39-cp39-win_amd64.whl (993 kB)
     ---------------------------------------- 993.6/993.6 kB 243.0 kB/s eta 0:00:00
Installing collected packages: rapidfuzz, Levenshtein, python-Levenshtein
Successfully installed Levenshtein-0.20.5 python-Levenshtein-0.20.5 rapidfuzz-2.11.1

[notice] A new release of pip available: 22.1.2 -> 22.2.2
[notice] To update, run: python.exe -m pip install --upgrade pip
```

In [5]:
```
!pip install --upgrade pip
```

```
Requirement already satisfied: pip in c:\users\kmiyienda\appdata\local\programs\python\python39\lib\site-packages (22.1.2)
Collecting pip
  Downloading pip-22.2.2-py3-none-any.whl (2.0 MB)
     ---------------------------------------- 2.0/2.0 MB 1.8 MB/s eta 0:00:00

[notice] A new release of pip available: 22.1.2 -> 22.2.2
[notice] To update, run: python.exe -m pip install --upgrade pip
ERROR: To modify pip, please run the following command:
c:\users\kmiyienda\appdata\local\programs\python\python39\python.exe -m pip install --upgrade pip
```

In [7]:
```
#importing files in .csv

movies='movies.csv'
ratings='ratings.csv'

df_movies=pd.read_csv(movies, usecols=['movieId','title'], dtype={'movieId':'int32','title':'str'})
df_ratings=pd.read_csv(ratings, usecols=['userId','movieId','rating'],dtype={'userId':'int32','movieId':'int32','rating':'float32'})
```

In [8]:
```
#checking to see if the files imported correctly

df_movies.head()
```

Out[8]:

	movieId	title
0	1	Toy Story (1995)
1	2	Jumanji (1995)
2	3	Grumpier Old Men (1995)
3	4	Waiting to Exhale (1995)
4	5	Father of the Bride Part II (1995)

In [9]:
```
#checking to see if the files imported correctly

df_ratings.head()
```

Out[9]:

	userId	movieId	rating
0	1	1	4.0
1	1	3	4.0
2	1	6	4.0
3	1	47	5.0
4	1	50	5.0

In [17]:
```
#sorting the data into a sparse matrix

movies_users=df_ratings.pivot(index='movieId', columns='userId',values='rating').fillna(0)

mat_movies_users=csr_matrix(movies_users.values)
```

In [11]:
```
#invoking KNN and passing it various parameteres

model_knn= NearestNeighbors(metric='cosine', algorithm='brute', n_neighbors=20)
```

In [12]:
```
model_knn.fit(mat_movies_users)
```

Out[12]:
```
NearestNeighbors(algorithm='brute', metric='cosine', n_neighbors=20)
```

In [23]:
```
#recommender function

def recommender(movie_name, data,model, n_recommendations ):
    model.fit(data)
    idx=process.extractOne(movie_name, df_movies['title'])[2]

    print('Movie Selected: ',df_movies['title'][idx], 'Index: ',idx)
    print('Here are your recommendations...')
    distances, indices=model.kneighbors(data[idx], n_neighbors=n_recommendations)

    for i in indices:
        print(df_movies['title'][i].where(i!=idx))



recommender('Independence Day', mat_movies_users, model_knn,20)
```

```
Movie Selected:  Independence Day (a.k.a. ID4) (1996) Index:  615
Here are your recommendations...
615                                             NaN
546                          Mission: Impossible (1996)
418                                Jurassic Park (1993)
594                                     Twister (1996)
910     Once Upon a Time in the West (C'era una volta ...
507                   Terminator 2: Judgment Day (1991)
224             Star Wars: Episode IV - A New Hope (1977)
0                                     Toy Story (1995)
592                                     Rock, The (1996)
31              Twelve Monkeys (a.k.a. 12 Monkeys) (1995)
938                                   Local Hero (1983)
314                                 Forrest Gump (1994)
897                 Cheech and Chong's Up in Smoke (1978)
97                                    Braveheart (1995)
334                                        Speed (1994)
1182                                        Fall (1997)
1575                            Outsiders, The (1983)
968                          Arsenic and Old Lace (1944)
509                                       Batman (1989)
337                                    True Lies (1994)
Name: title, dtype: object
```