

### 3 dataframe

```
books.head()
```

	ISBN	Book-Title	Book-Author	Year-Of-Publication	Publisher	Image-URL-S
0	0195153448	Classical Mythology	Mark P. O. Morford	2002	Oxford University Press	http://images.amazon.com/images/P/0195153448.0...
1	0002005018	Clara Callan	Richard Bruce Wright	2001	HarperFlamingo Canada	http://images.amazon.com/images/P/0002005018.0...
2	0060973129	Decision in Normandy	Carlo D'Este	1991	HarperPerennial	http://images.amazon.com/images/P/0060973129.0...
3	0374157065	Flu: The Story of the Great Influenza Pandemic...	Gina Bari Kolata	1999	Farrar Straus Giroux	http://images.amazon.com/images/P/0374157065.0...
4	0393045218	The Mummies of Urumchi	E. J. W. Barber	1999	W. W. Norton & Company	http://images.amazon.com/images/P/0393045218.0...

```
books.shape (271360, 8)
```

```
users.head()
```

	User-ID	Location	Age
0	1	nyc, new york, usa	NaN
1	2	stockton, california, usa	18.0
2	3	moscow, yukon territory, russia	NaN
3	4	porto, v.n.gaia, portugal	17.0
4	5	farnborough, hants, united kingdom	NaN

```
users.shape (278858, 3)
```

```
ratings.head()
```

	User-ID	ISBN	Book-Rating
0	276725	034545104X	0
1	276726	0155061224	5
2	276727	0446520802	0
3	276729	052165615X	3
4	276729	0521795028	6

```
ratings.shape (1149780, 3)
```

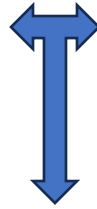
# Popularity based Recommender System

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0	0195153448	Classical Mythology	Mark P. O. Morford	2002	Oxford University Press	http://images.amazon.com/images/P/0195153448.0...
1	0002005018		Clara Callan	2001	HarperFlamingo Canada	http://images.amazon.com/images/P/0002005018.0...
2	0060973129	Decision in Normandy	Carlo D'Este	1991	HarperPerennial	http://images.amazon.com/images/P/0060973129.0...
3	0374157005	Flu: The Story of the Great Influenza Pandemic...	Gina Bari Kolata	1999	Farrar Straus Giroux	http://images.amazon.com/images/P/0374157005.0...
4	0393045218	The Mummies of Urumchi	E. J. W. Barber	1999	W. W. Norton & Company	http://images.amazon.com/images/P/0393045218.0...

ratings.head()

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4	276729	0521795028	6



merge on ISBN

rating\_with\_name.head()

	User-ID	ISBN	Book-Rating	Book-Title	Book-Author	Year-Of-Publication	Publisher
0	276725	034545104X	0	Flesh Tones: A Novel	M. J. Rose	2002	Saltwater Book
1	2313	034545104X	5	Flesh Tones: A Novel	M. J. Rose	2002	Saltwater Book
2	6543	034545104X	0	Flesh Tones: A Novel	M. J. Rose	2002	Saltwater Book

num\_rating\_df

	Book-Title	num_rating_on_book
0	A Light in the Storm: The Civil War Diary of ...	4
1	Always Have Popsicles	1
2	Apple Magic (The Collector's series)	1
3	Ask Lily (Young Women of Faith: Lily Series ...	1
4	Beyond IBM: Leadership Marketing and Finance ...	1

Rating on book

241071 rows × 2 columns

avg\_rating\_df

	Book-Title	avg_rating
0	A Light in the Storm: The Civil War Diary of ...	2.250000
1	Always Have Popsicles	0.000000
2	Apple Magic (The Collector's series)	0.000000
3	Ask Lily (Young Women of Faith: Lily Series ...	0.000000
4	Beyond IBM: Leadership Marketing and Finance ...	0.000000

Avg rating of book

241071 rows × 2 columns

popular\_df

	Book-Title	num_rating_on_book	avg_rating
0	A Light in the Storm: The Civil War Diary of ...	4	2.250000
1	Always Have Popsicles	1	0.000000
2	Apple Magic (The Collector's series)	1	0.000000
3	Ask Lily (Young Women of Faith: Lily Series ...	1	0.000000
4	Beyond IBM: Leadership Marketing and Finance ...	1	0.000000

popular\_df['num\_rating\_on\_book']>=250]

241071 rows × 3 columns

Merge( popular\_df , Book) to fetch data from book

popular\_df\_final.head()

	Book-Title	Book-Author	Image-URL-S	num_rating_on_book	avg_rating	Year-Of-Publication
0	Harry Potter and the Prisoner of Azkaban (Book 3)	J. K. Rowling	http://images.amazon.com/images/P/0426130350.0...	428	0.852804	1999
3	Harry Potter and the Goblet of Fire (Book 4)	J. K. Rowling	http://images.amazon.com/images/P/0426136697.0...	387	0.834289	2000
5	Harry Potter and the Sorcerer's Stone (Book 1)	J. K. Rowling	http://images.amazon.com/images/P/0590353433.0...	278	0.737410	1998
9	Harry Potter and the Order of the Phoenix (Book 5)	J. K. Rowling	http://images.amazon.com/images/P/0426136697.0...	347	0.901441	2003
14	Harry Potter and the Chamber of Secrets (Book 2)	J. K. Rowling	http://images.amazon.com/images/P/0426136697.0...	358	0.934453	2000

(186,6)



Random 10 as output , Trending books

## Collaborative Based

```
rating_with_name.head()
```

	User- ID	ISBN	Book- Rating	Book- Title	Book- Author	Year-Of- Publication	Publisher
0	276725	0345451040	0	Flesh Tones: A Novel	M. J. Rose	2002	Salamis Books
1	2313	0345451040	5	Flesh Tones: A Novel	M. J. Rose	2002	Salamis Books
2	6543	0345451040	0	Flesh Tones: A Novel	M. J. Rose	2002	Salamis Books

Groupby ('User-ID') and take only those books who have  
['Book-Rating']>100

This are Experienced users

Filtered_user	User- ID	ISBN	Book- Rating	Book-Title	Book- Author	Year-Of- Publication	Publisher	
	4	6043	0345451040	0	Flesh Tones: A Novel	M. J. Rose	2002	Salamis Books
	4	10714	0345451040	0	Flesh Tones: A Novel	M. J. Rose	2002	Salamis Books
	5	23780	0345451040	0	Flesh Tones: A Novel	M. J. Rose	2002	Salamis Books
	7	20223	0345451040	0	Flesh Tones: A Novel	M. J. Rose	2002	Salamis Books
	14	77486	0345451040	0	Flesh Tones: A Novel	M. J. Rose	2002	Salamis Books
	...	...	...	...	...	...	...	
	909918	278460	0812801311	0	World of Gull	Erin Harris	1988	Madison Books

Data of this Experienced users

```
Final_rating
```

User- ID	ISBN	Book- Rating	Book- Title	Book- Author	Year-Of- Publication	Publisher
43	37846	044520802	0	The Horsehoe Square	1906	Harvard Books
48	3183	044520802	0	The Horsehoe Square	1906	Harvard Books
48	7158	044520802	10	The Horsehoe Square	1906	Harvard Books
49	6251	044520802	10	The Horsehoe Square	1906	Harvard Books
49	91079	044520802	10	The Horsehoe Square	1906	Harvard Books
...	...	...	...	...	...	...
182442	204377	0033555000	0	The Green of the Damned	1909	Stargardt Books

['Book-Rating']>100

Book have more than 100+ ratings

45305 rows × 10 columns

```
pt
```

	User-ID	254	507	882	1424	1435	1733	1903	2033	2119	2276
Book-Title											
1904	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st to Die: A Novel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd Chance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
A Bent in the Road	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A Case of Need	0.0	0.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0
...	...	...	...	...	...	...	...	...	...	...	...

Pivot table of user and book-title

Calculate

similarity\_score=cosine\_similarity(pt)

similarity\_score

299 rows × 1609 columns

```
similarity_score
```

array([[1., 0.00550754, 0.00005409, ..., 0.00703800, 0.04100033,0.03029300], [0.00550754, 1., 0.23629915, ..., 0.18240180, 0.05748184, 0.12308301], [0.00005409, 0.23629915, 1., ..., 0.1429343, 0.03000082, 0.07992925], ..., [0.00703800, 0.18240181, 0.1429341, ..., 1., 0.00057907, 0.10002254], [0.04100033, 0.05748184, 0.03000082, ..., 0.00057907, 1., 0.02010001], [0.03029300, 0.12308301, 0.07992925, ..., 0.10002254, 0.02010001, 1.]])
--

Similarity score is 2D array in which

From each book to another book distance calculated

Upon this similarity Score find nearest 5 books as recommendation

```

def recommend(book_name):
    # index fetch in pt
    index=np.where(pt.index==book_name)[0][0]
    similar_item=list(enumerate(similarity_score[index]))          #similar_item
    similar_item=sorted(similar_item,key=lambda x:x[1],reverse=True)  #sort them on basis on similarity_score
    similar_item=similar_item[1:6]          #get top 5 ,0th is itself distance
    similar_item

    listt=[]

    for i in similar_item: #similar items have index and similarity score , take only index
        a=pt.index[i[0]]    #find book name on that index
        listt.append(a)      #append all this name to list
    return list

mv=input("enter a movie name") #input a book name
ans=recommend(mv) # function calling

ans

***** ans is a list of 5 recommended books now find this book name in our books dataset and print details *****

```