Dockerassignment2

April 24, 2024

[2]:

```python
import pandas as pd
df_books = pd.read_csv('books.csv')
df_books.head()
```

[2]:

```
   book_id  goodreads_book_id  best_book_id   work_id  books_count       isbn  \
0        1            2767052       2767052   2792775          272  439023483
1        2                  3             3   4640799          491  439554934
2        3              41865         41865   3212258          226  316015849
3        6           11870085      11870085  16827462          226  525478817
4       12           13335037      13335037  13155899          210   62024035

         isbn13                      authors  original_publication_year  \
0  9.780439e+12              Suzanne Collins                     2008.0
1  9.780440e+12  J.K. Rowling, Mary GrandPré                     1997.0
2  9.780316e+12              Stephenie Meyer                     2005.0
3  9.780525e+12                   John Green                     2012.0
4  9.780062e+12                Veronica Roth                     2011.0

                             original_title  … ratings_count  \
0                          The Hunger Games  …       4780653
1  Harry Potter and the Philosopher's Stone  …       4602479
2                                  Twilight  …       3866839
3                    The Fault in Our Stars  …       2346404
4                                 Divergent  …       1903563

  work_ratings_count  work_text_reviews_count  ratings_1  ratings_2  \
0            4942365                   155254      66715     127936
1            4800065                    75867      75504     101676
2            3916824                    95009     456191     436802
3            2478609                   140739      47994      92723
4            2216814                   101023      36315      82870

   ratings_3  ratings_4  ratings_5  \
0     560092    1481305    2706317
1     455024    1156318    3011543
2     793319     875073    1355439
3     327550     698471    1311871
```

```
4     310297      673028     1114304

                                           image_url  \
0  https://images.gr-assets.com/books/1447303603m…
1  https://images.gr-assets.com/books/1474154022m…
2  https://images.gr-assets.com/books/1361039443m…
3  https://images.gr-assets.com/books/1360206420m…
4  https://images.gr-assets.com/books/1328559506m…

                                     small_image_url
0  https://images.gr-assets.com/books/1447303603s…
1  https://images.gr-assets.com/books/1474154022s…
2  https://images.gr-assets.com/books/1361039443s…
3  https://images.gr-assets.com/books/1360206420s…
4  https://images.gr-assets.com/books/1328559506s…

[5 rows x 23 columns]
```

[6]:

```
#Data_Cleaning



df_cleaned = df_books.drop_duplicates()

relevant_columns = ['book_id', 'authors', 'original_publication_year',
                    'original_title', 'average_rating', 'ratings_count',␣
 ↪'work_ratings_count']
df_harry_potter_cleaned = df_cleaned[relevant_columns]

missing_values = df_harry_potter_cleaned.isnull().sum()
print("\nMissing values before cleaning:")
print(missing_values)

df_harry_potter_cleaned = df_harry_potter_cleaned.
 ↪dropna(subset=['original_title'])

median_year = int(df_harry_potter_cleaned['original_publication_year'].
 ↪median(skipna=True))
df_harry_potter_cleaned['original_publication_year'] =␣
 ↪df_harry_potter_cleaned['original_publication_year'].fillna(median_year).
 ↪astype(int)

df_harry_potter_cleaned =␣
 ↪df_harry_potter_cleaned[df_harry_potter_cleaned['original_title'].str.
 ↪contains("Harry Potter", na=False, case=False)]

df_harry_potter_cleaned.reset_index(drop=True, inplace=True)
```

```
print("\nDataset after cleaning and filtering:")
print(df_harry_potter_cleaned.head())

print("\nMissing values after all cleaning:")
print(df_harry_potter_cleaned.isnull().sum())
```

```
Missing values before cleaning:
book_id                       0
authors                       0
original_publication_year     3
original_title               52
average_rating                0
ratings_count                 0
work_ratings_count            0
dtype: int64

Dataset after cleaning and filtering:
   book_id                                  authors  \
0        2              J.K. Rowling, Mary GrandPré
1       18  J.K. Rowling, Mary GrandPré, Rufus Beck
2       21              J.K. Rowling, Mary GrandPré
3       23              J.K. Rowling, Mary GrandPré
4       24              J.K. Rowling, Mary GrandPré

   original_publication_year                             original_title  \
0                       1997   Harry Potter and the Philosopher's Stone
1                       1999   Harry Potter and the Prisoner of Azkaban
2                       2003  Harry Potter and the Order of the Phoenix
3                       1998    Harry Potter and the Chamber of Secrets
4                       2000        Harry Potter and the Goblet of Fire

   average_rating  ratings_count  work_ratings_count
0            4.44        4602479             4800065
1            4.53        1832823             1969375
2            4.46        1735368             1840548
3            4.37        1779331             1906199
4            4.53        1753043             1868642

Missing values after all cleaning:
book_id                      0
authors                      0
original_publication_year    0
original_title               0
average_rating               0
ratings_count                0
work_ratings_count           0
```

```
dtype: int64
```

[7]:
```
df_harry_potter_sorted = df_harry_potter_cleaned.
 ↪sort_values(by='ratings_count', ascending=False)

print("Most Selling Harry Potter Books:")
print(df_harry_potter_sorted[['original_title', 'ratings_count']].head())
```

```
Most Selling Harry Potter Books:
                             original_title  ratings_count
0  Harry Potter and the Philosopher's Stone        4602479
1  Harry Potter and the Prisoner of Azkaban        1832823
3   Harry Potter and the Chamber of Secrets        1779331
4       Harry Potter and the Goblet of Fire        1753043
5      Harry Potter and the Deathly Hallows        1746574
```

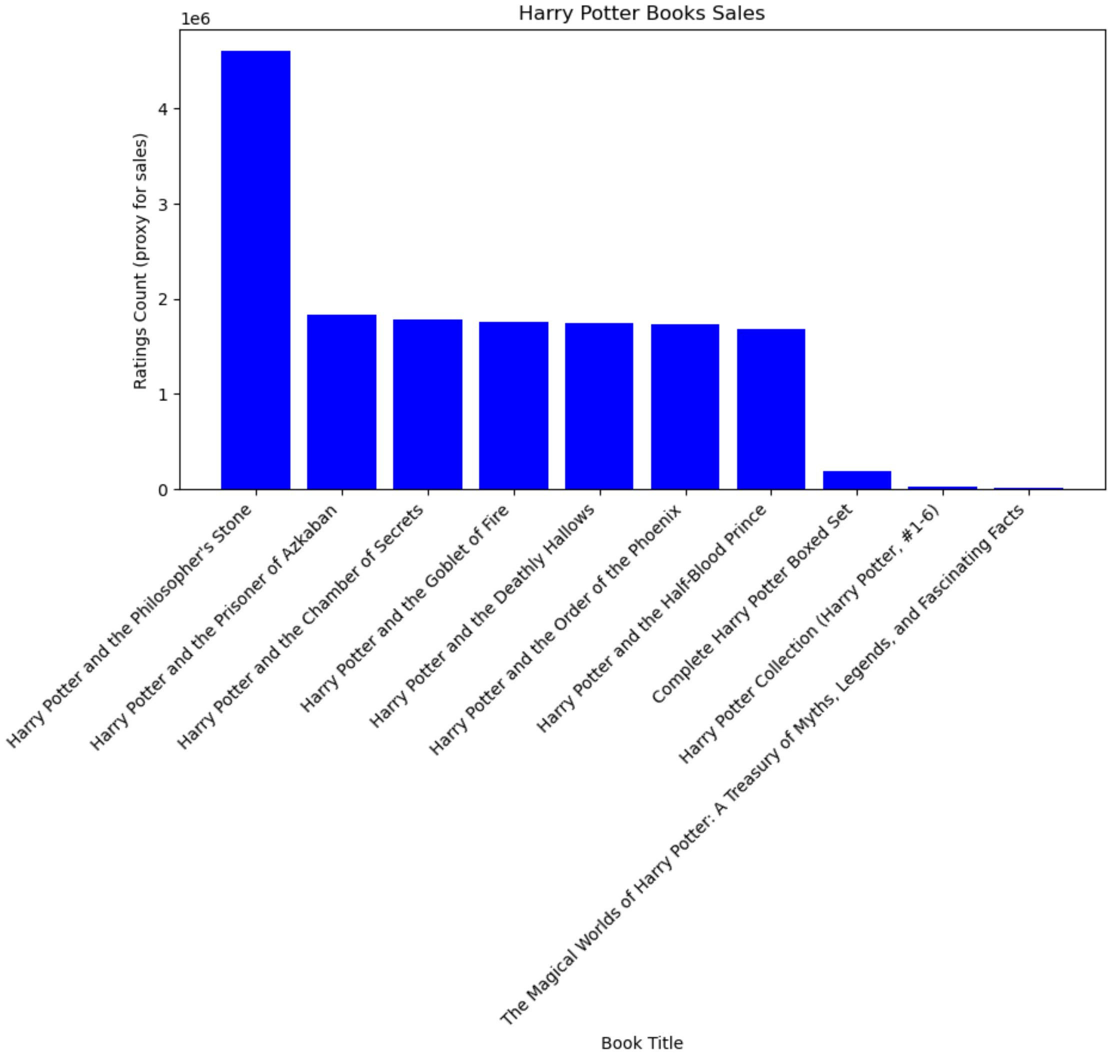
[8]:
```
average_rating_hp = df_harry_potter_cleaned['average_rating'].mean()

print(f"\nThe average rating of Harry Potter books is: {average_rating_hp:.2f}")
```

```

The average rating of Harry Potter books is: 4.49
```

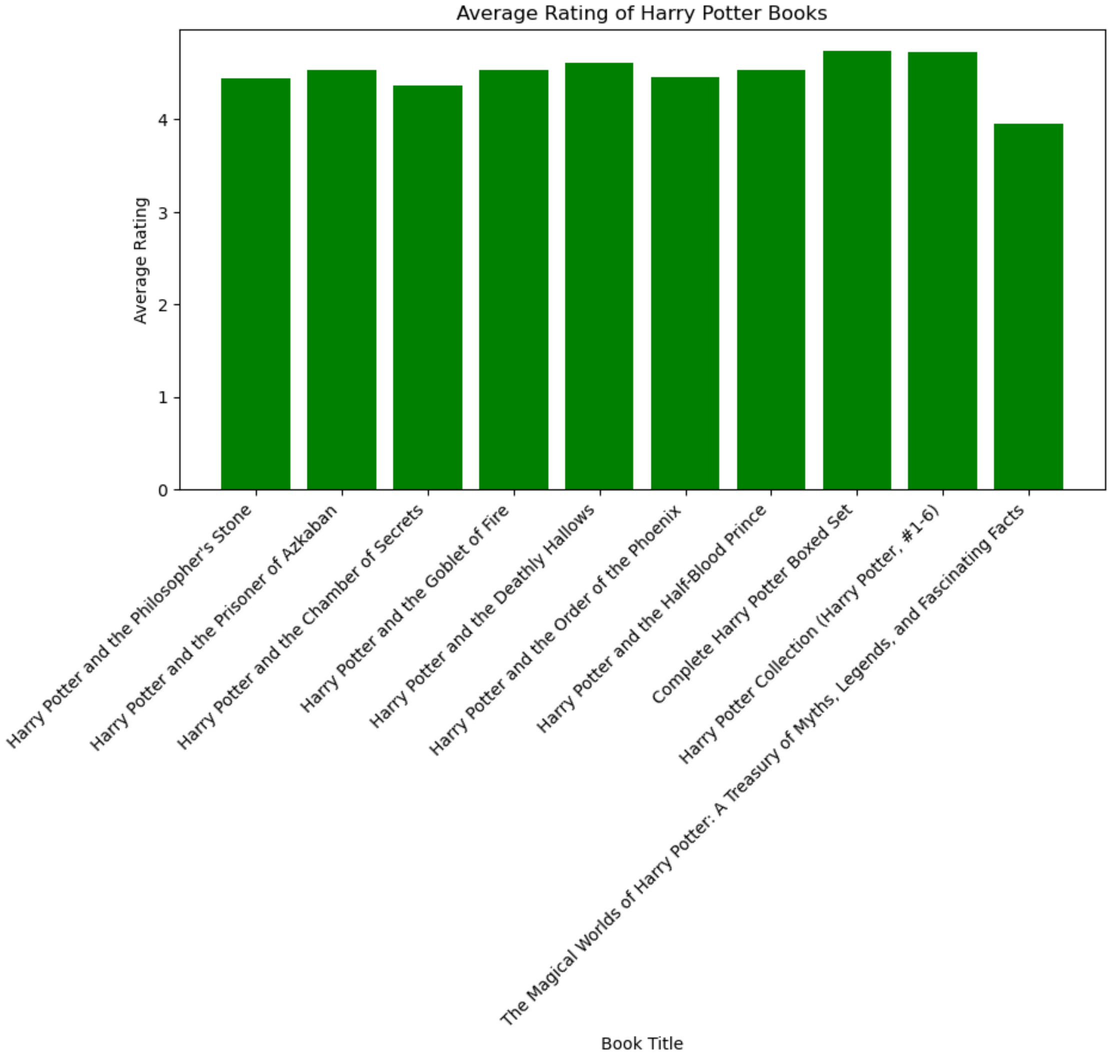
[9]:
```
#Visulization-Additional step

import matplotlib.pyplot as plt

plt.figure(figsize=(10, 5))
plt.bar(df_harry_potter_sorted['original_title'],␣
 ↪df_harry_potter_sorted['ratings_count'], color='blue')
plt.xlabel('Book Title')
plt.ylabel('Ratings Count (proxy for sales)')
plt.title('Harry Potter Books Sales')
plt.xticks(rotation=45, ha="right")
plt.tight_layout()
plt.show()

plt.figure(figsize=(10, 5))
plt.bar(df_harry_potter_sorted['original_title'],␣
 ↪df_harry_potter_sorted['average_rating'], color='green')
plt.xlabel('Book Title')
plt.ylabel('Average Rating')
plt.title('Average Rating of Harry Potter Books')
plt.xticks(rotation=45, ha="right")
plt.tight_layout()
plt.show()
```

```
/tmp/ipykernel_2514/1574638642.py:11: UserWarning: Tight layout not applied. The
```

```
bottom and top margins cannot be made large enough to accommodate all axes
decorations.
  plt.tight_layout()
```



```
/tmp/ipykernel_2514/1574638642.py:20: UserWarning: Tight layout not applied. The
bottom and top margins cannot be made large enough to accommodate all axes
decorations.
  plt.tight_layout()
```


Average Rating of Harry Potter Books
Average Rating
0
1
2
3
4
Harry Potter and the Philosopher's Stone
Harry Potter and the Prisoner of Azkaban
Harry Potter and the Chamber of Secrets
Harry Potter and the Goblet of Fire
Harry Potter and the Deathly Hallows
Harry Potter and the Order of the Phoenix
Harry Potter and the Half-Blood Prince
Complete Harry Potter Boxed Set
Harry Potter Collection (Harry Potter, #1-6)
The Magical Worlds of Harry Potter: A Treasury of Myths, Legends, and Fascinating Facts
Book Title

[ ]: