# book-recommender-system-1

September 2, 2024

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

```python
[2]: books = pd.read_csv("//content//drive//MyDrive//project file//Books.csv")
     users = pd.read_csv("//content//drive//MyDrive//project file//Users.csv")
     ratings = pd.read_csv("//content//drive//MyDrive//project file//Ratings.csv")
```

```
<ipython-input-2-f3ca7caff546>:1: DtypeWarning: Columns (3) have mixed types.
Specify dtype option on import or set low_memory=False.
  books = pd.read_csv("//content//drive//MyDrive//project file//Books.csv")
```

```python
[3]: books.head()
```

```
[3]:          ISBN                                       Book-Title  \
     0   0195153448                               Classical Mythology
     1   0002005018                                     Clara Callan
     2   0060973129                             Decision in Normandy
     3   0374157065  Flu: The Story of the Great Influenza Pandemic…
     4   0393045218                           The Mummies of Urumchi

              Book-Author Year-Of-Publication                    Publisher  \
     0    Mark P. O. Morford                2002      Oxford University Press
     1  Richard Bruce Wright                2001          HarperFlamingo Canada
     2         Carlo D'Este                1991                HarperPerennial
     3     Gina Bari Kolata                1999           Farrar Straus Giroux
     4       E. J. W. Barber                1999  W. W. Norton &amp; Company

                                       Image-URL-S  \
     0  http://images.amazon.com/images/P/0195153448.0…
     1  http://images.amazon.com/images/P/0002005018.0…
     2  http://images.amazon.com/images/P/0060973129.0…
     3  http://images.amazon.com/images/P/0374157065.0…
     4  http://images.amazon.com/images/P/0393045218.0…

                                       Image-URL-M  \
     0  http://images.amazon.com/images/P/0195153448.0…
     1  http://images.amazon.com/images/P/0002005018.0…
     2  http://images.amazon.com/images/P/0060973129.0…
```

```
3  http://images.amazon.com/images/P/0374157065.0...
4  http://images.amazon.com/images/P/0393045218.0...

                                    Image-URL-L
0  http://images.amazon.com/images/P/0195153448.0...
1  http://images.amazon.com/images/P/0002005018.0...
2  http://images.amazon.com/images/P/0060973129.0...
3  http://images.amazon.com/images/P/0374157065.0...
4  http://images.amazon.com/images/P/0393045218.0...
```

[4]: `users.head()`

```
[4]:    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
```

[5]: `ratings.head()`

```
[5]:    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
```

[6]: 
```python
print(books.shape)
print(users.shape)
print(ratings.shape)
```

```
(271360, 8)
(278858, 3)
(1149780, 3)
```

[7]: `books.isnull().sum()`

```
[7]: ISBN                   0
     Book-Title             0
     Book-Author            2
     Year-Of-Publication    0
     Publisher              2
     Image-URL-S            0
     Image-URL-M            0
     Image-URL-L            3
     dtype: int64
```

```
[8]: users.isnull().sum()
```

```
[8]: User-ID          0
     Location         0
     Age         110762
     dtype: int64
```

```
[9]: ratings.isnull().sum()
```

```
[9]: User-ID        0
     ISBN           0
     Book-Rating    0
     dtype: int64
```

```
[10]: books.duplicated().sum()
```

```
[10]: 0
```

```
[11]: users.duplicated().sum()
```

```
[11]: 0
```

```
[12]: ratings.duplicated().sum()
```

```
[12]: 0
```

**Popularity Based Recommender System**

```
[13]: ratings_with_name = ratings.merge(books, on="ISBN")
```

```
[14]: num_rating_df = ratings_with_name.groupby("Book-Title").count()["Book-Rating"].
       ↪reset_index()
      num_rating_df.rename(columns={"Book-Rating":"num_ratings"},inplace=True)
      num_rating_df
```

```
[14]:                                        Book-Title  num_ratings
      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
      …                                              …            …
      241066                                  Ã?Â?lpiraten.            2
      241067                      Ã?Â?rger mit Produkt X. Roman.            4
      241068                              Ã?Â?sterlich leben.            1
      241069                              Ã?Â?stlich der Berge.            3
      241070                                Ã?Â?thique en toc            2
```

```
[241071 rows x 2 columns]
```

```python
[15]: avg_rating_df = ratings_with_name.groupby("Book-Title")["Book-Rating"].mean().
      ↪reset_index() # Removed the .mean() from the groupby object.
      avg_rating_df.rename(columns={"Book-Rating":"avg_rating"},inplace=True)
      avg_rating_df
```

```
[15]:                                             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, …    8.000000
      4            Beyond IBM: Leadership Marketing and Finance …    0.000000
      …                                                        …         …
      241066                                        Ã?Â?lpiraten.    0.000000
      241067                            Ã?Â?rger mit Produkt X. Roman.    5.250000
      241068                                   Ã?Â?sterlich leben.    7.000000
      241069                                   Ã?Â?stlich der Berge.    2.666667
      241070                                      Ã?Â?thique en toc    4.000000

      [241071 rows x 2 columns]
```

```python
[16]: popular_df = num_rating_df.merge(avg_rating_df,on="Book-Title")
      popular_df
```

```
[16]:                                             Book-Title  num_ratings  \
      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
      …                                                        …          …
      241066                                        Ã?Â?lpiraten.            2
      241067                            Ã?Â?rger mit Produkt X. Roman.            4
      241068                                   Ã?Â?sterlich leben.            1
      241069                                   Ã?Â?stlich der Berge.            3
      241070                                      Ã?Â?thique en toc            2

              avg_rating
      0          2.250000
      1          0.000000
      2          0.000000
      3          8.000000
      4          0.000000
      …                …
      241066     0.000000
```

```
241067    5.250000
241068    7.000000
241069    2.666667
241070    4.000000

[241071 rows x 3 columns]
```

[17]: 
```python
popular_df = popular_df[popular_df["num_ratings"]>=250].
  ↪sort_values("avg_rating",ascending=False).head(50)
```

[18]: 
```python
popular_df = popular_df.merge(books,on="Book-Title").
  ↪drop_duplicates("Book-Title")[["Book-Title","Book-Author","Image-URL-M","num_ratings","avg_
```

[19]: 
```python
popular_df
```

[19]:
```
                                              Book-Title  \
0      Harry Potter and the Prisoner of Azkaban (Book 3)
3          Harry Potter and the Goblet of Fire (Book 4)
5        Harry Potter and the Sorcerer's Stone (Book 1)
9      Harry Potter and the Order of the Phoenix (Boo…
13      Harry Potter and the Chamber of Secrets (Book 2)
16     The Hobbit : The Enchanting Prelude to The Lor…
17     The Fellowship of the Ring (The Lord of the Ri…
26     Harry Potter and the Sorcerer's Stone (Harry P…
28         The Two Towers (The Lord of the Rings, Part 2)
39                               To Kill a Mockingbird
47                                    The Da Vinci Code
53                  The Five People You Meet in Heaven
55                              The Catcher in the Rye
62                         The Lovely Bones: A Novel
63                                                1984
72                          Prodigal Summer: A Novel
73                                          Neverwhere
78                          The Secret Life of Bees
84     Stupid White Men …and Other Sorry Excuses fo…
85     Tuesdays with Morrie: An Old Man, a Young Man,…
88                 The Red Tent (Bestselling Backlist)
89               The Hitchhiker's Guide to the Galaxy
98      Nickel and Dimed: On (Not) Getting By in America
100                                      Into the Wild
103                                     Fahrenheit 451
116                            Girl with a Pearl Earring
117                                          Outlander
123    Where the Heart Is (Oprah's Book Club (Paperba…
124                      Seabiscuit: An American Legend
126                                         Life of Pi
130                                     The Bean Trees
```

```
133  A Child Called \It\": One Child's Courage to S…
135                                      ANGELA'S ASHES
137                                        Good in Bed
139  Fast Food Nation: The Dark Side of the All-Ame…
140                                      American Gods
141                                   Skipping Christmas
147  Left Behind: A Novel of the Earth's Last Days …
149    The Golden Compass (His Dark Materials, Book 1)
157                                   The Color Purple
163                               Silence of the Lambs
166                                        About a Boy
173              Seven Up (A Stephanie Plum Novel)
175  The Alchemist: A Fable About Following Your Dream
177  Hard Eight : A Stephanie Plum Novel (A Stephan…
182                       Suzanne's Diary for Nicholas
186                                  Lord of the Flies
192                             A Prayer for Owen Meany
194    The Vampire Lestat (Vampire Chronicles, Book II)
195        White Oleander : A Novel (Oprah's Book Club)

                     Book-Author  \
0             J. K. Rowling
3             J. K. Rowling
5             J. K. Rowling
9             J. K. Rowling
13            J. K. Rowling
16            J.R.R. TOLKIEN
17            J.R.R. TOLKIEN
26            J. K. Rowling
28            J.R.R. TOLKIEN
39               Harper Lee
47               Dan Brown
53              Mitch Albom
55            J.D. Salinger
62             Alice Sebold
63            George Orwell
72        Barbara Kingsolver
73              Neil Gaiman
78             Sue Monk Kidd
84            Michael Moore
85               MITCH ALBOM
88             Anita Diamant
89             Douglas Adams
98        Barbara Ehrenreich
100             Jon Krakauer
103             Ray Bradbury
116          Tracy Chevalier
```

```
117           DIANA GABALDON
123            Billie Letts
124        LAURA HILLENBRAND
126            Yann Martel
130        Barbara Kingsolver
133            Dave Pelzer
135           Frank McCourt
137          Jennifer Weiner
139           Eric Schlosser
140            Neil Gaiman
141            JOHN GRISHAM
147             Tim Lahaye
149           PHILIP PULLMAN
157            Alice Walker
163           Thomas Harris
166            Nick Hornby
173          Janet Evanovich
175            Paulo Coelho
177          Janet Evanovich
182          James Patterson
186   William Gerald Golding
192            John Irving
194              ANNE RICE
195             Janet Fitch
```

|    |                                Image-URL-M | num_ratings |
|----|--------------------------------------------|-------------|
| 0  | http://images.amazon.com/images/P/0439136350.0… | 428 |
| 3  | http://images.amazon.com/images/P/0439139597.0… | 387 |
| 5  | http://images.amazon.com/images/P/0590353403.0… | 278 |
| 9  | http://images.amazon.com/images/P/043935806X.0… | 347 |
| 13 | http://images.amazon.com/images/P/0439064872.0… | 556 |
| 16 | http://images.amazon.com/images/P/0345339681.0… | 281 |
| 17 | http://images.amazon.com/images/P/0345339703.0… | 368 |
| 26 | http://images.amazon.com/images/P/059035342X.0… | 575 |
| 28 | http://images.amazon.com/images/P/0345339711.0… | 260 |
| 39 | http://images.amazon.com/images/P/0446310786.0… | 510 |
| 47 | http://images.amazon.com/images/P/0385504209.0… | 898 |
| 53 | http://images.amazon.com/images/P/0786868716.0… | 430 |
| 55 | http://images.amazon.com/images/P/0316769487.0… | 449 |
| 62 | http://images.amazon.com/images/P/0316666343.0… | 1295 |
| 63 | http://images.amazon.com/images/P/0451524934.0… | 284 |
| 72 | http://images.amazon.com/images/P/0060959037.0… | 253 |
| 73 | http://images.amazon.com/images/P/0380789019.0… | 265 |
| 78 | http://images.amazon.com/images/P/0142001740.0… | 774 |
| 84 | http://images.amazon.com/images/P/0060392452.0… | 283 |
| 85 | http://images.amazon.com/images/P/0385484518.0… | 493 |
| 88 | http://images.amazon.com/images/P/0312195516.0… | 723 |

```
89   http://images.amazon.com/images/P/0671461494.0…   268
98   http://images.amazon.com/images/P/0805063897.0…   335
100  http://images.amazon.com/images/P/0385486804.0…   252
103  http://images.amazon.com/images/P/3257208626.0…   409
116  http://images.amazon.com/images/P/0452282152.0…   526
117  http://images.amazon.com/images/P/0440222915.0…   283
123  http://images.amazon.com/images/P/0446672211.0…   585
124  http://images.amazon.com/images/P/0449005615.0…   275
126  http://images.amazon.com/images/P/0151008116.0…   664
130  http://images.amazon.com/images/P/0060915544.0…   389
133  http://images.amazon.com/images/P/1558743669.0…   265
135  http://images.amazon.com/images/P/0684874350.0…   279
137  http://images.amazon.com/images/P/0743418174.0…   490
139  http://images.amazon.com/images/P/0060938455.0…   321
140  http://images.amazon.com/images/P/0380789035.0…   302
141  http://images.amazon.com/images/P/0385505833.0…   322
147  http://images.amazon.com/images/P/0842329129.0…   318
149  http://images.amazon.com/images/P/037582345X.0…   336
157  http://images.amazon.com/images/P/0671617028.0…   314
163  http://images.amazon.com/images/P/0312924585.0…   256
166  http://images.amazon.com/images/P/1573227331.0…   262
173  http://images.amazon.com/images/P/0312265840.0…   278
175  http://images.amazon.com/images/P/0062502174.0…   266
177  http://images.amazon.com/images/P/0312983867.0…   269
182  http://images.amazon.com/images/P/0316969443.0…   457
186  http://images.amazon.com/images/P/0399501487.0…   259
192  http://images.amazon.com/images/P/0345361792.0…   413
194  http://images.amazon.com/images/P/0345313860.0…   301
195  http://images.amazon.com/images/P/0316284955.0…   356

     avg_rating
0     5.852804
3     5.824289
5     5.737410
9     5.501441
13    5.183453
16    5.007117
17    4.948370
26    4.895652
28    4.880769
39    4.700000
47    4.642539
53    4.551163
55    4.545657
62    4.468726
63    4.454225
72    4.450593
```

```
73    4.449057
78    4.447028
84    4.356890
85    4.354970
88    4.334716
89    4.328358
98    4.289552
100   4.273810
103   4.264059
116   4.218631
117   4.173145
123   4.105983
124   4.098182
126   4.088855
130   4.087404
133   4.086792
135   4.075269
137   4.055102
139   4.037383
140   4.006623
141   4.006211
147   4.003145
149   4.000000
157   3.964968
163   3.960938
166   3.900763
173   3.888489
175   3.875940
177   3.825279
182   3.820569
186   3.818533
192   3.796610
194   3.777409
195   3.772472
```

**Collaborative Filtering Based Recommender System**

```python
[28]: x = ratings_with_name.groupby("User-ID").count()["Book-Rating"]>200
      padhe_likhe_users = x[x].index
```

```python
[21]: filtered_rating = ratings_with_name[ratings_with_name["User-ID"].
      ↪isin(padhe_likhe_users)]
```

```python
[22]: y = filtered_rating.groupby("Book-Title").count()["Book-Rating"]>=50
      famous_books = y[y].index
```

```
[23]: final_ratings = filtered_rating[filtered_rating["Book-Title"].
      ↪isin(famous_books)]
```

```
[24]: pt = final_ratings.
      ↪pivot_table(index="Book-Title",columns="User-ID",values="Book-Rating")
```

```
[25]: pt.fillna(0,inplace=True)
```

```
[26]: pt
```

```
[26]: User-ID                                              254     2276    2766   \
      Book-Title
      1984                                                 9.0     0.0     0.0
      1st to Die: A Novel                                  0.0     0.0     0.0
      2nd Chance                                           0.0    10.0     0.0
      4 Blondes                                            0.0     0.0     0.0
      A Bend in the Road                                   0.0     0.0     7.0
      …                                                     …       …       …
      Year of Wonders                                      0.0     0.0     0.0
      You Belong To Me                                     0.0     0.0     0.0
      Zen and the Art of Motorcycle Maintenance: An I…     0.0     0.0     0.0
      Zoya                                                 0.0     0.0     0.0
      \O\" Is for Outlaw"                                  0.0     0.0     0.0

      User-ID                                              2977    3363    4017   \
      Book-Title
      1984                                                 0.0     0.0     0.0
      1st to Die: A Novel                                  0.0     0.0     0.0
      2nd Chance                                           0.0     0.0     0.0
      4 Blondes                                            0.0     0.0     0.0
      A Bend in the Road                                   0.0     0.0     0.0
      …                                                     …       …       …
      Year of Wonders                                      7.0     0.0     0.0
      You Belong To Me                                     0.0     0.0     0.0
      Zen and the Art of Motorcycle Maintenance: An I…     0.0     0.0     0.0
      Zoya                                                 0.0     0.0     0.0
      \O\" Is for Outlaw"                                  0.0     0.0     0.0

      User-ID                                              4385    6251    6323   \
      Book-Title
      1984                                                 0.0     0.0     0.0
      1st to Die: A Novel                                  0.0     0.0     0.0
      2nd Chance                                           0.0     0.0     0.0
      4 Blondes                                            0.0     0.0     0.0
      A Bend in the Road                                   0.0     0.0     0.0
      …                                                     …       …       …
      Year of Wonders                                      0.0     0.0     0.0
```

| Book-Title | | | |
|---|---|---|---|
| You Belong To Me | 0.0 | 0.0 | 0.0 |
| Zen and the Art of Motorcycle Maintenance: An I… | 0.0 | 0.0 | 0.0 |
| Zoya | 0.0 | 0.0 | 0.0 |
| \O\" Is for Outlaw" | 0.0 | 0.0 | 0.0 |

| User-ID | 6543 | … | 271705 \ |
|---|---|---|---|
| Book-Title | | … | |
| 1984 | 0.0 | … | 10.0 |
| 1st to Die: A Novel | 9.0 | … | 0.0 |
| 2nd Chance | 0.0 | … | 0.0 |
| 4 Blondes | 0.0 | … | 0.0 |
| A Bend in the Road | 0.0 | … | 0.0 |
| … | … | … | … |
| Year of Wonders | 0.0 | … | 0.0 |
| You Belong To Me | 0.0 | … | 0.0 |
| Zen and the Art of Motorcycle Maintenance: An I… | 0.0 | … | 0.0 |
| Zoya | 0.0 | … | 0.0 |
| \O\" Is for Outlaw" | 0.0 | … | 0.0 |

| User-ID | 273979 | 274004 | 274061 \ |
|---|---|---|---|
| Book-Title | | | |
| 1984 | 0.0 | 0.0 | 0.0 |
| 1st to Die: A Novel | 0.0 | 0.0 | 0.0 |
| 2nd Chance | 0.0 | 0.0 | 0.0 |
| 4 Blondes | 0.0 | 0.0 | 0.0 |
| A Bend in the Road | 0.0 | 0.0 | 0.0 |
| … | … | … | … |
| Year of Wonders | 9.0 | 0.0 | 0.0 |
| You Belong To Me | 0.0 | 0.0 | 0.0 |
| Zen and the Art of Motorcycle Maintenance: An I… | 0.0 | 0.0 | 0.0 |
| Zoya | 0.0 | 0.0 | 0.0 |
| \O\" Is for Outlaw" | 0.0 | 0.0 | 0.0 |

| User-ID | 274301 | 274308 | 275970 \ |
|---|---|---|---|
| Book-Title | | | |
| 1984 | 0.0 | 0.0 | 0.0 |
| 1st to Die: A Novel | 0.0 | 0.0 | 0.0 |
| 2nd Chance | 0.0 | 0.0 | 0.0 |
| 4 Blondes | 0.0 | 0.0 | 0.0 |
| A Bend in the Road | 0.0 | 0.0 | 0.0 |
| … | … | … | … |
| Year of Wonders | 0.0 | 0.0 | 0.0 |
| You Belong To Me | 0.0 | 0.0 | 0.0 |
| Zen and the Art of Motorcycle Maintenance: An I… | 0.0 | 0.0 | 0.0 |
| Zoya | 0.0 | 0.0 | 0.0 |
| \O\" Is for Outlaw" | 8.0 | 0.0 | 0.0 |

```
User-ID                                               277427  277639  278418
Book-Title
1984                                                     0.0     0.0     0.0
1st to Die: A Novel                                     0.0     0.0     0.0
2nd Chance                                              0.0     0.0     0.0
4 Blondes                                               0.0     0.0     0.0
A Bend in the Road                                      0.0     0.0     0.0
…                                                       …       …       …
Year of Wonders                                         0.0     0.0     0.0
You Belong To Me                                        0.0     0.0     0.0
Zen and the Art of Motorcycle Maintenance: An I…        0.0     0.0     0.0
Zoya                                                    0.0     0.0     0.0
\O\" Is for Outlaw"                                      0.0     0.0     0.0

[706 rows x 810 columns]
```

[27]:
```python
from sklearn.metrics.pairwise import cosine_similarity
```

[29]:
```python
similarity_scores = cosine_similarity(pt)
```

[30]:
```python
similarity_scores.shape
```

[30]: (706, 706)

[36]:
```python
def recommend(book_name):
  # index fetch
  index = np.where(pt.index==book_name)[0][0]
  similar_items = sorted(list(enumerate(similarity_scores[index])),key=lambda x:
  ↪x[1],reverse=True)[1:6]

  data = []
  for i in similar_items:
      item = []
      temp_df = books[books['Book-Title'] == pt.index[i[0]]]
      item.extend(list(temp_df.drop_duplicates('Book-Title')['Book-Title'].
  ↪values)) # Use list instead of List
      item.extend(list(temp_df.drop_duplicates('Book-Title')['Book-Author'].
  ↪values)) # Use list instead of List
      item.extend(list(temp_df.drop_duplicates('Book-Title')['Image-URL-M'].
  ↪values)) # Use list instead of List

      data.append(item)

  return data
```

[37]:
```python
recommend("1984")
```

```
[37]: [['Animal Farm',
        'George Orwell',
        'http://images.amazon.com/images/P/0451526341.01.MZZZZZZ.jpg'],
       ["The Handmaid's Tale",
        'Margaret Atwood',
        'http://images.amazon.com/images/P/0449212602.01.MZZZZZZZ.jpg'],
       ['Brave New World',
        'Aldous Huxley',
        'http://images.amazon.com/images/P/0060809833.01.MZZZZZZZ.jpg'],
       ['The Vampire Lestat (Vampire Chronicles, Book II)',
        'ANNE RICE',
        'http://images.amazon.com/images/P/0345313860.01.MZZZZZZZ.jpg'],
       ['The Hours : A Novel',
        'Michael Cunningham',
        'http://images.amazon.com/images/P/0312243022.01.MZZZZZZZ.jpg']]
```

```
[38]: pt.index[554]
```

```
[38]: 'The Hundred Secret Senses'
```

```
[39]: import pickle
      pickle.dump(popular_df,open('popular.pkl','wb'))
```

```
[40]: books.drop_duplicates('Book-Title')
```

```
[40]:               ISBN                                       Book-Title  \
      0        0195153448                               Classical Mythology
      1        0002005018                                       Clara Callan
      2        0060973129                               Decision in Normandy
      3        0374157065  Flu: The Story of the Great Influenza Pandemic…
      4        0393045218                            The Mummies of Urumchi
      …             …                                              …
      271354   0449906736      Flashpoints: Promise and Peril in a New World
      271356   0525447644                            From One to One Hundred
      271357   006008667X  Lily Dale : The True Story of the Town that Ta…
      271358   0192126040                            Republic (World's Classics)
      271359   0767409752  A Guided Tour of Rene Descartes' Meditations o…

                    Book-Author Year-Of-Publication  \
      0        Mark P. O. Morford                2002
      1        Richard Bruce Wright              2001
      2            Carlo D'Este                  1991
      3          Gina Bari Kolata                1999
      4          E. J. W. Barber                 1999
      …                 …                         …
      271354       Robin Wright                  1993
      271356        Teri Sloat                   1991
```

```
271357        Christine Wicker          2004
271358                  Plato            1996
271359   Christopher  Biffle            2000


                                                    Publisher  \
0                              Oxford University Press
1                                HarperFlamingo Canada
2                                      HarperPerennial
3                                 Farrar Straus Giroux
4                           W. W. Norton &amp; Company
…                                                    …
271354                               Ballantine Books
271356                                  Dutton Books
271357                              HarperSanFrancisco
271358                         Oxford University Press
271359  McGraw-Hill Humanities/Social Sciences/Languages


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2        http://images.amazon.com/images/P/0060973129.0…
3        http://images.amazon.com/images/P/0374157065.0…
4        http://images.amazon.com/images/P/0393045218.0…
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271354  http://images.amazon.com/images/P/0449906736.0…
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2        http://images.amazon.com/images/P/0060973129.0…
```

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3         http://images.amazon.com/images/P/0374157065.0…
4         http://images.amazon.com/images/P/0393045218.0…
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271354  http://images.amazon.com/images/P/0449906736.0…
271356  http://images.amazon.com/images/P/0525447644.0…
271357  http://images.amazon.com/images/P/006008667X.0…
271358  http://images.amazon.com/images/P/0192126040.0…
271359  http://images.amazon.com/images/P/0767409752.0…

[242135 rows x 8 columns]
```

```
[41]: pickle.dump(pt,open('pt.pkl','wb'))
      pickle.dump(books,open('books.pkl','wb'))
      pickle.dump(similarity_scores,open('similarity_scores.pkl','wb'))
```

```
[42]: !pip install streamlit -q
```

```
                              8.7/8.7 MB
52.7 MB/s eta 0:00:00
                              207.3/207.3 kB
12.9 MB/s eta 0:00:00
                              6.9/6.9 MB
61.6 MB/s eta 0:00:00
                              82.9/82.9 kB
5.7 MB/s eta 0:00:00
                              62.7/62.7 kB
4.2 MB/s eta 0:00:00
```

```
[43]: ! wget -q -O - ipv4.icanhazip.com
```

```
34.74.239.44
```

```
[ ]: ! streamlit run app.py & npx localtunnel --port 8501
```

```
Collecting usage statistics. To deactivate, set browser.gatherUsageStats to
false.


  You can now view your Streamlit app in your browser.

  Local URL: http://localhost:8501
  Network URL: http://172.28.0.12:8501
  External URL: http://34.74.239.44:8501

Need to install the following packages:
  localtunnel@2.0.2
```

```
Ok to proceed? (y) y
your url is: https://five-results-drive.loca.lt
```
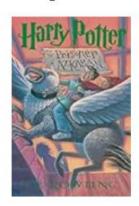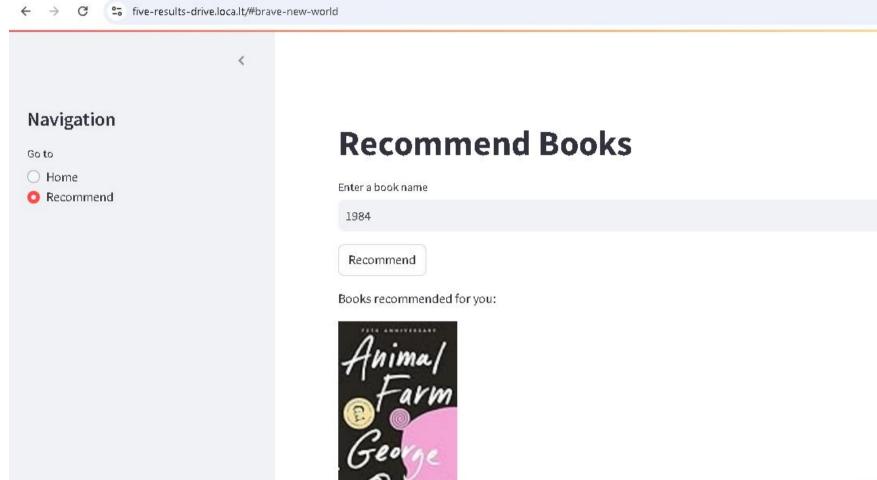
## Navigation

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# Top 50 Books



## Harry Potter and the Prisoner of Azkaban (Book 3)

Author: J. K. Rowling

Votes: 428

Rating: 5.852803738317757

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1984

Recommend

Books recommended for you: