In [2]:
```python
import numpy as np
```

In [3]:
```python
import pandas as pd
```

In [4]:
```python
import difflib
```

In [5]:
```python
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.metrics.pairwise import cosine_similarity
```

In [6]:
```python
# loading the data from the csv file to apandas dataframe
movies_data = pd.read_csv('D:\study\datasets\movies.csv')
```

In [6]:
```python
# first five rows of dataframe
movies_data.head()
```

Out[6]:

	index	budget	genres	homepage	id	keywords	original_language	original_title	overview	popu
0	0	237000000	Action Adventure Fantasy Science Fiction	http://www.avatarmovie.com/	19995	culture clash future space war space colony so...	en	Avatar	In the 22nd century, a paraplegic Marine is di...	150.43
1	1	300000000	Adventure Fantasy Action	http://disney.go.com/disneypictures/pirates/	285	ocean drug abuse exotic island east india trad...	en	Pirates of the Caribbean: At World's End	Captain Barbossa, long believed to be dead, ha...	139.08
2	2	245000000	Action Adventure Crime	http://www.sonypictures.com/movies/spectre/	206647	spy based on novel secret agent sequel mi6	en	Spectre	A cryptic message from Bond's past sends him o...	107.37
3	3	250000000	Action Crime Drama Thriller	http://www.thedarkknightrises.com/	49026	dc comics crime fighter terrorist secret ident...	en	The Dark Knight Rises	Following the death of District Attorney Harve...	112.31
4	4	260000000	Action Adventure Science Fiction	http://movies.disney.com/john-carter	49529	based on novel mars medallion space travel pri...	en	John Carter	John Carter is a war-weary, former military ca...	43.92

5 rows × 24 columns

In [8]:
```python
# number of rows and coloumns
movies_data.shape
```

Out[8]:
```
(4803, 24)
```

In [9]:
```python
# selecting the relevant features for recommendation

selected_features = ['genres','keywords','tagline','cast','director']
print(selected_features)
```

```
['genres', 'keywords', 'tagline', 'cast', 'director']
```

In [11]:
```python
# replacing null values
for feature in selected_features:
    movies_data[feature]=movies_data[feature].fillna('')
```

In [12]:
```python
# combining all the 5 selected features

combined_features = movies_data['genres']+' '+movies_data['keywords']+' '+movies_data['tagline']+' '+movies_dat
```

In [13]:
```python
print(combined_features)
```

```
0       Action Adventure Fantasy Science Fiction cultu...
1       Adventure Fantasy Action ocean drug abuse exot...
2       Action Adventure Crime spy based on novel secr...
3       Action Crime Drama Thriller dc comics crime fi...
4       Action Adventure Science Fiction based on nove...
                              ...
4798    Action Crime Thriller united states\u2013mexic...
4799    Comedy Romance  A newlywed couple's honeymoon ...
4800    Comedy Drama Romance TV Movie date love at fir...
4801      A New Yorker in Shanghai Daniel Henney Eliza...
4802    Documentary obsession camcorder crush dream gi...
Length: 4803, dtype: object
```

In [14]:
```
#converting text data into feature vector
vectorizer = TfidfVectorizer()
```

In [15]:
```
feature_vectors = vectorizer.fit_transform(combined_features)
```

In [16]:
```
print(feature_vectors)
```

```
  (0, 2432)     0.17272411194153
  (0, 7755)     0.1128035714854756
  (0, 13024)    0.1942362060108871
  (0, 10229)    0.16058685400095302
  (0, 8756)     0.22709015857011816
  (0, 14608)    0.15150672398763912
  (0, 16668)    0.19843263965100372
  (0, 14064)    0.20596090415084142
  (0, 13319)    0.2177470539412484
  (0, 17290)    0.20197912553916567
  (0, 17007)    0.23643326319898797
  (0, 13349)    0.15021264094167086
  (0, 11503)    0.27211310056983656
  (0, 11192)    0.09049319826481456
  (0, 16998)    0.1282126322850579
  (0, 15261)    0.07095833561276566
  (0, 4945)     0.24025852494110758
  (0, 14271)    0.21392179219912877
  (0, 3225)     0.24960162956997736
  (0, 16587)    0.12549432354918996
  (0, 14378)    0.33962752210959823
  (0, 5836)     0.1646750903586285
  (0, 3065)     0.22208377802661425
  (0, 3678)     0.21392179219912877
  (0, 5437)     0.1036413987316636
  :     :
  (4801, 17266) 0.2886098184932947
  (4801, 4835)  0.24713765026963996
  (4801, 403)   0.17727585190343226
  (4801, 6935)  0.2886098184932947
  (4801, 11663) 0.21557500762727902
  (4801, 1672)  0.1564793427630879
  (4801, 10929) 0.13504166990041588
  (4801, 7474)  0.11307961713172225
  (4801, 3796)  0.3342808988877418
  (4802, 6996)  0.5700048226105303
  (4802, 5367)  0.22969114490410403
  (4802, 3654)  0.262512960498006
  (4802, 2425)  0.24002350969074696
  (4802, 4608)  0.24002350969074696
  (4802, 6417)  0.21753405888348784
  (4802, 4371)  0.1538239182675544
  (4802, 12989) 0.1696476532191718
  (4802, 1316)  0.1960747079005741
  (4802, 4528)  0.19504460807622875
  (4802, 3436)  0.21753405888348784
  (4802, 6155)  0.18056463596934083
  (4802, 4980)  0.16078053641367315
  (4802, 2129)  0.3099656128577656
  (4802, 4518)  0.16784466610624255
  (4802, 11161) 0.17867407682173203
```

In [17]:
```
# similarity scores using cosine similarity
similarity = cosine_similarity(feature_vectors)
```

In [18]:
```
print(similarity)
```

```
[[1.         0.07219487 0.037733   ... 0.         0.         0.        ]
 [0.07219487 1.         0.03281499 ... 0.03575545 0.         0.        ]
 [0.037733   0.03281499 1.         ... 0.         0.05389661 0.        ]
 ...
 [0.         0.03575545 0.         ... 1.         0.         0.02651502]
 [0.         0.         0.05389661 ... 0.         1.         0.        ]
 [0.         0.         0.         ... 0.02651502 0.         1.        ]]
```

In [19]:
```
# getting movie name from the user
movie_name = input('enter your movie name : ')
```

```
enter your movie name : batman
```

In [21]:
```
#creating list with all movie names
list_of_all_titles = movies_data['title'].tolist()
```

In [23]:
```
# finding close match of movie
find_close_match = difflib.get_close_matches(movie_name, list_of_all_titles)
```

In [24]:
```
print(find_close_match)
```

```
['Batman', 'Batman', 'Catwoman']
```

In [27]:
```
close_match = find_close_match[0]
print(close_match)
```

```
Batman
```

In [30]:
```
# finding index of the movie with title
index_of_the_movie = movies_data[movies_data.title == close_match]['index'].values[0]
print(index_of_the_movie)
```

```
1359
```

In [44]:
```
# getting list of similar movies
similarity_score = list(enumerate(similarity[index_of_the_movie]))
```

In [45]:
```
# sorting movies based on similarity scores
sorted_similar_movies = sorted(similarity_score, key = lambda x:x[1], reverse=True)
```

In [42]:
```
print('Movies suggested for you : \n')

i = 1

for movie in sorted_similar_movies:
  index = movie[0]
  title_from_index = movies_data[movies_data.index==index]['title'].values[0]
  if (i<30):
    print(i, '.',title_from_index)
    i+=1
```

```
Movies suggested for you :

1 . Batman
2 . Batman Returns
3 . Batman & Robin
4 . The Dark Knight Rises
5 . Batman Begins
6 . The Dark Knight
7 . A History of Violence
8 . Superman
9 . Beetlejuice
10 . Bedazzled
11 . Mars Attacks!
12 . The Sentinel
13 . Planet of the Apes
14 . Man of Steel
15 . Suicide Squad
16 . The Mask
17 . Salton Sea
18 . Spider-Man 3
19 . The Postman Always Rings Twice
20 . Hang 'em High
21 . Spider-Man 2
22 . Dungeons & Dragons: Wrath of the Dragon God
23 . Superman Returns
24 . Jonah Hex
25 . Exorcist II: The Heretic
26 . Superman II
27 . Green Lantern
28 . Superman III
29 . Something's Gotta Give
```

Movies Recomendation System

In [43]:
```
movie_name = input(' Enter your favourite movie name : ')

list_of_all_titles = movies_data['title'].tolist()

find_close_match = difflib.get_close_matches(movie_name, list_of_all_titles)

close_match = find_close_match[0]

index_of_the_movie = movies_data[movies_data.title == close_match]['index'].values[0]

similarity_score = list(enumerate(similarity[index_of_the_movie]))
```

```python
sorted_similar_movies = sorted(similarity_score, key = lambda x:x[1], reverse = True)

print('Movies suggested for you : \n')

i = 1

for movie in sorted_similar_movies:
  index = movie[0]
  title_from_index = movies_data[movies_data.index==index]['title'].values[0]
  if (i<30):
    print(i, '.',title_from_index)
    i+=1
```

```
 Enter your favourite movie name : spiderman
Movies suggested for you :

1 . Spider-Man
2 . Spider-Man 3
3 . Spider-Man 2
4 . The Notebook
5 . Seabiscuit
6 . Clerks II
7 . The Ice Storm
8 . Oz: The Great and Powerful
9 . Horrible Bosses
10 . The Count of Monte Cristo
11 . In Good Company
12 . Finding Nemo
13 . Clear and Present Danger
14 . Brothers
15 . The Good German
16 . Drag Me to Hell
17 . Bambi
18 . The Queen
19 . Charly
20 . Escape from L.A.
21 . Daybreakers
22 . The Life Aquatic with Steve Zissou
23 . Labor Day
24 . Wimbledon
25 . Cold Mountain
26 . Hearts in Atlantis
27 . Out of the Furnace
28 . Bullets Over Broadway
29 . The Purge: Election Year
```

In [ ]:

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