movierecommendatio

April 21, 2024

```python
[1]: import pandas as pd
```

```python
[3]: import numpy as np
```

```python
[5]: df = pd.read_csv(r'https://raw.githubusercontent.com/YBI-Foundation/Dataset/
     ↪main/Movies%20Recommendation.csv')
```

```python
[7]: df.head()
```

```
[7]:    Movie_ID      Movie_Title                          Movie_Genre Movie_Language  \
    0         1      Four Rooms                          Crime Comedy             en
    1         2      Star Wars   Adventure Action Science Fiction             en
    2         3    Finding Nemo                       Animation Family             en
    3         4    Forrest Gump                  Comedy Drama Romance             en
    4         5  American Beauty                                Drama             en

       Movie_Budget  Movie_Popularity Movie_Release_Date  Movie_Revenue  \
    0       4000000         22.876230         09-12-1995        4300000
    1      11000000        126.393695         25-05-1977      775398007
    2      94000000         85.688789         30-05-2003      940335536
    3      55000000        138.133331         06-07-1994      677945399
    4      15000000         80.878605         15-09-1999      356296601

       Movie_Runtime  Movie_Vote  …  \
    0           98.0         6.5  …
    1          121.0         8.1  …
    2          100.0         7.6  …
    3          142.0         8.2  …
    4          122.0         7.9  …

                                    Movie_Homepage  \
    0                                          NaN
    1  http://www.starwars.com/films/star-wars-episod…
    2            http://movies.disney.com/finding-nemo
    3                                          NaN
    4                http://www.dreamworks.com/ab/
```

```
                                Movie_Keywords  \
0          hotel new year's eve witch bet hotel room
1          android galaxy hermit death star lightsaber
2   father son relationship harbor underwater fish…
3   vietnam veteran hippie mentally disabled runni…
4   male nudity female nudity adultery midlife cri…

                                Movie_Overview  \
0   It's Ted the Bellhop's first night on the job…
1   Princess Leia is captured and held hostage by …
2   Nemo, an adventurous young clownfish, is unexp…
3   A man with a low IQ has accomplished great thi…
4   Lester Burnham, a depressed suburban father in…

                           Movie_Production_House  \
0   [{"name": "Miramax Films", "id": 14}, {"name":…
1   [{"name": "Lucasfilm", "id": 1}, {"name": "Twe…
2      [{"name": "Pixar Animation Studios", "id": 3}]
3          [{"name": "Paramount Pictures", "id": 4}]
4   [{"name": "DreamWorks SKG", "id": 27}, {"name"…

                          Movie_Production_Country  \
0   [{"iso_3166_1": "US", "name": "United States o…
1   [{"iso_3166_1": "US", "name": "United States o…
2   [{"iso_3166_1": "US", "name": "United States o…
3   [{"iso_3166_1": "US", "name": "United States o…
4   [{"iso_3166_1": "US", "name": "United States o…

                            Movie_Spoken_Language  \
0   [{"iso_639_1": "en", "name": "English"}]
1   [{"iso_639_1": "en", "name": "English"}]
2   [{"iso_639_1": "en", "name": "English"}]
3   [{"iso_639_1": "en", "name": "English"}]
4   [{"iso_639_1": "en", "name": "English"}]

                                 Movie_Tagline  \
0   Twelve outrageous guests. Four scandalous requ…
1       A long time ago in a galaxy far, far away…
2   There are 3.7 trillion fish in the ocean, they…
3   The world will never be the same, once you've …
4                                     Look closer.

                                    Movie_Cast  \
0   Tim Roth Antonio Banderas Jennifer Beals Madon…
1   Mark Hamill Harrison Ford Carrie Fisher Peter …
2   Albert Brooks Ellen DeGeneres Alexander Gould …
3   Tom Hanks Robin Wright Gary Sinise Mykelti Wil…
```

```
4  Kevin Spacey Annette Bening Thora Birch Wes Be…


                                       Movie_Crew    Movie_Director
0  [{'name': 'Allison Anders', 'gender': 1, 'depa…    Allison Anders
1  [{'name': 'George Lucas', 'gender': 2, 'depart…      George Lucas
2  [{'name': 'Andrew Stanton', 'gender': 2, 'depa…    Andrew Stanton
3  [{'name': 'Alan Silvestri', 'gender': 2, 'depa…  Robert Zemeckis
4  [{'name': 'Thomas Newman', 'gender': 2, 'depar…        Sam Mendes


[5 rows x 21 columns]
```

[9]: `df.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 4760 entries, 0 to 4759
Data columns (total 21 columns):
 #   Column                   Non-Null Count  Dtype
---  ------                   --------------  -----
 0   Movie_ID                 4760 non-null   int64
 1   Movie_Title              4760 non-null   object
 2   Movie_Genre              4760 non-null   object
 3   Movie_Language           4760 non-null   object
 4   Movie_Budget             4760 non-null   int64
 5   Movie_Popularity         4760 non-null   float64
 6   Movie_Release_Date       4760 non-null   object
 7   Movie_Revenue            4760 non-null   int64
 8   Movie_Runtime            4758 non-null   float64
 9   Movie_Vote              4760 non-null   float64
 10  Movie_Vote_Count         4760 non-null   int64
 11  Movie_Homepage           1699 non-null   object
 12  Movie_Keywords           4373 non-null   object
 13  Movie_Overview           4757 non-null   object
 14  Movie_Production_House   4760 non-null   object
 15  Movie_Production_Country 4760 non-null   object
 16  Movie_Spoken_Language    4760 non-null   object
 17  Movie_Tagline            3942 non-null   object
 18  Movie_Cast               4733 non-null   object
 19  Movie_Crew               4760 non-null   object
 20  Movie_Director           4738 non-null   object
dtypes: float64(3), int64(4), object(14)
memory usage: 781.1+ KB
```

[11]: `df.shape`

[11]: `(4760, 21)`

[13]: `df.columns`

```
[13]: Index(['Movie_ID', 'Movie_Title', 'Movie_Genre', 'Movie_Language',
           'Movie_Budget', 'Movie_Popularity', 'Movie_Release_Date',
           'Movie_Revenue', 'Movie_Runtime', 'Movie_Vote', 'Movie_Vote_Count',
           'Movie_Homepage', 'Movie_Keywords', 'Movie_Overview',
           'Movie_Production_House', 'Movie_Production_Country',
           'Movie_Spoken_Language', 'Movie_Tagline', 'Movie_Cast', 'Movie_Crew',
           'Movie_Director'],
          dtype='object')
```

```
[15]: df_features =␣
      ↪df[['Movie_Genre','Movie_Keywords','Movie_Tagline','Movie_Cast','Movie_Director']].
      ↪fillna('')
```

```
[17]: df_features.shape
```

```
[17]: (4760, 5)
```

```
[19]: df_features
```

```
[19]:                         Movie_Genre  \
      0                      Crime Comedy
      1      Adventure Action Science Fiction
      2                   Animation Family
      3              Comedy Drama Romance
      4                             Drama
      …                                 …
      4755                         Horror
      4756            Comedy Family Drama
      4757                 Thriller Drama
      4758                         Family
      4759                    Documentary

                                Movie_Keywords  \
      0          hotel new year's eve witch bet hotel room
      1            android galaxy hermit death star lightsaber
      2      father son relationship harbor underwater fish…
      3      vietnam veteran hippie mentally disabled runni…
      4      male nudity female nudity adultery midlife cri…
      …                                              …
      4755
      4756
      4757                christian film sex trafficking
      4758
      4759  music actors legendary perfomer classic hollyw…

                                 Movie_Tagline  \
      0      Twelve outrageous guests. Four scandalous requ…
```

```
1                    A long time ago in a galaxy far, far away…
2          There are 3.7 trillion fish in the ocean, they…
3          The world will never be the same, once you've …
4                                          Look closer.
…                                                      …
4755                    The hot spot where Satan's waitin'.
4756              It's better to stand out than to fit in.
4757              She never knew it could happen to her…
4758
4759


                                      Movie_Cast      Movie_Director
0       Tim Roth Antonio Banderas Jennifer Beals Madon…    Allison Anders
1       Mark Hamill Harrison Ford Carrie Fisher Peter …    George Lucas
2       Albert Brooks Ellen DeGeneres Alexander Gould …    Andrew Stanton
3       Tom Hanks Robin Wright Gary Sinise Mykelti Wil…    Robert Zemeckis
4       Kevin Spacey Annette Bening Thora Birch Wes Be…    Sam Mendes
…                                                  …                  …
4755  Lisa Hart Carroll Michael Des Barres Paul Drak…      Pece Dingo
4756  Roni Akurati Brighton Sharbino Jason Lee Anjul…      Frank Lotito
4757  Nicole Smolen Kim Baldwin Ariana Stephens Brys…      Jaco Booyens
4758
4759                              Tony Oppedisano  Simon Napier-Bell

[4760 rows x 5 columns]
```

[21]:
```
X =␣
 ↪df_features['Movie_Genre']+''+df_features['Movie_Keywords']+''+df_features['Movie_Tagline']
```

[37]:
```
X = tfidf.fit_transform(X)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[37], line 1
----> 1 X=tfidf.fit_transform(X)

NameError: name 'tfidf' is not defined
```

[25]:
```
X.shape
```

[25]: (4760,)

[29]:
```
from sklearn.feature_extraction.text import TfidfVectorizer
```

[35]:
```
tfidF = TfidfVectorizer()
```

```
[42]: X= tfidF.fit_transform(X)
```

```
[43]: X.shape
```

```
[43]: (4760, 27466)
```

```
[44]: print(X)
```

```
  (0, 1028)      0.16196019146631546
  (0, 24785)     0.19546329292837952
  (0, 15844)     0.14205053053187272
  (0, 15553)     0.17099186675469505
  (0, 2132)      0.18002354204307464
  (0, 13312)     0.09914387783149517
  (0, 1887)      0.14106037409792177
  (0, 1216)      0.13920306109638164
  (0, 21158)     0.14205053053187272
  (0, 24701)     0.11357423942624928
  (0, 14943)     0.09137672205683901
  (0, 18098)     0.062004306669857435
  (0, 26738)     0.175053052455033
  (0, 9790)      0.08712552095655667
  (0, 26675)     0.11168311687806931
  (0, 13401)     0.137488765292631
  (0, 24105)     0.10726395493180997
  (0, 18192)     0.07278761942152372
  (0, 6172)      0.11970212451073886
  (0, 9626)      0.11757910435818827
  (0, 11960)     0.20134029899961137
  (0, 12801)     0.1530338818199682
  (0, 2292)      0.19546329292837952
  (0, 15172)     0.15376917639949822
  (0, 18196)     0.08579029869987487
  :        :
  (4757, 1839)   0.1932762908310767
  (4757, 5410)   0.19734759150400596
  (4757, 11350)  0.21582294886514122
  (4757, 22017)  0.16464002479185308
  (4757, 17789)  0.18881341937258544
  (4757, 9484)   0.1411164779725638
  (4757, 14176)  0.23308319900458158
  (4757, 11762)  0.17321388936472645
  (4757, 14052)  0.17763123534100067
  (4757, 24232)  0.10947784435203887
  (4757, 24746)  0.09744940789814222
  (4757, 13079)  0.12400374714145113
  (4757, 17721)  0.1489085353667712
```

```
(4758, 8651)   1.0
(4759, 18229)  0.33527342183765224
(4759, 22434)  0.33527342183765224
(4759, 18841)  0.33527342183765224
(4759, 6950)   0.33527342183765224
(4759, 345)    0.3197816093674145
(4759, 14742)  0.3197816093674145
(4759, 12139)  0.2778063685558062
(4759, 4446)   0.2823065651549109
(4759, 17552)  0.30878999349628156
(4759, 9955)   0.21805075638656476
(4759, 2285)   0.21465229435984196
```

```python
[46]: from sklearn.metrics.pairwise import cosine_similarity
```

```python
[47]: Similarity_Score = cosine_similarity(X)
```

```python
[48]: Similarity_Score
```

```
[48]: array([[1.        , 0.01438634, 0.03807033, …, 0.        , 0.        ,
               0.        ],
              [0.01438634, 1.        , 0.00844858, …, 0.        , 0.        ,
               0.        ],
              [0.03807033, 0.00844858, 1.        , …, 0.        , 0.        ,
               0.        ],
              …,
              [0.        , 0.        , 0.        , …, 1.        , 0.        ,
               0.        ],
              [0.        , 0.        , 0.        , …, 0.        , 1.        ,
               0.        ],
              [0.        , 0.        , 0.        , …, 0.        , 0.        ,
               1.        ]])
```

```python
[49]: Similarity_Score.shape
```

```
[49]: (4760, 4760)
```

```python
[51]: Favourite_movie_Name = input ('Enter your favourite movie name : ')

      Enter your favourite movie name :  star wars
```

```python
[52]: all_movies_title_list = df['Movie_Title'].tolist()
```

```python
[53]: import difflib
```

```python
[54]: Movie_Recommendation = difflib.get_close_matches(Favourite_movie_Name,␣
      ↪all_movies_title_list)
```

```
print(Movie_Recommendation)
```

['Star Wars']

```
[57]: close_match = Movie_Recommendation[0]
      print(close_match)
```

Star Wars

```
[58]: Index = df[df.Movie_Title == close_match]['Movie_ID'].values[0]
      print(Index)
```

2

```
[63]: Recommendation_Score= list(enumerate(Similarity_Score[Index]))
      print(Recommendation_Score)
```

[(0, 0.03807032572268844), (1, 0.008448578680465578), (2, 1.0), (3,
0.007902788941810901), (4, 0.0), (5, 0.0), (6, 0.0), (7, 0.01041345918124358),
(8, 0.0), (9, 0.004343046097131075), (10, 0.01805370262105669), (11,
0.004793121024553407), (12, 0.005076187566359604), (13, 0.0), (14,
0.08557563690511474), (15, 0.0), (16, 0.0), (17, 0.0), (18,
0.004307583708046612), (19, 0.0), (20, 0.0), (21, 0.0), (22,
0.030172566584450996), (23, 0.0), (24, 0.0), (25, 0.013764104620818092), (26,
0.027419348962276664), (27, 0.01904429372097841), (28, 0.004691611272717557),
(29, 0.01590961434907543), (30, 0.015972301685172215), (31, 0.0), (32, 0.0),
(33, 0.01464201232651933), (34, 0.0), (35, 0.012845996806833872), (36, 0.0),
(37, 0.008360209891661754), (38, 0.0), (39, 0.004496313556200674), (40, 0.0),
(41, 0.0), (42, 0.0), (43, 0.008348759004619663), (44, 0.015977708219608092),
(45, 0.004335058152356135), (46, 0.0), (47, 0.02229329422595427), (48, 0.0),
(49, 0.026122344238041682), (50, 0.011887933853798794), (51, 0.0), (52,
0.015293965352635408), (53, 0.029475447357403387), (54, 0.0), (55, 0.0), (56,
0.004687032022370418), (57, 0.01776069890849616), (58, 0.02140915913328926),
(59, 0.0), (60, 0.004002438081949027), (61, 0.01116036601060631), (62, 0.0),
(63, 0.0), (64, 0.004039969507618458), (65, 0.0), (66, 0.0), (67,
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0.03542239723172084), (71, 0.0), (72, 0.028184552650138972), (73,
0.01755836170170713), (74, 0.00978483089586553), (75, 0.020534038209426907),
(76, 0.008015050269649568), (77, 0.0), (78, 0.003911466095667967), (79,
0.044146514796313145), (80, 0.01088733355230097), (81, 0.0), (82,
0.016907170526508693), (83, 0.0), (84, 0.0), (85, 0.011394768290021771), (86,
0.022177032035519014), (87, 0.009530599363192055), (88, 0.011619347261452967),
(89, 0.0), (90, 0.0), (91, 0.029455543462414573), (92, 0.008748778736113166),
(93, 0.0), (94, 0.011252215145292255), (95, 0.0), (96, 0.03347181880711711),
(97, 0.004027679838063721), (98, 0.0), (99, 0.0), (100, 0.0), (101,
0.004881700950412113), (102, 0.015152384165459151), (103, 0.0), (104, 0.0),
(105, 0.004567270073855009), (106, 0.09172975814859877), (107, 0.0), (108,
0.03322500584940299), (109, 0.0), (110, 0.012335623201663442), (111, 0.0), (112,

8
```

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[64]: `len(Recommendation_Score)`

[64]: 4760

[66]:
```python
sortsimilar= sorted(Recommendation_Score, key = lambda x:x[1], reverse = True)
print(sortsimilar)
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(4759, 0.0)]
```

```
[68]: print ('Top 30 movies suggested for you : \n')
      i =1
      for movie in sortsimilar:
          index=movie[0]
          title_from_index = df[df.index==index]['Movie_Title'].values[0]
          if (i<31):
              print(i, ',',title_from_index)
              i+=1
```

```
Top 30 movies suggested for you :

1 , Finding Nemo
2 , Big Fish
3 , John Carter
4 , Spider-Man
5 , Shark Tale
6 , Flight of the Intruder
7 , El Mariachi
8 , Shooting Fish
9 , The Shaggy Dog
10 , The Muse
11 , Freaky Friday
12 , American Dreamz
13 , The Outsiders
14 , Mr. Peabody & Sherman
15 , The Simpsons Movie
16 , Tora! Tora! Tora!
17 , Happy Feet
18 , xXx: State of the Union
19 , Indie Game: The Movie
20 , The English Patient
21 , Because of Winn-Dixie
22 , Atlantis: The Lost Empire
23 , Ponyo
24 , Evan Almighty
25 , White Chicks
26 , The Mask
27 , The Rookie
28 , Troy
29 , Jonah: A VeggieTales Movie
30 , Mallrats
```

```python
[69]: print ('Top 10 movies suggested for you : \n')
      i =1
      for movie in sortsimilar:
          index=movie[0]
          title_from_index = df[df.index==index]['Movie_Title'].values[0]
          if (i<11):
              print(i, ',',title_from_index)
              i+=1
```

Top 10 movies suggested for you :

1 , Finding Nemo
2 , Big Fish
3 , John Carter
4 , Spider-Man
5 , Shark Tale
6 , Flight of the Intruder
7 , El Mariachi
8 , Shooting Fish
9 , The Shaggy Dog
10 , The Muse

```
[ ]:
```