BookRecommender

November 7, 2024

Lee Johnston 11/9/2024 Interactive Book Recommender System

[2]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn import neighbors
from sklearn.preprocessing import MinMaxScaler
```

[3]:
```
import ipywidgets
from ipywidgets import interact
from ipywidgets import interact_manual
```

[4]:
```
df = pd.read_csv("books.csv", on_bad_lines='skip')
```

[5]:
```
df.head(3)
```

[5]:
```
   bookID                                              title  \
0       1  Harry Potter and the Half-Blood Prince (Harry …
1       2  Harry Potter and the Order of the Phoenix (Har…
2       4  Harry Potter and the Chamber of Secrets (Harry…

                      authors  average_rating        isbn         isbn13  \
0  J.K. Rowling/Mary GrandPré            4.57  0439785960  9780439785969
1  J.K. Rowling/Mary GrandPré            4.49  0439358078  9780439358071
2                J.K. Rowling            4.42  0439554896  9780439554893

  language_code    num_pages  ratings_count  text_reviews_count  \
0            eng          652        2095690               27591
1            eng          870        2153167               29221
2            eng          352           6333                 244

  publication_date        publisher
0        9/16/2006  Scholastic Inc.
1         9/1/2004  Scholastic Inc.
2        11/1/2003       Scholastic
```

[6]:
```
df.shape
```

```
[6]: (11123, 12)
```

```
[7]: df.columns = df.columns.str.strip()

     df.columns
```

```
[7]: Index(['bookID', 'title', 'authors', 'average_rating', 'isbn', 'isbn13',
            'language_code', 'num_pages', 'ratings_count', 'text_reviews_count',
            'publication_date', 'publisher'],
           dtype='object')
```

```
[8]: df.dtypes
```

```
[8]: bookID                  int64
     title                  object
     authors                object
     average_rating        float64
     isbn                   object
     isbn13                  int64
     language_code          object
     num_pages               int64
     ratings_count           int64
     text_reviews_count      int64
     publication_date       object
     publisher              object
     dtype: object
```

```
[9]: df.describe(include = 'object')
```

```
[9]:             title       authors        isbn language_code publication_date  \
     count       11123         11123       11123         11123            11123
     unique      10348          6639       11123            27             3679
     top     The Iliad  Stephen King  8497646983           eng        10/1/2005
     freq            9            40           1          8908               56

            publisher
     count      11123
     unique      2290
     top      Vintage
     freq         318
```

```
[10]: df.isnull().sum()
```

```
[10]: bookID               0
      title                0
      authors              0
      average_rating       0
```

```
isbn                  0
isbn13                0
language_code         0
num_pages             0
ratings_count         0
text_reviews_count    0
publication_date      0
publisher             0
dtype: int64
```

[11]:

```
df.drop(['bookID', 'isbn', 'isbn13'], axis = 1, inplace = True)

df.columns
```

[11]:

```
Index(['title', 'authors', 'average_rating', 'language_code', 'num_pages',
       'ratings_count', 'text_reviews_count', 'publication_date', 'publisher'],
      dtype='object')
```

[12]:

```
df.publication_date
```

[12]:

```
0         9/16/2006
1          9/1/2004
2         11/1/2003
3          5/1/2004
4         9/13/2004
            …
11118    12/21/2004
11119     12/1/1988
11120      8/1/1993
11121     2/27/2007
11122     5/28/2006
Name: publication_date, Length: 11123, dtype: object
```

[13]:

```
df['year'] = df['publication_date'].str.split('/')
df['year'] = df['year'].apply(lambda x: x[2])

df.head(3)
```

[13]:

```
                                               title  \
0  Harry Potter and the Half-Blood Prince (Harry …
1  Harry Potter and the Order of the Phoenix (Har…
2  Harry Potter and the Chamber of Secrets (Harry…

                      authors  average_rating language_code  num_pages  \
0  J.K. Rowling/Mary GrandPré            4.57           eng        652
1  J.K. Rowling/Mary GrandPré            4.49           eng        870
2                J.K. Rowling            4.42           eng        352
```

```
   ratings_count  text_reviews_count publication_date        publisher  year
0        2095690               27591        9/16/2006  Scholastic Inc.  2006
1        2153167               29221         9/1/2004  Scholastic Inc.  2004
2           6333                 244        11/1/2003       Scholastic  2003
```

[14]:

```
df['year'] = df['year'].astype('int')

df.dtypes
```

[14]:

```
title                  object
authors                object
average_rating        float64
language_code          object
num_pages               int64
ratings_count           int64
text_reviews_count      int64
publication_date       object
publisher              object
year                    int64
dtype: object
```

[15]:

```
df['year'].min()
```

[15]:

```
1900
```

[16]:

```
df['year'].max()
```

[16]:

```
2020
```

[17]:

```
df.columns
```

[17]:

```
Index(['title', 'authors', 'average_rating', 'language_code', 'num_pages',
       'ratings_count', 'text_reviews_count', 'publication_date', 'publisher',
       'year'],
      dtype='object')
```

[18]:

```
df[df['year'] == 2020][['title',␣
 ↪'authors','average_rating','language_code','publisher' ]]
```

[18]:

```
                          title       authors  average_rating language_code  \
9664  A Quick Bite (Argeneau #1)  Lynsay Sands            3.91           eng

     publisher
9664      Avon
```

[19]:

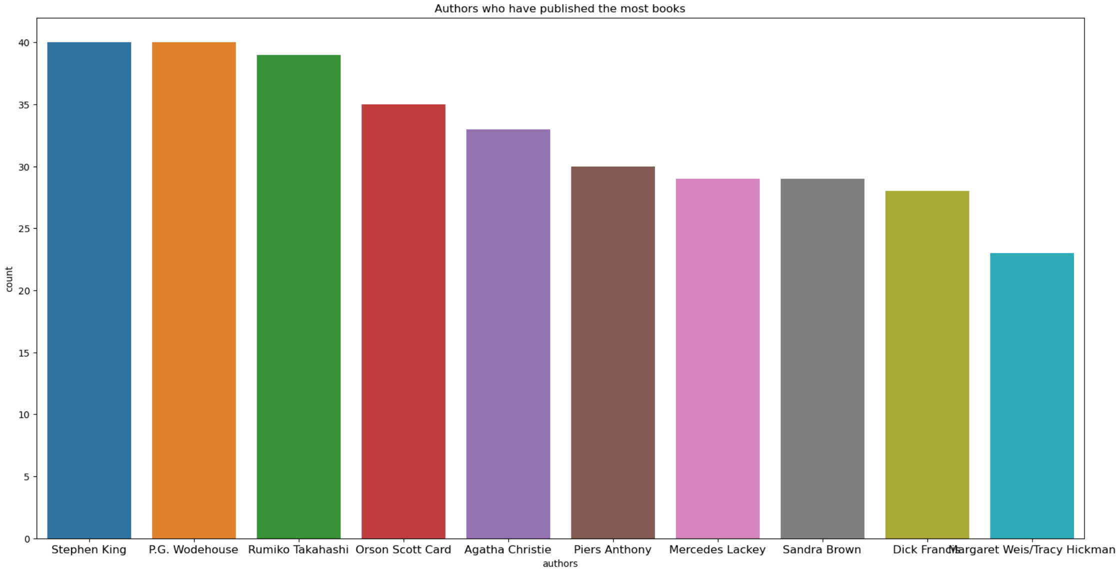
```
df.groupby(['year'])['title'].agg('count').sort_values(ascending = False).
 ↪head(10)
```

[19]:

```
year
2006    1700
2005    1260
2004    1069
2003     931
2002     798
2001     656
2000     534
2007     518
1999     450
1998     396
Name: title, dtype: int64
```

[20]:

```
plt.figure(figsize = (20, 10))
sns.countplot(x = 'authors', data = df,
             order = df['authors'].value_counts().iloc[:10].index)
plt.title("Authors who have published the most books")
plt.xticks(fontsize = 12)
plt.show()
```



[21]:

```
df.language_code.value_counts()
```

[21]:

```
language_code
eng      8908
en-US    1408
```

```
spa       218
en-GB     214
fre       144
ger        99
jpn        46
mul        19
zho        14
grc        11
por        10
en-CA       7
ita         5
enm         3
lat         3
rus         2
swe         2
ara         1
nl          1
srp         1
msa         1
glg         1
wel         1
nor         1
tur         1
gla         1
ale         1
Name: count, dtype: int64
```

[22]:

```
df.groupby(['language_code'])[['average_rating',
                               'ratings_count',
                               'text_reviews_count']].agg('mean').style.
 ↪background_gradient(cmap = 'plasma')
```

[22]:

```
<pandas.io.formats.style.Styler at 0x7f1a4f7b9de0>
```

[23]:

```
book = df['title'].value_counts()[:10]
book
```

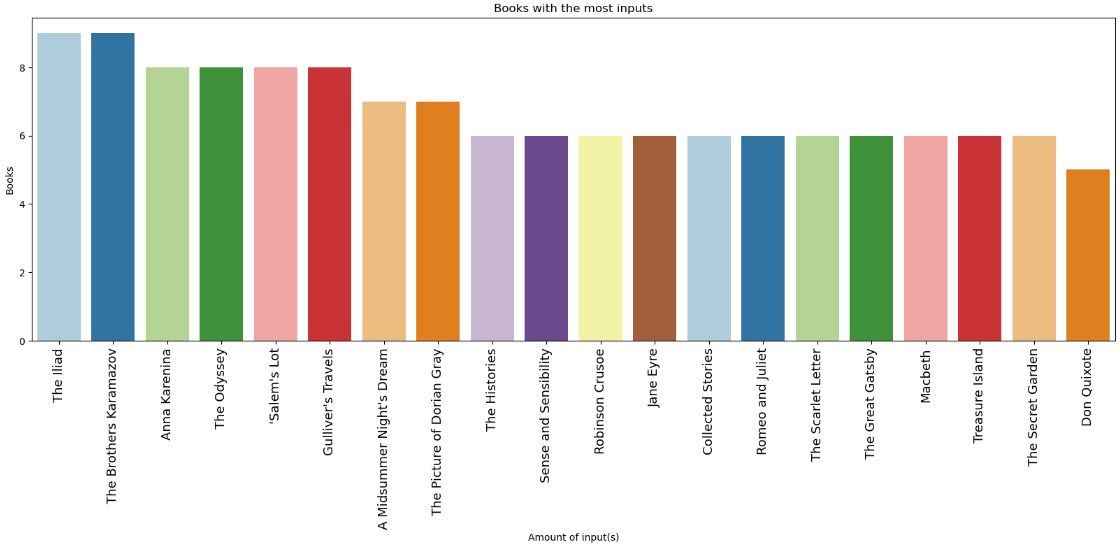
[23]:

```
title
The Iliad                    9
The Brothers Karamazov       9
Anna Karenina                8
The Odyssey                  8
'Salem's Lot                 8
Gulliver's Travels           8
A Midsummer Night's Dream    7
The Picture of Dorian Gray   7
The Histories                6
```

```
Sense and Sensibility         6
Name: count, dtype: int64
```

[24]:

```python
plt.figure(figsize = (20, 6))
book = df['title'].value_counts()[:20]
sns.barplot(x = book.index, y = book,
           palette = 'Paired')
plt.title("Books with the most inputs")
plt.xlabel("Amount of input(s)")
plt.ylabel("Books")
plt.xticks(rotation = 90, fontsize = 13)
plt.show()
```

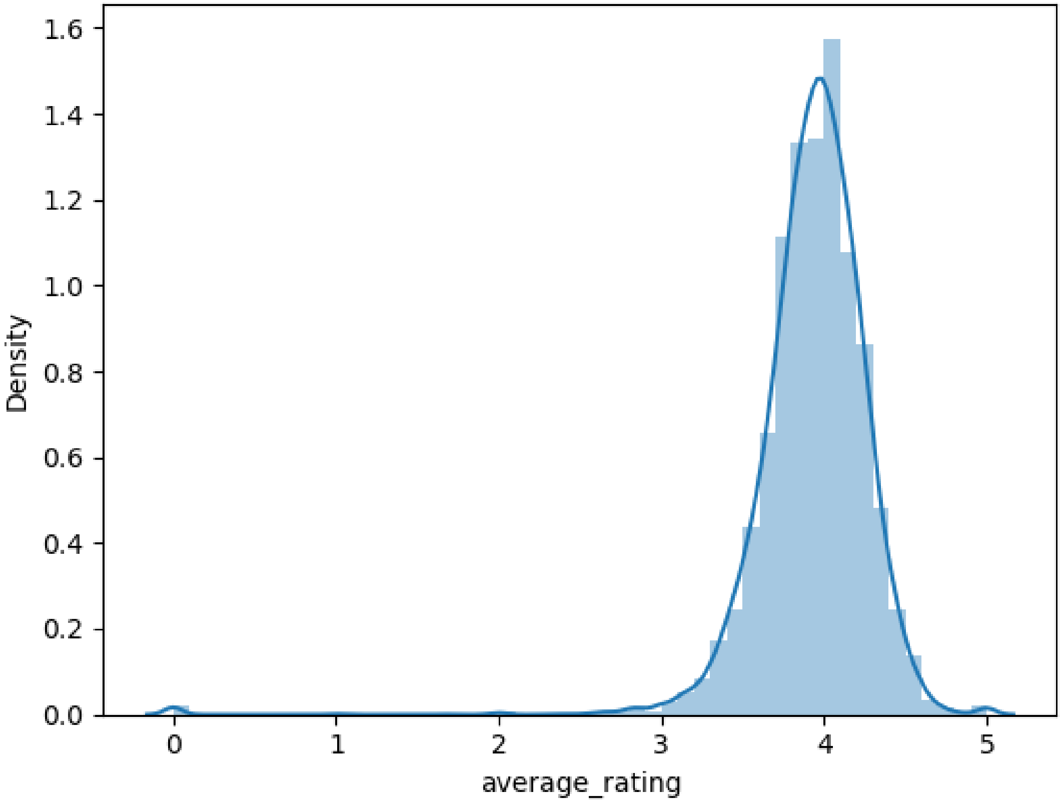


[25]:

```python
sns.distplot(df['average_rating'])
plt.show()
```

```
/tmp/ipykernel_250/3493288629.py:1: UserWarning:

`distplot` is a deprecated function and will be removed in seaborn v0.14.0.

Please adapt your code to use either `displot` (a figure-level function with
similar flexibility) or `histplot` (an axes-level function for histograms).

For a guide to updating your code to use the new functions, please see
https://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751

  sns.distplot(df['average_rating'])
/opt/conda/envs/anaconda-2024.02-py310/lib/python3.10/site-
packages/seaborn/_oldcore.py:1119: FutureWarning: use_inf_as_na option is
```

```
deprecated and will be removed in a future version. Convert inf values to NaN
before operating instead.
  with pd.option_context('mode.use_inf_as_na', True):
```



[26]:
```
df[df.average_rating == df.average_rating.
 ↪max()][['title','authors','language_code','publisher']]
```

[26]:
```
                                                   title  \
624    Comoediae 1: Acharenses/Equites/Nubes/Vespae/P…
786                     Willem de Kooning: Late Paintings
855    Literature Circle Guide: Bridge to Terabithia:…
1243   Middlesex Borough (Images of America: New Jersey)
4125   Zone of the Enders: The 2nd Runner Official St…
4788   The Diamond Color Meditation: Color Pathway to…
4933   Bulgakov's the Master and Margarita: The Text …
5023   The Complete Theory Fun Factory: Music Theory …
5474   The Goon Show  Volume 4: My Knees Have Fallen …
5476   The Goon Show  Volume 11: He's Fallen in the W…
5647                                 Winchester Shotguns
5648   Colossians and Philemon: A Critical and Exeget…
6184                           Taxation of Mineral Rents
```

```
6247                         The New Big Book of America
6775   Delwau Duon: Peintiadau Nicholas Evans = Symph…
8544        Fanning the Flame: Bible  Cross  and Mission
9282   Oliver Wendell Holmes in Paris: Medicine  Theo…
9324                  Tyrannosaurus Wrecks (Stanley  #1)
9720       The Irish Anatomist: A Study of Flann O'Brien
9847   The American Campaign: U.S. Presidential Campa…
9893   His Princess Devotional: A Royal Encounter Wit…
10262         Bill Gates: Computer Legend (Famous Lives)

                                                 authors language_code  \
624                  Aristophanes/F.W. Hall/W.M. Geldart           grc
786                      Julie Sylvester/David Sylvester           eng
855                                       Tara MacCarthy           eng
1243                Middlesex Borough Heritage Committee           eng
4125                                          Tim Bogenn           eng
4788                                       John  Diamond           eng
4933                                     Elena N. Mahlow           eng
5023                     Ian        Martin/Katie Elliott           eng
5474                                          NOT A BOOK           eng
5476                                          NOT A BOOK           eng
5647                            Dennis Adler/R.L. Wilson           eng
5648                                      R. McL. Wilson           eng
6184                                        Ross Garnaut           eng
6247                                Todd Davis/Marc Frey           eng
6775                     Nicholas    Evans/Rhonda  Evans           wel
8544    Chris    Green/Chris Wright/Paul Douglas Gardner           eng
9282                                  William C. Dowling           eng
9324   Laura Driscoll/Alisa Klayman-Grodsky/Eric     …          eng
9720                                       Keith Donohue           eng
9847                                   James E. Campbell           eng
9893                                 Sheri Rose Shepherd           eng
10262                                   Sara Barton-Wood           eng

                             publisher
624       Oxford University Press  USA
786                     Schirmer Mosel
855                 Teaching Resources
1243                Arcadia Publishing
4125                        BradyGames
4788             Square One Publishers
4933                     Vantage Press
5023               Boosey & Hawkes Inc
5474                BBC Physical Audio
5476                BBC Physical Audio
5647                   Chartwell Books
5648                   T&T Clark Int'l
```

```
6184      Oxford University Press  USA
6247                     Courage Books
6775                           Y Lolfa
8544                         Zondervan
9282   University Press of New England
9324                      Disney Press
9720                   Academica Press
9847        Texas A&M University Press
9893                         Multnomah
10262                         Raintree
```

[27]:

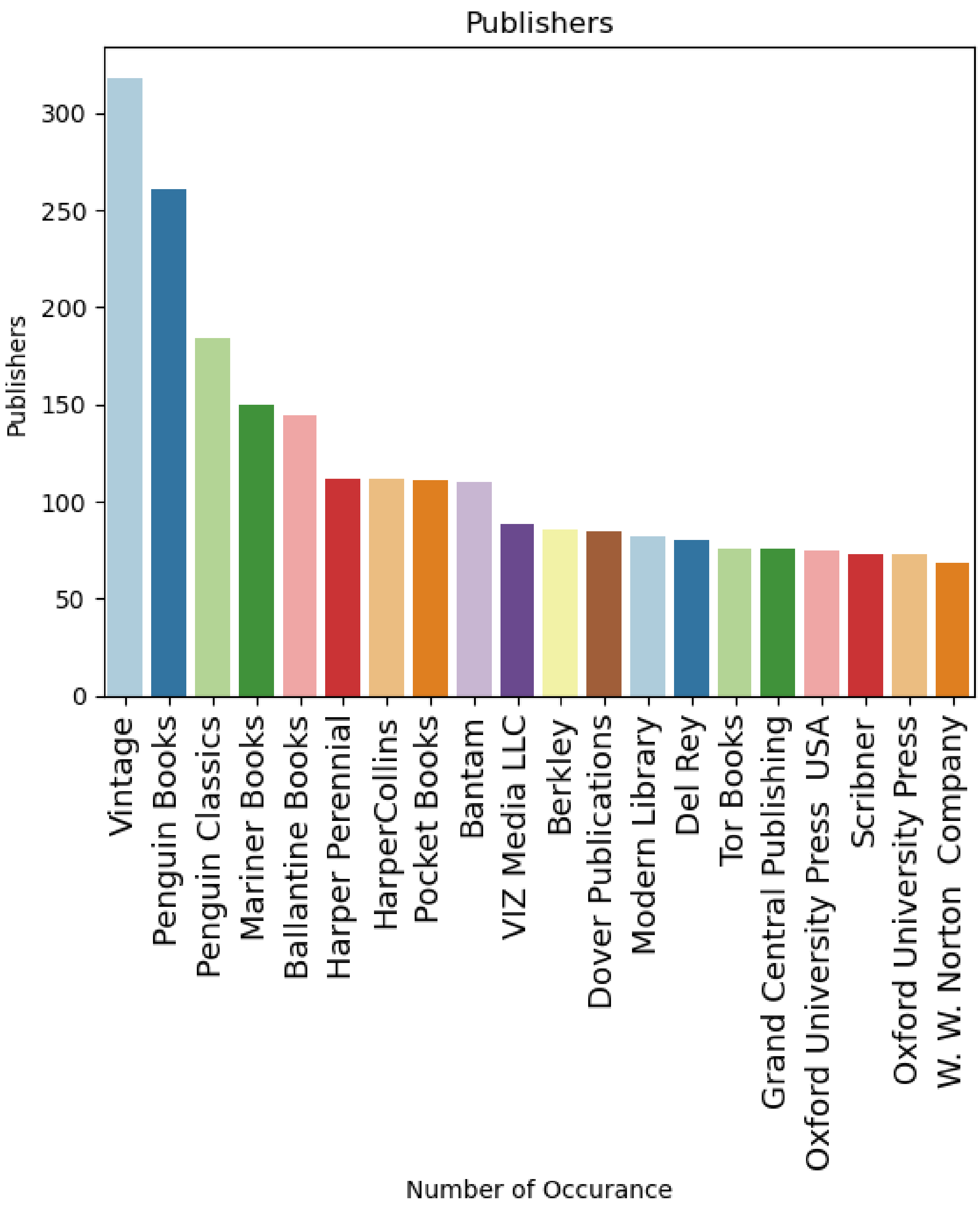
```
publisher = df['publisher'].value_counts()[:20]
publisher
```

[27]:

```
publisher
Vintage                         318
Penguin Books                   261
Penguin Classics                184
Mariner Books                   150
Ballantine Books                144
Harper Perennial                112
HarperCollins                   112
Pocket Books                    111
Bantam                          110
VIZ Media LLC                    88
Berkley                          86
Dover Publications               85
Modern Library                   82
Del Rey                          80
Tor Books                        76
Grand Central Publishing         76
Oxford University Press  USA     75
Scribner                         73
Oxford University Press          73
W. W. Norton  Company            68
Name: count, dtype: int64
```

[28]:

```
publisher = df['publisher'].value_counts()[:20]
sns.barplot(x = publisher.index, y = publisher, palette = 'Paired')
plt.title("Publishers")
plt.xlabel("Number of Occurance")
plt.ylabel("Publishers")
plt.xticks(rotation = 90, fontsize = 13)
plt.show()
```



[29]:
```
df.publisher.value_counts()
```

[29]:
```
publisher
Vintage                          318
Penguin Books                    261
Penguin Classics                 184
Mariner Books                    150
```

```
Ballantine Books              144
                             …
Harper Element                  1
Middlesex University Press      1
Tinder Press                    1
Bulfinch                        1
Other Press (NY)                1
Name: count, Length: 2290, dtype: int64
```

[30]:
```python
def recomd_books_publisheres(x):
    a = df[df['publisher'] == x][['title', 'average_rating']]
    a = a.sort_values(by = 'average_rating', ascending = False)
    return a.head(10)
```

[31]:
```python
recomd_books_publisheres('Berkley')
```

[31]:
```
                                                  title  average_rating
9399                  Winter Prey (Lucas Davenport  #5)            4.26
4135                 Chosen Prey (Lucas Davenport  #12)            4.24
2084                          The Psychology of Winning            4.21
4257  Death's Acre: Inside the Legendary Forensic La…            4.19
4194  Conversations with God: An Uncommon Dialogue  …            4.18
9396                 Broken Prey (Lucas Davenport  #16)            4.18
7873  Circus of the Damned (Anita Blake  Vampire Hun…            4.17
4521  Murder on the Orient Express (Hercule Poirot  …            4.17
5627  Death Match (Tom Clancy's Net Force Explorers …            4.17
5504                   Master of Wolves (Mageverse  #3)            4.17
```

[32]:
```python
@interact
def recomd_books_publishers(publisher_name = list(df['publisher'].
 ↪value_counts().index)):
    a = df[df['publisher'] == publisher_name][['title', 'average_rating']]
    a = a.sort_values(by = 'average_rating', ascending = False)
    return a.head(10)
```

```
interactive(children=(Dropdown(description='publisher_name', options=('Vintage',␣
 ↪'Penguin Books', 'Penguin Cla…
```

[33]:
```python
@interact
def recomd_books_authors(authors_name = list(df['authors'].value_counts().
 ↪index)):
    a = df[df['authors'] == authors_name][['title', 'average_rating']]
    a = a.sort_values(by = 'average_rating', ascending = False)
    return a.head(5)
```

```
interactive(children=(Dropdown(description='authors_name', options=('Stephen␣
 ↪King', 'P.G. Wodehouse', 'Rumiko …
```

[34]:

```
@interact
def recomd_books_lang(language = list(df['language_code'].value_counts().
 ↪index)):
    a = df[df['language_code'] == language][['title', 'average_rating']]
    a = a.sort_values(by = 'average_rating', ascending = False)
    return a.head(5)
```

```
interactive(children=(Dropdown(description='language', options=('eng', 'en-US',␣
 ↪'spa', 'en-GB', 'fre', 'ger', …
```

[35]:

```
df.head(5)
```

[35]:

```
                                                title  \
0  Harry Potter and the Half-Blood Prince (Harry …
1  Harry Potter and the Order of the Phoenix (Har…
2  Harry Potter and the Chamber of Secrets (Harry…
3  Harry Potter and the Prisoner of Azkaban (Harr…
4  Harry Potter Boxed Set  Books 1-5 (Harry Potte…

                      authors  average_rating language_code  num_pages  \
0  J.K. Rowling/Mary GrandPré            4.57           eng        652
1  J.K. Rowling/Mary GrandPré            4.49           eng        870
2                J.K. Rowling            4.42           eng        352
3  J.K. Rowling/Mary GrandPré            4.56           eng        435
4  J.K. Rowling/Mary GrandPré            4.78           eng       2690

   ratings_count  text_reviews_count publication_date        publisher  year
0        2095690               27591        9/16/2006  Scholastic Inc.  2006
1        2153167               29221         9/1/2004  Scholastic Inc.  2004
2           6333                 244        11/1/2003       Scholastic  2003
3        2339585               36325         5/1/2004  Scholastic Inc.  2004
4          41428                 164        9/13/2004       Scholastic  2004
```

[36]:

```
def num_to_obj(x):
    if x >0 and x <=1:
        return "between 0 and 1"
    if x > 1 and x <= 2:
        return "between 1 and 2"
    if x > 2 and x <=3:
        return "between 2 and 3"
    if x >3 and x<=4:
        return "between 3 and 4"
    if x >4 and x<=5:
        return "between 4 and 5"
df['rating_obj'] = df['average_rating'].apply(num_to_obj)
```

[37]:

```
df['rating_obj'].value_counts()
```

[37]:
```
rating_obj
between 3 and 4    6285
between 4 and 5    4735
between 2 and 3      69
between 1 and 2       7
between 0 and 1       2
Name: count, dtype: int64
```

[38]:
```
rating_df = pd.get_dummies(df['rating_obj'])
rating_df.head()
```

[38]:
```
   between 0 and 1  between 1 and 2  between 2 and 3  between 3 and 4  \
0            False            False            False            False
1            False            False            False            False
2            False            False            False            False
3            False            False            False            False
4            False            False            False            False

   between 4 and 5
0             True
1             True
2             True
3             True
4             True
```

[39]:
```
language_df = pd.get_dummies(df['language_code'])
language_df.head()
```

[39]:
```
     ale    ara  en-CA  en-GB  en-US    eng    enm    fre    ger    gla  …  \
0  False  False  False  False  False   True  False  False  False  False  …
1  False  False  False  False  False   True  False  False  False  False  …
2  False  False  False  False  False   True  False  False  False  False  …
3  False  False  False  False  False   True  False  False  False  False  …
4  False  False  False  False  False   True  False  False  False  False  …

      nl    nor    por    rus    spa    srp    swe    tur    wel    zho
0  False  False  False  False  False  False  False  False  False  False
1  False  False  False  False  False  False  False  False  False  False
2  False  False  False  False  False  False  False  False  False  False
3  False  False  False  False  False  False  False  False  False  False
4  False  False  False  False  False  False  False  False  False  False

[5 rows x 27 columns]
```

[40]:
```
features = pd.concat([rating_df,language_df, df['average_rating'],
                    df['ratings_count'], df['title']], axis = 1)
features.set_index('title', inplace= True)
features.head()
```

[40]:

```
                                                    between 0 and 1  \
title
Harry Potter and the Half-Blood Prince (Harry P…            False
Harry Potter and the Order of the Phoenix (Harr…            False
Harry Potter and the Chamber of Secrets (Harry …            False
Harry Potter and the Prisoner of Azkaban (Harry…            False
Harry Potter Boxed Set  Books 1-5 (Harry Potter…            False

                                                    between 1 and 2  \
title
Harry Potter and the Half-Blood Prince (Harry P…            False
Harry Potter and the Order of the Phoenix (Harr…            False
Harry Potter and the Chamber of Secrets (Harry …            False
Harry Potter and the Prisoner of Azkaban (Harry…            False
Harry Potter Boxed Set  Books 1-5 (Harry Potter…            False

                                                    between 2 and 3  \
title
Harry Potter and the Half-Blood Prince (Harry P…            False
Harry Potter and the Order of the Phoenix (Harr…            False
Harry Potter and the Chamber of Secrets (Harry …            False
Harry Potter and the Prisoner of Azkaban (Harry…            False
Harry Potter Boxed Set  Books 1-5 (Harry Potter…            False

                                                    between 3 and 4  \
title
Harry Potter and the Half-Blood Prince (Harry P…            False
Harry Potter and the Order of the Phoenix (Harr…            False
Harry Potter and the Chamber of Secrets (Harry …            False
Harry Potter and the Prisoner of Azkaban (Harry…            False
Harry Potter Boxed Set  Books 1-5 (Harry Potter…            False

                                                    between 4 and 5    ale  \
title
Harry Potter and the Half-Blood Prince (Harry P…             True  False
Harry Potter and the Order of the Phoenix (Harr…             True  False
Harry Potter and the Chamber of Secrets (Harry …             True  False
Harry Potter and the Prisoner of Azkaban (Harry…             True  False
Harry Potter Boxed Set  Books 1-5 (Harry Potter…             True  False

                                                    ara  en-CA  en-GB  \
title
Harry Potter and the Half-Blood Prince (Harry P…  False  False  False
Harry Potter and the Order of the Phoenix (Harr…  False  False  False
Harry Potter and the Chamber of Secrets (Harry …  False  False  False
Harry Potter and the Prisoner of Azkaban (Harry…  False  False  False
Harry Potter Boxed Set  Books 1-5 (Harry Potter…  False  False  False

                                                    en-US  …    por    rus  \
title                                                      …
Harry Potter and the Half-Blood Prince (Harry P…  False  …  False  False
Harry Potter and the Order of the Phoenix (Harr…  False  …  False  False
Harry Potter and the Chamber of Secrets (Harry …  False  …  False  False
Harry Potter and the Prisoner of Azkaban (Harry…  False  …  False  False
Harry Potter Boxed Set  Books 1-5 (Harry Potter…  False  …  False  False

                                                      spa    srp    swe  \
title
Harry Potter and the Half-Blood Prince (Harry P…  False  False  False
Harry Potter and the Order of the Phoenix (Harr…  False  False  False
Harry Potter and the Chamber of Secrets (Harry …  False  False  False
Harry Potter and the Prisoner of Azkaban (Harry…  False  False  False
Harry Potter Boxed Set  Books 1-5 (Harry Potter…  False  False  False

                                                      tur    wel    zho  \
title
Harry Potter and the Half-Blood Prince (Harry P…  False  False  False
Harry Potter and the Order of the Phoenix (Harr…  False  False  False
Harry Potter and the Chamber of Secrets (Harry …  False  False  False
Harry Potter and the Prisoner of Azkaban (Harry…  False  False  False
Harry Potter Boxed Set  Books 1-5 (Harry Potter…  False  False  False

                                                    average_rating  \
title
Harry Potter and the Half-Blood Prince (Harry P…            4.57
Harry Potter and the Order of the Phoenix (Harr…            4.49
Harry Potter and the Chamber of Secrets (Harry …            4.42
Harry Potter and the Prisoner of Azkaban (Harry…            4.56
Harry Potter Boxed Set  Books 1-5 (Harry Potter…            4.78

                                                    ratings_count
title
Harry Potter and the Half-Blood Prince (Harry P…        2095690
Harry Potter and the Order of the Phoenix (Harr…        2153167
Harry Potter and the Chamber of Secrets (Harry …           6333
Harry Potter and the Prisoner of Azkaban (Harry…        2339585
Harry Potter Boxed Set  Books 1-5 (Harry Potter…          41428

[5 rows x 34 columns]
```

```
[41]: scaler = MinMaxScaler()
      features_scaled = scaler.fit_transform(features)
```

```
features_scaled
```

```
[41]: array([[0.00000000e+00, 0.00000000e+00, 0.00000000e+00, …,
              0.00000000e+00, 9.14000000e-01, 4.55816060e-01],
             [0.00000000e+00, 0.00000000e+00, 0.00000000e+00, …,
              0.00000000e+00, 8.98000000e-01, 4.68317403e-01],
             [0.00000000e+00, 0.00000000e+00, 0.00000000e+00, …,
              0.00000000e+00, 8.84000000e-01, 1.37743803e-03],
             …,
             [0.00000000e+00, 0.00000000e+00, 0.00000000e+00, …,
              0.00000000e+00, 7.92000000e-01, 1.78351363e-04],
             [0.00000000e+00, 0.00000000e+00, 0.00000000e+00, …,
              0.00000000e+00, 7.44000000e-01, 1.67258779e-04],
             [0.00000000e+00, 0.00000000e+00, 0.00000000e+00, …,
              0.00000000e+00, 7.82000000e-01, 2.45776879e-05]])
```

```
[42]: model = neighbors.NearestNeighbors(n_neighbors=5, algorithm = 'ball_tree',
                                        metric = 'euclidean')
      model.fit(features_scaled)
      dist, idlist = model.kneighbors(features_scaled)
```

```
[43]: df['title'].value_counts()
```

```
[43]: title
      The Iliad                                      9
      The Brothers Karamazov                         9
      Anna Karenina                                  8
      The Odyssey                                    8
      'Salem's Lot                                   8
                                                    ..
      Son of the Shadows (Sevenwaters  #2)           1
      Wildwood Dancing (Wildwood  #1)                1
      The Noonday Demon: An Atlas of Depression      1
      The Noonday Demon: An Anatomy of Depression    1
      How To Have A Beautiful Mind                   1
      Name: count, Length: 10348, dtype: int64
```

```
[44]: @interact
      def BookRecomender(book_name = list(df['title'].value_counts().index)):
          book_list_name = []
          book_id = df[df['title'] == book_name].index
          book_id = book_id[0]
          for newid in idlist[book_id]:
              book_list_name.append(df.iloc[newid].title)
          return book_list_name
```

```
interactive(children=(Dropdown(description='book_name', options=('The Iliad',␣
 ↪'The Brothers Karamazov', 'Anna …
```