

# Recommondation Systems

June 16, 2020

```
[58]: text=["London Paris London","Paris Paris London","vizag london hyderabad"]
```

```
[59]: print(text)
```

```
['London Paris London', 'Paris Paris London', 'vizag london hyderabad']
```

```
[60]: from sklearn.feature_extraction.text import CountVectorizer
```

```
[61]: cv=CountVectorizer()
```

```
[62]: count_matrix1=cv.fit_transform(text)
```

```
[63]: print(count_matrix1)
```

```
(0, 1)      2
(0, 2)      1
(1, 1)      1
(1, 2)      2
(2, 1)      1
(2, 3)      1
(2, 0)      1
```

```
[64]: type(count_matrix1)
```

```
[64]: scipy.sparse.csr.csr_matrix
```

```
[65]: from sklearn.metrics.pairwise import cosine_similarity
```

```
[66]: cos_similarity=cosine_similarity(count_matrix1)
```

```
[67]: print(cos_similarity)
```

```
[[1.         0.8         0.51639778]
 [0.8         1.         0.25819889]
 [0.51639778 0.25819889 1.         ]]
```

```
[68]: import pandas as pd
```

```
[69]: import numpy as np
```

```
[70]: df=pd.read_csv("https://raw.githubusercontent.com/codeheroku/
↳Introduction-to-Machine-Learning/master/
↳Building%20a%20Movie%20Recommendation%20Engine/movie_dataset.csv")
```

```
[71]: df.head(5)
```

```
[71]:
```

	index	budget	genres	\
0	0	237000000	Action Adventure Fantasy Science Fiction	
1	1	300000000	Adventure Fantasy Action	
2	2	245000000	Action Adventure Crime	
3	3	250000000	Action Crime Drama Thriller	
4	4	260000000	Action Adventure Science Fiction	

  

	homepage	id	\
0	http://www.avatarmovie.com/	19995	
1	http://disney.go.com/disneypictures/pirates/	285	
2	http://www.sonypictures.com/movies/spectre/	206647	
3	http://www.thedarkknightriserises.com/	49026	
4	http://movies.disney.com/john-carter	49529	

  

	keywords	original_language	\
0	culture clash future space war space colony so...	en	
1	ocean drug abuse exotic island east india trad...	en	
2	spy based on novel secret agent sequel mi6	en	
3	dc comics crime fighter terrorist secret ident...	en	
4	based on novel mars medallion space travel pri...	en	

  

	original_title	\
0	Avatar	
1	Pirates of the Caribbean: At World's End	
2	Spectre	
3	The Dark Knight Rises	
4	John Carter	

  

	overview	popularity	...	runtime	\
0	In the 22nd century, a paraplegic Marine is di...	150.437577	...	162.0	
1	Captain Barbossa, long believed to be dead, ha...	139.082615	...	169.0	
2	A cryptic message from Bond's past sends him o...	107.376788	...	148.0	
3	Following the death of District Attorney Harve...	112.312950	...	165.0	
4	John Carter is a war-weary, former military ca...	43.926995	...	132.0	

  

	spoken_languages	status	\
0	[{"iso_639_1": "en", "name": "English"}, {"iso...	Released	
1	[{"iso_639_1": "en", "name": "English"}]	Released	
2	[{"iso_639_1": "fr", "name": "Fran\u00e7ais"},...	Released	

```

3      [{"iso_639_1": "en", "name": "English"}] Released
4      [{"iso_639_1": "en", "name": "English"}] Released

```

```

                                tagline \
0      Enter the World of Pandora.
1  At the end of the world, the adventure begins.
2      A Plan No One Escapes
3      The Legend Ends
4      Lost in our world, found in another.

```

```

                                title vote_average vote_count \
0      Avatar                                7.2         11800
1  Pirates of the Caribbean: At World's End        6.9         4500
2      Spectre                                6.3         4466
3      The Dark Knight Rises                    7.6         9106
4      John Carter                            6.1         2124

```

```

                                cast \
0  Sam Worthington Zoe Saldana Sigourney Weaver S...
1  Johnny Depp Orlando Bloom Keira Knightley Stel...
2  Daniel Craig Christoph Waltz L\u00e9a Seydoux ...
3  Christian Bale Michael Caine Gary Oldman Anne ...
4  Taylor Kitsch Lynn Collins Samantha Morton Wil...

```

```

                                crew            director
0  [{'name': 'Stephen E. Rivkin', 'gender': 0, 'd...   James Cameron
1  [{'name': 'Dariusz Wolski', 'gender': 2, 'depa...   Gore Verbinski
2  [{'name': 'Thomas Newman', 'gender': 2, 'depar...   Sam Mendes
3  [{'name': 'Hans Zimmer', 'gender': 2, 'departm...   Christopher Nolan
4  [{'name': 'Andrew Stanton', 'gender': 2, 'depa...   Andrew Stanton

```

[5 rows x 24 columns]

[72]: df

```

[72]:      index  budget      genres \
0      0  237000000  Action Adventure Fantasy Science Fiction
1      1  300000000      Adventure Fantasy Action
2      2  245000000      Action Adventure Crime
3      3  250000000      Action Crime Drama Thriller
4      4  260000000      Action Adventure Science Fiction
...    ...    ...    ...
4798  4798    220000      Action Crime Thriller
4799  4799     9000      Comedy Romance
4800  4800      0      Comedy Drama Romance TV Movie
4801  4801      0      NaN
4802  4802      0      Documentary

```

	homepage	id \
0	http://www.avatarmovie.com/	19995
1	http://disney.go.com/disneypictures/pirates/	285
2	http://www.sonypictures.com/movies/spectre/	206647
3	http://www.thedarkknighttrises.com/	49026
4	http://movies.disney.com/john-carter	49529
...	...	...
4798	NaN	9367
4799	NaN	72766
4800	http://www.hallmarkchannel.com/signedsealeddel...	231617
4801	http://shanghaicalling.com/	126186
4802	NaN	25975

	keywords	original_language \
0	culture clash future space war space colony so...	en
1	ocean drug abuse exotic island east india trad...	en
2	spy based on novel secret agent sequel mi6	en
3	dc comics crime fighter terrorist secret ident...	en
4	based on novel mars medallion space travel pri...	en
...	...	...
4798	united states\u2013mexico barrier legs arms pa...	es
4799	NaN	en
4800	date love at first sight narration investigati...	en
4801	NaN	en
4802	obsession camcorder crush dream girl	en

	original_title \
0	Avatar
1	Pirates of the Caribbean: At World's End
2	Spectre
3	The Dark Knight Rises
4	John Carter
...	...
4798	El Mariachi
4799	Newlyweds
4800	Signed, Sealed, Delivered
4801	Shanghai Calling
4802	My Date with Drew

	overview	popularity ... \
0	In the 22nd century, a paraplegic Marine is di...	150.437577 ...
1	Captain Barbossa, long believed to be dead, ha...	139.082615 ...
2	A cryptic message from Bond's past sends him o...	107.376788 ...
3	Following the death of District Attorney Harve...	112.312950 ...
4	John Carter is a war-weary, former military ca...	43.926995 ...
...	...	...

4798	El Mariachi just wants to play his guitar and ...	14.269792	...
4799	A newlywed couple's honeymoon is upended by th...	0.642552	...
4800	"Signed, Sealed, Delivered" introduces a dedic...	1.444476	...
4801	When ambitious New York attorney Sam is sent t...	0.857008	...
4802	Ever since the second grade when he first saw ...	1.929883	...

	runtime	spoken_languages	status \
0	162.0	[{"iso_639_1": "en", "name": "English"}, {"iso...	Released
1	169.0	[{"iso_639_1": "en", "name": "English"}]	Released
2	148.0	[{"iso_639_1": "fr", "name": "Fran\u00e7ais"},...	Released
3	165.0	[{"iso_639_1": "en", "name": "English"}]	Released
4	132.0	[{"iso_639_1": "en", "name": "English"}]	Released
...	...	...	...
4798	81.0	[{"iso_639_1": "es", "name": "Espa\u00f1ol"}]	Released
4799	85.0	[]	Released
4800	120.0	[{"iso_639_1": "en", "name": "English"}]	Released
4801	98.0	[{"iso_639_1": "en", "name": "English"}]	Released
4802	90.0	[{"iso_639_1": "en", "name": "English"}]	Released

	tagline \
0	Enter the World of Pandora.
1	At the end of the world, the adventure begins.
2	A Plan No One Escapes
3	The Legend Ends
4	Lost in our world, found in another.
...	...
4798	He didn't come looking for trouble, but troubl...
4799	A newlywed couple's honeymoon is upended by th...
4800	NaN
4801	A New Yorker in Shanghai
4802	NaN

	title	vote_average	vote_count \
0	Avatar	7.2	11800
1	Pirates of the Caribbean: At World's End	6.9	4500
2	Spectre	6.3	4466
3	The Dark Knight Rises	7.6	9106
4	John Carter	6.1	2124
...	...	...	...
4798	El Mariachi	6.6	238
4799	Newlyweds	5.9	5
4800	Signed, Sealed, Delivered	7.0	6
4801	Shanghai Calling	5.7	7
4802	My Date with Drew	6.3	16

	cast \
0	Sam Worthington Zoe Saldana Sigourney Weaver S...

```

1   Johnny Depp Orlando Bloom Keira Knightley Stel...
2   Daniel Craig Christoph Waltz L\u00e9a Seydoux ...
3   Christian Bale Michael Caine Gary Oldman Anne ...
4   Taylor Kitsch Lynn Collins Samantha Morton Wil...
...
4798 Carlos Gallardo Jaime de Hoyos Peter Marquardt...
4799 Edward Burns Kerry Bish\u00e9 Marsha Dietlein ...
4800 Eric Mabiús Kristin Booth Crystal Lowe Geoff G...
4801 Daniel Henney Eliza Coupe Bill Paxton Alan Ruc...
4802 Drew Barrymore Brian Herzlinger Corey Feldman ...

```

		crew	director
0	[{'name': 'Stephen E. Rivkin', 'gender': 0, 'd...		James Cameron
1	[{'name': 'Dariusz Wolski', 'gender': 2, 'depa...		Gore Verbinski
2	[{'name': 'Thomas Newman', 'gender': 2, 'depar...		Sam Mendes
3	[{'name': 'Hans Zimmer', 'gender': 2, 'departm...	Christopher Nolan	
4	[{'name': 'Andrew Stanton', 'gender': 2, 'depa...	Andrew Stanton	
...	...	...	...
4798	[{'name': 'Robert Rodriguez', 'gender': 0, 'de...	Robert Rodriguez	
4799	[{'name': 'Edward Burns', 'gender': 2, 'depart...	Edward Burns	
4800	[{'name': 'Carla Hetland', 'gender': 0, 'depar...	Scott Smith	
4801	[{'name': 'Daniel Hsia', 'gender': 2, 'departm...	Daniel Hsia	
4802	[{'name': 'Clark Peterson', 'gender': 2, 'depa...	Brian Herzlinger	

[4803 rows x 24 columns]

```
[73]: df.info()
```

```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 4803 entries, 0 to 4802
Data columns (total 24 columns):
#   Column              Non-Null Count  Dtype
---  -
0   index               4803 non-null  int64
1   budget              4803 non-null  int64
2   genres              4775 non-null  object
3   homepage            1712 non-null  object
4   id                  4803 non-null  int64
5   keywords            4391 non-null  object
6   original_language   4803 non-null  object
7   original_title      4803 non-null  object
8   overview            4800 non-null  object
9   popularity          4803 non-null  float64
10  production_companies 4803 non-null  object
11  production_countries 4803 non-null  object
12  release_date        4802 non-null  object
13  revenue              4803 non-null  int64

```

```

14 runtime                4801 non-null float64
15 spoken_languages       4803 non-null object
16 status                 4803 non-null object
17 tagline                3959 non-null object
18 title                  4803 non-null object
19 vote_average           4803 non-null float64
20 vote_count             4803 non-null int64
21 cast                   4760 non-null object
22 crew                   4803 non-null object
23 director               4773 non-null object
dtypes: float64(3), int64(5), object(16)
memory usage: 900.7+ KB

```

```
[74]: df.genres
```

```

[74]: 0      Action Adventure Fantasy Science Fiction
      1      Adventure Fantasy Action
      2      Action Adventure Crime
      3      Action Crime Drama Thriller
      4      Action Adventure Science Fiction
      ...
      4798      Action Crime Thriller
      4799      Comedy Romance
      4800      Comedy Drama Romance TV Movie
      4801      NaN
      4802      Documentary
Name: genres, Length: 4803, dtype: object

```

```
[75]: df.keywords
```

```

[75]: 0      culture clash future space war space colony so...
      1      ocean drug abuse exotic island east india trad...
      2      spy based on novel secret agent sequel mi6
      3      dc comics crime fighter terrorist secret ident...
      4      based on novel mars medallion space travel pri...
      ...
      4798      united states\u2013mexico barrier legs arms pa...
      4799      NaN
      4800      date love at first sight narration investigati...
      4801      NaN
      4802      obsession camcorder crush dream girl
Name: keywords, Length: 4803, dtype: object

```

```
[76]: df.cast
```

```

[76]: 0      Sam Worthington Zoe Saldana Sigourney Weaver S...
      1      Johnny Depp Orlando Bloom Keira Knightley Stel...

```

```

2      Daniel Craig Christoph Waltz L\u00e9a Seydoux ...
3      Christian Bale Michael Caine Gary Oldman Anne ...
4      Taylor Kitsch Lynn Collins Samantha Morton Wil...

...

4798    Carlos Gallardo Jaime de Hoyos Peter Marquardt...
4799    Edward Burns Kerry Bish\u00e9 Marsha Dietlein ...
4800    Eric Mabiús Kristin Booth Crystal Lowe Geoff G...
4801    Daniel Henney Eliza Coupe Bill Paxton Alan Ruc...
4802    Drew Barrymore Brian Herzlinger Corey Feldman ...
Name: cast, Length: 4803, dtype: object

```

```
[77]: df.director
```

```

[77]: 0      James Cameron
      1      Gore Verbinski
      2      Sam Mendes
      3    Christopher Nolan
      4      Andrew Stanton

...

4798    Robert Rodriguez
4799      Edward Burns
4800      Scott Smith
4801      Daniel Hsia
4802    Brian Herzlinger
Name: director, Length: 4803, dtype: object

```

```
[78]: df.isnull()
```

```

[78]:   index  budget  genres  homepage    id  keywords  original_language  \
0   False   False   False    False  False    False             False
1   False   False   False    False  False    False             False
2   False   False   False    False  False    False             False
3   False   False   False    False  False    False             False
4   False   False   False    False  False    False             False
...   ...     ...     ...     ...     ...     ...             ...
4798  False   False   False     True  False    False             False
4799  False   False   False     True  False     True             False
4800  False   False   False    False  False    False             False
4801  False   False   True     False  False     True             False
4802  False   False   False     True  False    False             False

      original_title  overview  popularity  ...  runtime  spoken_languages  \
0             False    False    False  ...    False             False
1             False    False    False  ...    False             False
2             False    False    False  ...    False             False
3             False    False    False  ...    False             False
4             False    False    False  ...    False             False

```



...	...	...	...	...	...	...	...	...	...
4798	False	False	False	False	False	False	False	False	False
4799	False	False	False	False	False	False	False	False	False
4800	False	False	False	False	False	False	False	False	False
4801	False	False	False	False	False	False	False	False	False
4802	False	False	False	False	False	False	False	False	False

  

	status	tagline	title	vote_average	vote_count	cast	crew	director	
0	False	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False	False
...	...	...	...	...	...	...	...	...	...
4798	False	False	False	False	False	False	False	False	False
4799	False	False	False	False	False	False	False	False	False
4800	False	True	False	False	False	False	False	False	False
4801	False	False	False	False	False	False	False	False	False
4802	False	True	False	False	False	False	False	False	False

[4803 rows x 24 columns]

```
[79]: features=["keywords", "cast", "genres", "director"]
```

```
[80]: for feature in features:
      df[feature]=df[feature].fillna(" ")
      print(feature)
```

```
keywords
cast
genres
director
```

```
[81]: df.isnull()
```

```
[81]:
```

	index	budget	genres	homepage	id	keywords	original_language	\
0	False	False	False	False	False	False	False	
1	False	False	False	False	False	False	False	
2	False	False	False	False	False	False	False	
3	False	False	False	False	False	False	False	
4	False	False	False	False	False	False	False	
...	...	...	...	...	...	...	...	...
4798	False	False	False	True	False	False	False	
4799	False	False	False	True	False	False	False	
4800	False	False	False	False	False	False	False	
4801	False	False	False	False	False	False	False	
4802	False	False	False	True	False	False	False	

	original_title	overview	popularity	...	runtime	spoken_languages	\
0	False	False	False	...	False	False	
1	False	False	False	...	False	False	
2	False	False	False	...	False	False	
3	False	False	False	...	False	False	
4	False	False	False	...	False	False	
...	...	...	...	...	...	...	
4798	False	False	False	...	False	False	
4799	False	False	False	...	False	False	
4800	False	False	False	...	False	False	
4801	False	False	False	...	False	False	
4802	False	False	False	...	False	False	

  

	status	tagline	title	vote_average	vote_count	cast	crew	director
0	False	False	False	False	False	False	False	False
1	False	False	False	False	False	False	False	False
2	False	False	False	False	False	False	False	False
3	False	False	False	False	False	False	False	False
4	False	False	False	False	False	False	False	False
...	...	...	...	...	...	...	...	...
4798	False	False	False	False	False	False	False	False
4799	False	False	False	False	False	False	False	False
4800	False	True	False	False	False	False	False	False
4801	False	False	False	False	False	False	False	False
4802	False	True	False	False	False	False	False	False

[4803 rows x 24 columns]

```
[82]: df1=df["genres"]+" "+df["director"]+" "+df["cast"]+" "+df["keywords"]
```

```
[83]: df1
```

```
[83]: 0      Action Adventure Fantasy Science Fiction James...
      1      Adventure Fantasy Action Gore Verbinski Johnny...
      2      Action Adventure Crime Sam Mendes Daniel Craig...
      3      Action Crime Drama Thriller Christopher Nolan ...
      4      Action Adventure Science Fiction Andrew Stanto...
      ...
      4798     Action Crime Thriller Robert Rodriguez Carlos ...
      4799     Comedy Romance Edward Burns Edward Burns Kerry...
      4800     Comedy Drama Romance TV Movie Scott Smith Eric...
      4801      Daniel Hsia Daniel Henney Eliza Coupe Bill P...
      4802     Documentary Brian Herzlinger Drew Barrymore Br...
      Length: 4803, dtype: object
```

```
[84]: df1[0]
```

```
[84]: 'Action Adventure Fantasy Science Fiction James Cameron Sam Worthington Zoe  
Saldana Sigourney Weaver Stephen Lang Michelle Rodriguez culture clash future  
space war space colony society'
```

```
[85]: df["combined_features"]=df1
```

```
[86]: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 4803 entries, 0 to 4802  
Data columns (total 25 columns):  
#   Column                Non-Null Count  Dtype  
---  ---  
0   index                 4803 non-null   int64  
1   budget                4803 non-null   int64  
2   genres                4803 non-null   object  
3   homepage              1712 non-null   object  
4   id                    4803 non-null   int64  
5   keywords              4803 non-null   object  
6   original_language     4803 non-null   object  
7   original_title        4803 non-null   object  
8   overview              4800 non-null   object  
9   popularity            4803 non-null   float64  
10  production_companies  4803 non-null   object  
11  production_countries  4803 non-null   object  
12  release_date          4802 non-null   object  
13  revenue               4803 non-null   int64  
14  runtime               4801 non-null   float64  
15  spoken_languages      4803 non-null   object  
16  status                4803 non-null   object  
17  tagline               3959 non-null   object  
18  title                 4803 non-null   object  
19  vote_average          4803 non-null   float64  
20  vote_count            4803 non-null   int64  
21  cast                  4803 non-null   object  
22  crew                  4803 non-null   object  
23  director              4803 non-null   object  
24  combined_features     4803 non-null   object  
dtypes: float64(3), int64(5), object(17)  
memory usage: 938.2+ KB
```

```
[87]: df.combined_features
```

```
[87]: 0      Action Adventure Fantasy Science Fiction James...  
1      Adventure Fantasy Action Gore Verbinski Johnny...  
2      Action Adventure Crime Sam Mendes Daniel Craig...  
3      Action Crime Drama Thriller Christopher Nolan ...
```

```

4      Action Adventure Science Fiction Andrew Stanto...
...
4798   Action Crime Thriller Robert Rodriguez Carlos ...
4799   Comedy Romance Edward Burns Edward Burns Kerry...
4800   Comedy Drama Romance TV Movie Scott Smith Eric...
4801   Daniel Hsia Daniel Henney Eliza Coupe Bill P...
4802   Documentary Brian Herzlinger Drew Barrymore Br...
Name: combined_features, Length: 4803, dtype: object

```

```
[88]: cv1=CountVectorizer()
```

```
[89]: count_matrix=cv1.fit_transform(df["combined_features"])
```

```
[90]: print(count_matrix)
```

```

(0, 86)      1
(0, 144)     1
(0, 4435)    1
(0, 11745)   1
(0, 4566)    1
(0, 6542)    1
(0, 2061)    1
(0, 11517)   1
(0, 14561)   1
(0, 14820)   1
(0, 11490)   1
(0, 12134)   1
(0, 14291)   1
(0, 12567)   1
(0, 7496)    1
(0, 8831)    1
(0, 11217)   1
(0, 3115)    1
(0, 2616)    1
(0, 4886)    1
(0, 12386)   2
(0, 14235)   1
(0, 2755)    1
(0, 12299)   1
(1, 86)      1
:
:
(4801, 10069) 1
(4801, 5844)  1
(4801, 252)   1
(4801, 4098)  1
(4801, 14796) 1
(4801, 11361) 1

```

```
(4801, 6138) 1
(4801, 2978) 1
(4801, 12036) 1
(4802, 9659) 1
(4802, 3812) 1
(4802, 1788) 2
(4802, 4210) 1
(4802, 5181) 1
(4802, 2912) 1
(4802, 3821) 1
(4802, 1069) 1
(4802, 11185) 1
(4802, 3681) 1
(4802, 5399) 1
(4802, 3894) 1
(4802, 2056) 1
(4802, 3093) 1
(4802, 4502) 1
(4802, 5900) 2
```

```
[91]: count_matrix.shape
```

```
[91]: (4803, 14845)
```

```
[92]: cv1.vocabulary_["india"]
```

```
[92]: 6318
```

```
[93]: from sklearn.metrics.pairwise import cosine_similarity
similarity=cosine_similarity(count_matrix)
```

```
[94]: print(similarity)
```

```
[[1.          0.10540926 0.12038585 ... 0.          0.          0.          ]
 [0.10540926 1.          0.0761387  ... 0.03651484 0.          0.          ]
 [0.12038585 0.0761387  1.          ... 0.          0.11145564 0.          ]
 ...
 [0.          0.03651484 0.          ... 1.          0.          0.04264014]
 [0.          0.          0.11145564 ... 0.          1.          0.          ]
 [0.          0.          0.          ... 0.04264014 0.          1.          ]]
```

```
[95]: similarity.shape
```

```
[95]: (4803, 4803)
```

```
[121]: current_movie=input("Enter Movie Name")
```

```
Enter Movie NameAvatar
```

```
[122]: print(current_movie)
```

Avatar

```
[123]: df.title==current_movie
```

```
[123]: 0      True
      1     False
      2     False
      3     False
      4     False
      ...
     4798    False
     4799    False
     4800    False
     4801    False
     4802    False
      Name: title, Length: 4803, dtype: bool
```

```
[124]: df[df.title==current_movie]
```

```
[124]:   index  budget  genres \
0      0  237000000  Action Adventure Fantasy Science Fiction

      homepage  id \
0  http://www.avatarmovie.com/  19995

      keywords original_language \
0  culture clash future space war space colony so...  en

      original_title  overview \
0      Avatar  In the 22nd century, a paraplegic Marine is di...

      popularity ...  spoken_languages \
0  150.437577 ...  [{"iso_639_1": "en", "name": "English"}, {"iso...

      status  tagline  title  vote_average  vote_count \
0  Released  Enter the World of Pandora.  Avatar  7.2  11800

      cast \
0  Sam Worthington Zoe Saldana Sigourney Weaver S...

      crew  director \
0  [{'name': 'Stephen E. Rivkin', 'gender': 0, 'd...  James Cameron

      combined_features
0  Action Adventure Fantasy Science Fiction James...
```

```
[1 rows x 25 columns]
```

```
[125]: x=df[df.title==current_movie].values[0]
```

```
[126]: print(x[0])
```

```
0
```

```
[127]: index=x[0]
```

```
[128]: index
```

```
[128]: 0
```

```
[129]: similarity[index]
```

```
[129]: array([1.          , 0.10540926, 0.12038585, ..., 0.          , 0.          ,  
         0.          ])
```

```
[130]: similar_movies=list(enumerate(similarity[index]))
```

```
[131]: #print(similar_movies)
```

```
[132]: type(similar_movies)
```

```
[132]: list
```

```
[133]: len(similar_movies)
```

```
[133]: 4803
```

```
[134]: similar_movies[3337][1]
```

```
[134]: 0.036369648372665396
```

```
[135]: s=sorted(similar_movies,key=lambda x:x[1],reverse=True)
```

```
[136]: #print(s)
```

```
[137]: s[0:5]
```

```
[137]: [(0, 1.0000000000000004),  
      (94, 0.42339019740572564),  
      (2403, 0.3774256780481986),  
      (3208, 0.3464101615137755),  
      (47, 0.34426518632954817)]
```

```
[138]: sorted_movies=s[1:]
```

```
[139]: print(sorted_movies[0:5])
```

```
[(94, 0.42339019740572564), (2403, 0.3774256780481986), (3208,  
0.3464101615137755), (47, 0.34426518632954817), (56, 0.33596842045264647)]
```

```
[140]: for i in range(0,10):  
        movie_index=sorted_movies[i][0]  
        print(movie_index)  
        #print title of the movies  
        print(df["title"].loc[movie_index])
```

```
94  
Guardians of the Galaxy  
2403  
Aliens  
3208  
Star Wars: Clone Wars: Volume 1  
47  
Star Trek Into Darkness  
56  
Star Trek Beyond  
3158  
Alien  
2198  
Lockout  
2696  
Jason X  
4401  
The Helix... Loaded  
1531  
Moonraker
```

```
[ ]:
```

```
[ ]:
```

```
[ ]:
```

```
[ ]:
```