


User Rating Network Based Recommendation System

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Introduction

Recommendation systems is a form of content filtering based on user input and prior interaction with the system. Our project focuses on graph properties to recommend books to users based on previous user ratings. Various factors such as average ratings, popularity of books and users’ reading lists are considered.

Dataset and EDA

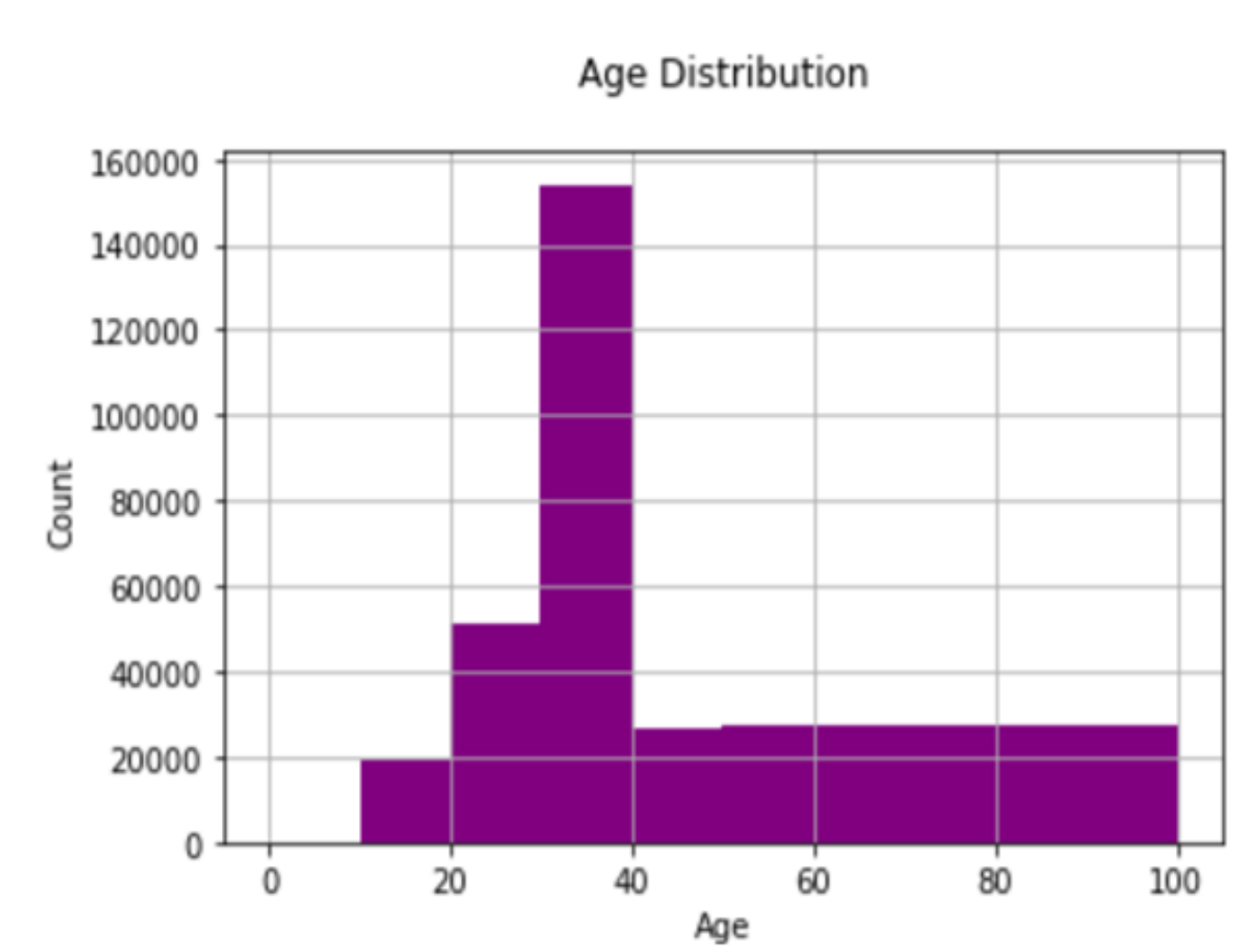
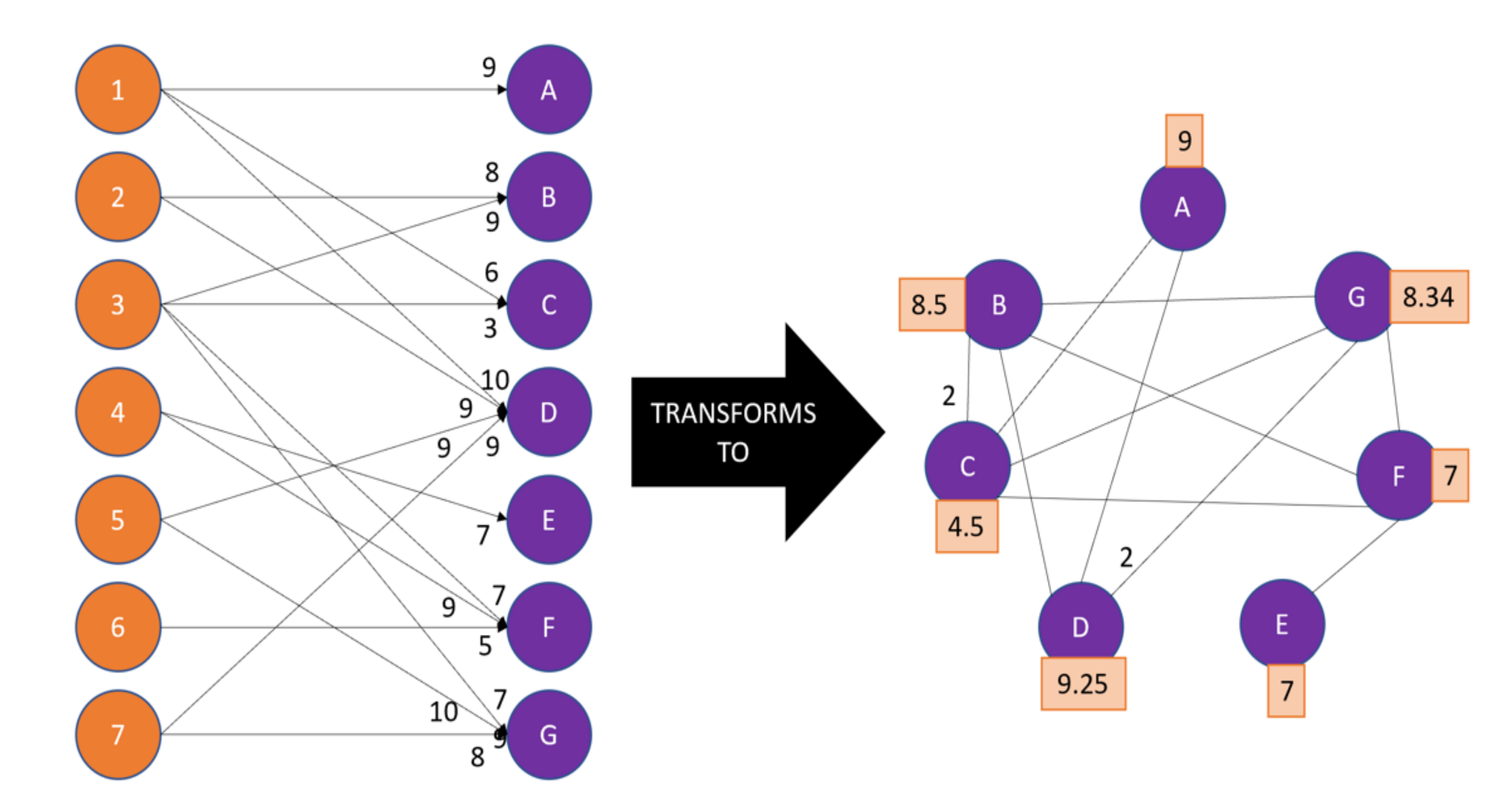
Algorithm

Dataset: BookCrossing User Ratings

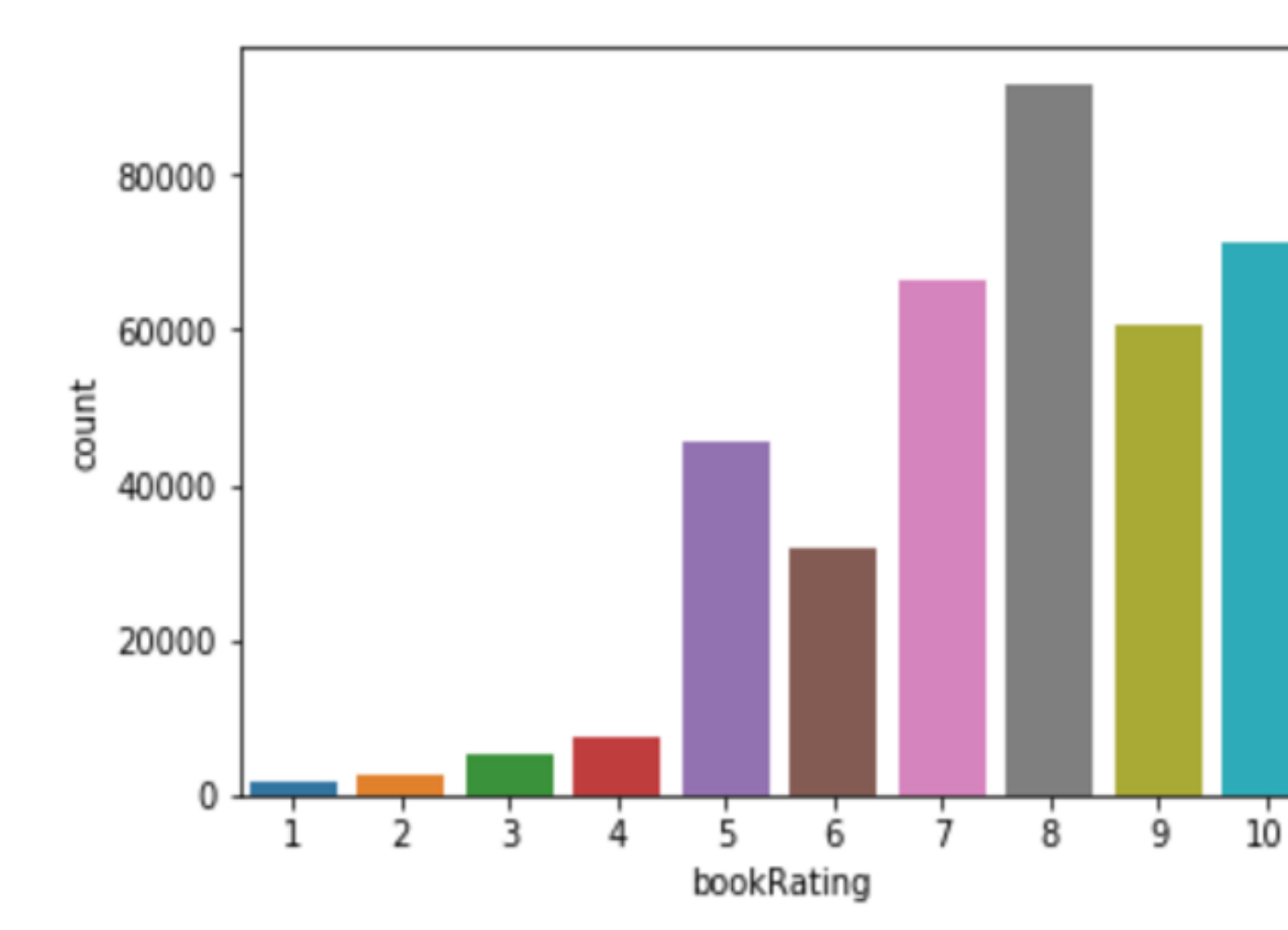
Users: 278854, Books: 271361

ISBN	bookRating	rating_count
0316666343	8.185290	707
0971880107	4.390706	581
0385504209	8.435318	487
0312195516	8.182768	383
0060928336	7.887500	320
059035342X	8.939297	313
0142001740	8.452769	307
0446672211	8.142373	295
044023722X	7.338078	281
0452282152	7.982014	278

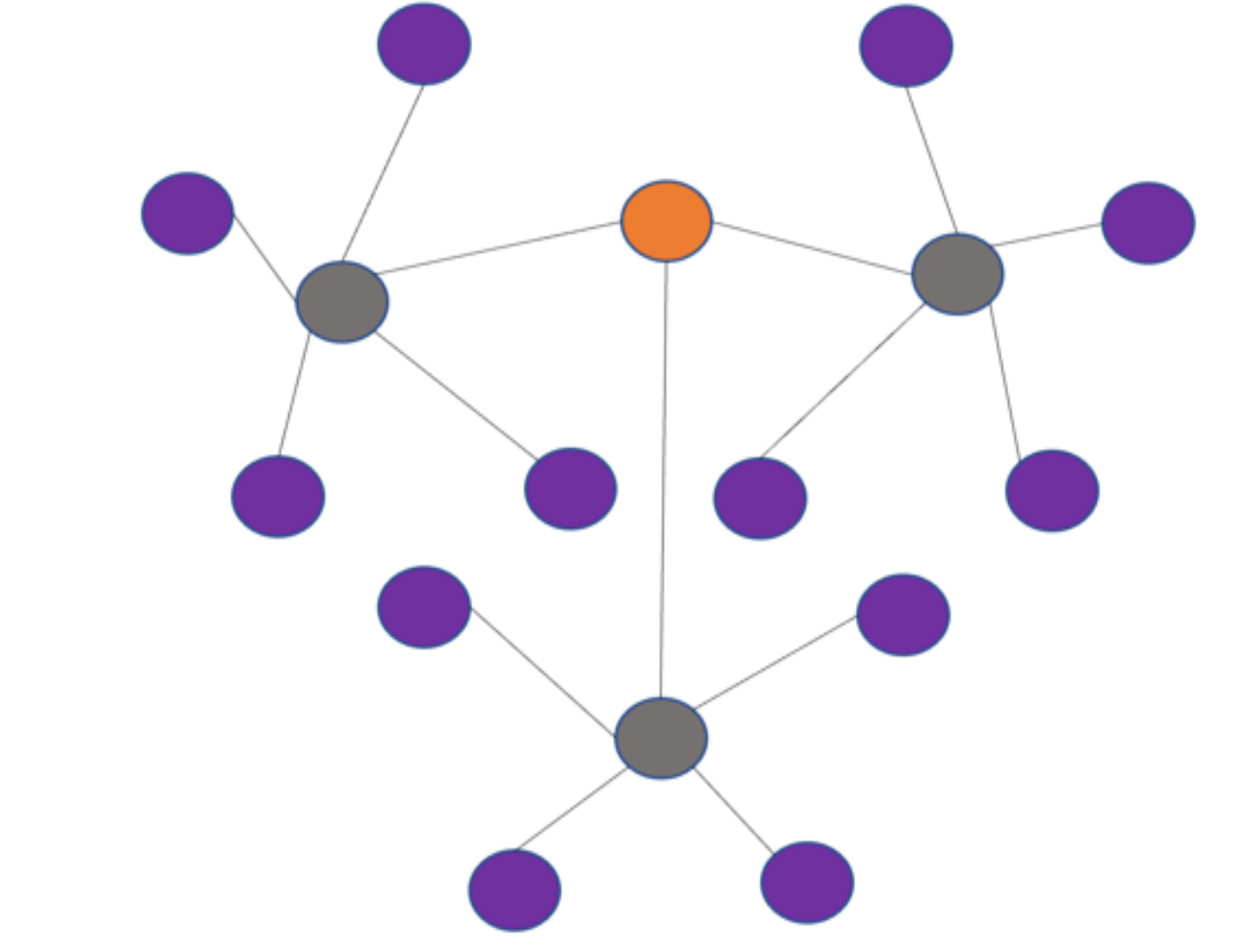
Subgraph Generation



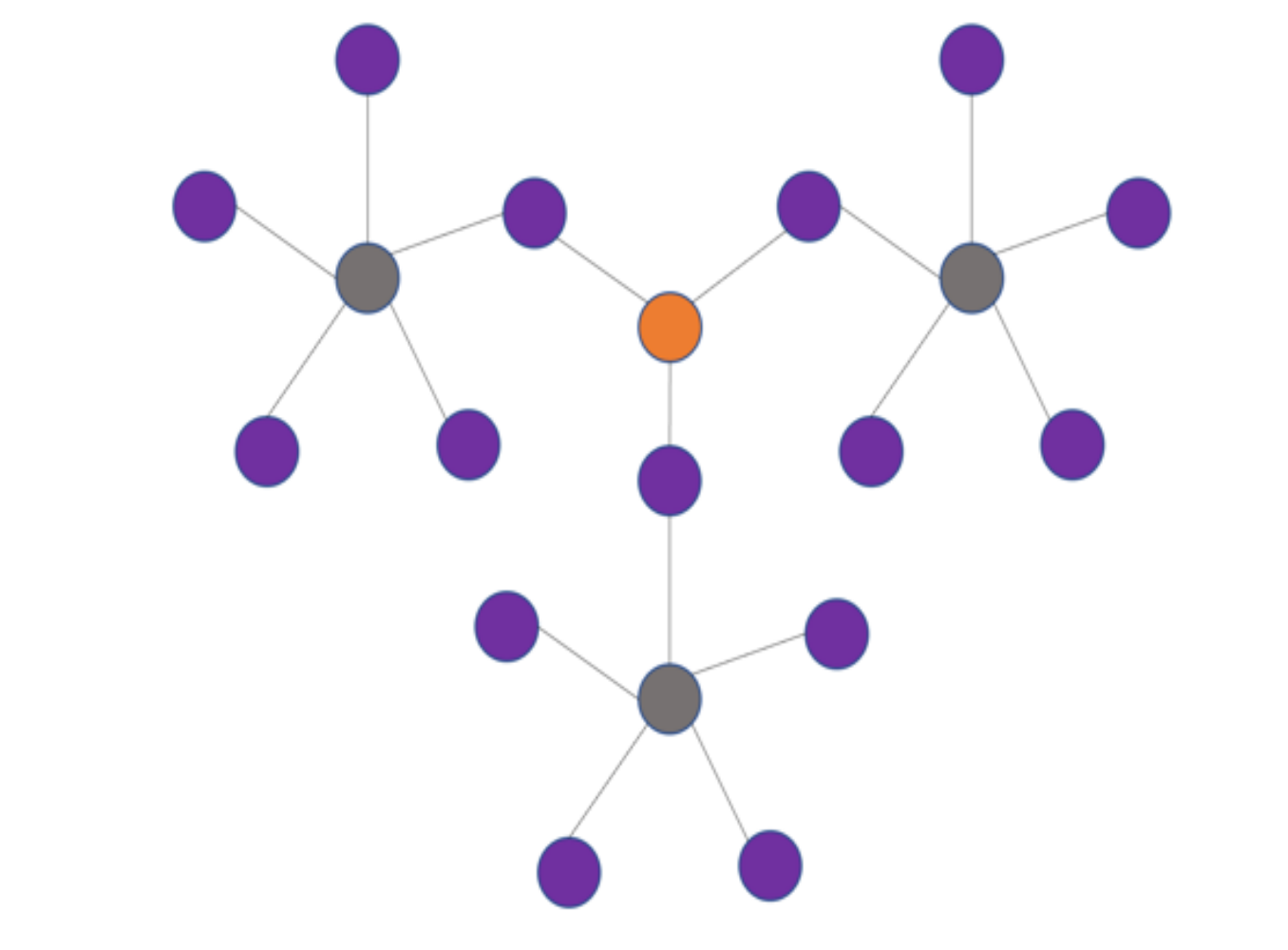
Age Distribution



Rating distribution



Common neighbors



Common paths

Results and Time Analysis

Book based

User based

Your reading list is:

213701 Harry Potter and the Order of the Phoenix (Boo...
Name: bookTitle, dtype: object
3459 Harry Potter and the Chamber of Secrets (Book 2)
Name: bookTitle, dtype: object
9399 Harry Potter and the Prisoner of Azkaban (Book 3)
Name: bookTitle, dtype: object
From observations we made on your reading list, we recommend you read:
5431 Harry Potter and the Goblet of Fire (Book 4)
Name: bookTitle, dtype: object
5432 Harry Potter and the Chamber of Secrets (Book 2)
Name: bookTitle, dtype: object
2889 Harry Potter and the Sorcerer's Stone (Book 1)
Name: bookTitle, dtype: object
77242 Valuet Song
Name: bookTitle, dtype: object
93596 George & the Virgin
Name: bookTitle, dtype: object
1143 Harry Potter and the Sorcerer's Stone (Harry P...
Name: bookTitle, dtype: object
4893 J. K. Rowling: The Wizard Behind Harry Potter
Name: bookTitle, dtype: object
81736 The Foulwars of Sweet Valley (Sweet Valley Saga)
Name: bookTitle, dtype: object
9476 Jane Eyre (Bantam Classics)
Name: bookTitle, dtype: object
You are currently viewing:
123834 Confederacy of the Dead
Name: bookTitle, dtype: object
We recommend that you read:
123951 Adulthood Rites: Xenogenesis (Butler, Octavia/.
Name: bookTitle, dtype: object
123962 The Dragon and the Fair Maid of Kent
Name: bookTitle, dtype: object
123959 Widow's Weeds (Clan Novel: Tremere Trilogy, Bo.
Name: bookTitle, dtype: object
123883 Dark Tyrants (Vampire - the Dark Ages)
Name: bookTitle, dtype: object
123958 Widow's Walk (Clan Novel: Tremere Trilogy, Boo.
Name: bookTitle, dtype: object
123884 Sea Horse (Saddle Club (Paperback))
Name: bookTitle, dtype: object
123899 Tunes for Bears to Dance to
Name: bookTitle, dtype: object
123891 X.Y
Name: bookTitle, dtype: object
123962 The Nihilisthete
Name: bookTitle, dtype: object
123961 Harooned (Star Trek Voyager, No 14)
Name: bookTitle, dtype: object

You are currently viewing:

52218 Little Women
Name: bookTitle, dtype: object
52439 Murder on the Ballarat Train
Name: bookTitle, dtype: object
52424 Sarum: The Novel of England
Name: bookTitle, dtype: object
52397 The Hakeover Murders
Name: bookTitle, dtype: object
52421 Dear Mom Thank You For Everything
Name: bookTitle, dtype: object
52408 The Chains of Fate
Name: bookTitle, dtype: object
52397 The Hakeover Murders
Name: bookTitle, dtype: object
80951 A Hundred and One Uses of a Dead Cat
Name: bookTitle, dtype: object
52396 Women as mothers
Name: bookTitle, dtype: object
1143 Harry Potter and the Sorcerer's Stone (Harry P...
Name: bookTitle, dtype: object
4893 J. K. Rowling: The Wizard Behind Harry Potter
Name: bookTitle, dtype: object
81736 The Foulwars of Sweet Valley (Sweet Valley Saga)
Name: bookTitle, dtype: object
9476 Jane Eyre (Bantam Classics)
Name: bookTitle, dtype: object
You are currently viewing:
52172 Best of Sherlock Holmes
Name: bookTitle, dtype: object
162014 Warlock
Name: bookTitle, dtype: object
54684 Hontrous Regiment (Pratchett, Terry)
Name: bookTitle, dtype: object
144034 The People Next Door
Name: bookTitle, dtype: object
55575 The Piano Man's Daughter
Name: bookTitle, dtype: object
116249 Courage My Love: A Novel
Name: bookTitle, dtype: object
246514 Longshot Edition UK
Name: bookTitle, dtype: object
111358 The Stainless Steel Rat Joins The Circus (Stai...
Name: bookTitle, dtype: object
212699 Sins
Name: bookTitle, dtype: object
64072 Code to Zero
Name: bookTitle, dtype: object
6424 Great Expectations (Wordsworth Classics)
Name: bookTitle, dtype: object
28263 Deadlock (V.I. Marshauski Novels (Paperback))
Name: bookTitle, dtype: object

Your reading list is:

248971 Garzanti - Gli Elefanti: Dolori Del Giovane We...
Name: bookTitle, dtype: object
248969 El Lobo de Mar
Name: bookTitle, dtype: object
248949 Felix und das liebe Geld
Name: bookTitle, dtype: object
248944 Un peu plus loin sur la droite
Name: bookTitle, dtype: object
248936 Tom Strong - Book Two of the Heroic New Series
Name: bookTitle, dtype: object
248913 Tom Green - Udder Insanity
Name: bookTitle, dtype: object
248908 Hold Your Horses
Name: bookTitle, dtype: object
248907 My Brother's a World-Class Pain: A Sibling's G...
Name: bookTitle, dtype: object
248887 Pizza
Name: bookTitle, dtype: object
248880 Autumn Angel
Name: bookTitle, dtype: object
From observations we made on your reading list, we recommend you read:
24440 Tending Roses
Name: bookTitle, dtype: object
81596 The Life of Sir Arthur Conan Doyle
Name: bookTitle, dtype: object
24554 Blue Diary
Name: bookTitle, dtype: object
10679 Lullaby: A Novel
Name: bookTitle, dtype: object
24666 Breathing Water
Name: bookTitle, dtype: object
10683 The Hot Zone
Name: bookTitle, dtype: object
212699 Sins
Name: bookTitle, dtype: object
48867 The Watcher
Name: bookTitle, dtype: object
6424 Great Expectations (Wordsworth Classics)
Name: bookTitle, dtype: object
28263 Deadlock (V.I. Marshauski Novels (Paperback))
Name: bookTitle, dtype: object
179948 Silence on Monte Sole
Name: bookTitle, dtype: object

Your reading list is:

244087 The Ladies' Paradise (Oxford World's Classics ...
Name: bookTitle, dtype: object
198707 The Summer My Father Was Ten
Name: bookTitle, dtype: object
198693 David Wiseman's Tuesday/Book and Frog: Book Ba...
Name: bookTitle, dtype: object
198689 Cotton Comes to Harlem
Name: bookTitle, dtype: object
198679 Free Soil, Free Labor, Free Men: The Ideology ...
Name: bookTitle, dtype: object
198682 Nothing but Freedom: Emancipation and Its Lega...
Name: bookTitle, dtype: object
198679 Free Soil, Free Labor, Free Men: The Ideology ...
Name: bookTitle, dtype: object
198664 The Boy of the Three-Year Nap
Name: bookTitle, dtype: object
198661 The Mixed-Up Chameleon
Name: bookTitle, dtype: object
198659 Back to the Cabin
Name: bookTitle, dtype: object
From observations we made on your reading list, we recommend you rea...
9909 Having Our Say : The Delany Sisters' First 100...
Name: bookTitle, dtype: object
198325 Human Geography : Culture, Society, and Space
Name: bookTitle, dtype: object
16055 Humanity: A Moral History of the Twentieth Cen...
Name: bookTitle, dtype: object
16056 Portnoy's Complaint
Name: bookTitle, dtype: object
57017 A Bright Shining Lie: John Paul Vann and Ameri...
Name: bookTitle, dtype: object
198328 Great Wall and the Empty Fortress: China's Sea...
Name: bookTitle, dtype: object
198332 Doctor Faustus and Other Plays (Oxford World's...
Name: bookTitle, dtype: object
198334 Rainbow (Voices from Asia, No 4)
Name: bookTitle, dtype: object
198338 Imperialism the Highest Stage of Capitalism
Name: bookTitle, dtype: object
71364 The Practice of Poetry : Writing Exercises Fro...
Name: bookTitle, dtype: object