

Computer Project #06

This assignment focuses on the design, implementation, and testing of a Python program that uses lists and tuples.

It is worth 60 points (6% of course grade) and must be completed no later than **11:59 PM on Monday 3/20, 2023**. After the due date, your score will be deducted by 1 point for every 1 hour late or fraction of it for up to 24 hours. **Note that you must click on the “Submit” button to stop the counter. Otherwise, it will not be considered as submitted.**

Assignment Overview

In this assignment, you will practice with lists of lists and tuples and write a program to answer the questions described below. **The only advanced data structures allowed to be used in this project are Lists and Tuples.**

Assignment Background

In this assignment, you will practice with book data from a website called Goodreads. Goodreads has thousands of books uploaded to its website, allowing a user to save books to virtual bookshelves to track what they've read. When a user adds books to a bookshelf or leaves a review, Goodreads recommends related books. For this assignment, you will read in a user's criteria and provide book recommendations to them.

The data is provided in a file:

- 1) `books.csv`: Each line has the five attributes of a character, comma-separated

```
isbn13, isbn10, title, subtitle, authors, categories, thumbnail, description,  
published_year, average_rating, num_pages, ratings_count
```

You will create a list of tuples with only these attributes:

```
(isbn13, title, authors, categories, description, published_year,  
average_rating, num_pages)
```

Assignment Specifications

You will develop a Python program that has the following functions

`open_file ()` → file pointer `fp`:

- This function prompts the user to input a file name, then open it and keeps prompting until a valid name is entered. Return the file pointer. Use try-except to determine if the file can be opened. Check the `strings.txt` file for the appropriate strings to use in the prompt and error message to match the tests. When opening the file, you need to use `encoding="utf-8"`. For example,

```
fp = open("data_small.csv", "r", encoding="utf-8")
```
- Parameters: none
- Returns: a file pointer
- Display: prompts and error messages

`read_file (fp)` → list of tuples:

This function reads the comma-separated value (`csv`) file using file pointer `fp` and returns the list of tuples.

- The file has one header line that you need to skip. Create a list of tuples. Each tuple represents a book and has the following format:

```
(isbn13, title, authors, categories, description, year, rating, num_pages,  
rating_count)
```

The type of each element in the tuple:

```
(string, string, string, list(strings), string, string, float, int, int)
```

If any conversion fails, skip that line of data.

Hint: wrap the variable assignment in a try-except

- b. Parameter: file pointer
- c. Returns: list of tuples
- d. Displays: nothing

def get_books_by_criterion (list of tuples, criterion, value) → list/tuple

- a. Given a list of book tuples, retrieve the books that match a certain criterion. If there is a problem with a value or criterion parameter, don't add the book to the return list—return an empty list.
The criterion parameter is an int that represents the index of a criterion in a book tuple. For example, if filtering by TITLE, criterion should be 1; if filtering by YEAR, criterion should be 5, etc (*Hint*: use provided constants for the parameter criterion). No error checking for criterion and values is needed. Error checking will be done in the main() function.

Note:

- I. If you are searching by TITLE, only return the tuple of the book with that title. Do not put it in a list. variations in case are accepted.
 - II. For CATEGORY, value must be a string and variations in case are accepted, e.g. 'Fiction', 'FICTION', 'FiCTION' and similar will match. If not, do not add the book to the return list.
 - III. For YEAR, value is a string. The returned books should be published during the given value.
 - IV. For RATING, value is a float number. The returned books should have rating greater than or equal to the given value.
 - V. For PAGES, value should be an integer. Books included should have a page number within 50 pages of this number inclusive. For example, if the value is 137, books included will have page numbers between 87 and 187, including those numbers.
- b. parameter: list of tuples, int, int/float/string
 - c. Returns: list of tuples, or one tuple (TITLE)
 - d. Display: nothing

def get_books_by_criteria (list of tuples, category, rating, page) → list of tuples :

This function looks similar to the get_books_by_criterion function; the difference is that this function calls get_books_by_criterion *three* times, one for each of category, rating, and page number specified to select books based on all three criteria in that order (category, rating, then page number). The three calls effectively filter for each by passing the returned list of one function as an argument to the next call. Note that the parameters in this function for category, rating, and page number become the value arguments for the three respective calls to get_books_by_criterion---the criterion argument is determined by this parameter's name. (*Hint*: use provided constants for the parameter criterion when calling get_books_by_criterion).

- a. Parameter: list of tuples, string, float, int
- b. Returns: list of tuples
- c. Display: nothing

def get_books_by_keyword(list of tuples, keywords) → list:

- a. Given a list of book tuples, retrieve all books whose description contains any of the keywords value. Make sure to look in every description for every keyword in the list of keywords provided. If one keyword is found, add the book tuple to the return list and move to the next book to avoid double counting a book.
- b. Parameters: list of tuples, list of strings
- c. Returns: list of tuples
- d. Display: nothing

def sort_authors (list_of_tuples, a_z) → list:

- a. Given a list of book tuples, create a new list where the books are sorted by author name. The a_z boolean value determines if you should return the books in descending (when a_z is False) or ascending order (when

a_z is True) based on author name. When there is a tie, you should keep the same order as it appears in the list_of_tuples. a_z should default to True. DO NOT modify the original list_of_tuples

Hint: shallow vs deep copy of a list

- b. Parameters: list of tuples, boolean
- c. Return: sorted list of tuples
- d. Display: nothing

def recommend_books(list_of_tuples, keywords, category, rating, page_number, a_z) → list:

- a. Given a list of book tuples, retrieve all books filtered by category, rating, page number criteria and whose description contains any of the keywords. Sort the returned list by author name. The a_z boolean value determines if you should return the books in descending or ascending order based on author name similar to sort_authors().
- b. Parameters: list of tuples, list of strings,
- c. Returns: list of tuples
- d. Display: nothing

def display_books (list_of_tuples) → none:

- a. Given a list of book tuples, display the books along with their information, using the formats provided as constants in strings.txt. Ignore a book if its title or its authors are longer than 35 characters. If list_of_tuples is empty, print 'Nothing to print.'
- b. Parameters: list of tuples
- c. Return: nothing
- d. Display: books attributes

def get_option () → int:

- a. Display a menu of options and prompt for input. Return the input if it is between 1-4 inclusive. Otherwise, it prints an error message and return None. Ask for the input in the function, this function does not take parameters.
- b. Parameters: nothing
- c. Return: int
- d. Display: menu and error message

main():

1. Call open_file() to open a CSV file for reading and get a file pointer for the input file.
2. Call read_file() to read the data and store it in a list of tuples.
3. Call get_option() to prompt the user for input.
4. Repeat Step 5 until the user chooses 4.
5. Based on the input option
 - a. If option is 1, find a book with a title:
 - i. Prompt for a book title.
 - ii. Call one of the functions already written to get the information of the book from the list of books.
 - iii. Display the book. (Hint: put the title in a list before calling display_books())
 - b. If option is 2, filter books by a certain criterion:
 - i. Prompt first for a *criterion*; re-prompt if it is not valid (an integer that is 3,5,6, or 7).
 - ii. Then prompt for a *value*;
if criterion is RATING or PAGES, convert value to a float (RATING) or int (PAGES); re-prompt if it cannot be converted.
If criterion is CATEGORY or YEAR, continue with the rest of the steps.
 - iii. Call get_books_by_criterion to filter characters by a certain *criteria* with a *value*.
 - iv. Sort books using sort_authors in ascending order.

- v. Display the first 30 books using `display_books`
- c. If option is 3, recommend a book based on certain criteria:
 - i. Prompt in this order for *category*, *rating*, and *page number*; reprompt if `RATING` is not a `float` or if `PAGES` is not an `int`.
 - ii. Ask for `a_z` input. If the input is 1, set `a_z` to `True`. For any other input, set `a_z` to `False`.
 - iii. Ask for a list of keywords, separated by a space.
 - iv. Call `recommend_books` to filter books by above category, rating, page number criteria and by keywords.
 - v. Display books using `display_books`
- d. If option is 4
 - i. Quit the program

Assignment Notes and Hints

1. The coding standard for CSE 231 is posted on the course website:

<http://www.cse.msu.edu/~cse231/General/coding.standard.html>

Items 1-9 of the Coding Standard will be enforced for this project.

2. By default, `sorted` (or `sort`) will sort on the first item in a list or tuple. To sort on other indices use `itemgetter`. First, remember to include the following at the top of your program:


```
from operator import itemgetter
```

 Then you use the key argument in `sorted` (or `sort`). The following sorts list `L` on index 3:


```
L = sorted(L, key=itemgetter(3))
```

3. The program will produce reasonable and readable output, with appropriate labels for all values displayed.

4. We provide a `proj06.py` program for you to start with.

5. If you “hard code” answers, you will receive a grade of zero for the whole project. An example of hard coding is to simply print the result rather than calculating it and then printing the calculated the result.

6. In the test cases below, the output would not fit all on one line without shrinking the text further. You do not need to shrink the text, and the header should be one line, not two. Check the test cases in coding rooms if the ones below are confusing.

Assignment Deliverable

The deliverable for this assignment is the following file:

`proj06.py` – the source code for your Python program

Be sure to use the specified file name and to submit it for grading before the project deadline.

Grading Rubric

Computer Project #06

Scoring Summary

General Requirements:

- (4 pts) Coding Standard 1-9
(descriptive comments, function headers, mnemonic identifiers, format, etc...)

Implementation:

- (3 pts) open_file function (manual grading)
- (4 pts) read_file function
- (7 pts) get_books_on_criterion function
- (4 pts) get_books_by_criteria function
- (5 pts) get_books_by_keyword function
- (3 pts) sort_authors function
- (5 pts) recommend_books function
- (4 pts) display_books function
- (2 pts) get_option function (manual grading)
- (2 pts) Test 1
- (4 pts) Test 2
- (4 pts) Test 3
- (3 pts) Test 4
- (4 pts) Test 5
- (2 pts) Test 6

Note: hard coding an answer earns zero points for the whole project
-10 points for not using main()

Test 1

Enter file name: books.csv

Welcome to the Book Recommendation Engine

Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 4

Test 2

Enter file name: books.csv

Welcome to the Book Recommendation Engine

Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 1

Input a book title: A Tale of Two Cities

Book Details:

ISBN-13	Title	Authors	Year	Rating	Number Pages	Number Ratings
9780141439600	A Tale of Two Cities	Charles Dickens	2003	3.83	489	693045

Welcome to the Book Recommendation Engine

Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 4

Test 3

Enter file name: books.csv

Welcome to the Book Recommendation Engine

Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 2

Choose the following criteria

- (3) Category
 - (5) Year Published
 - (6) Average Rating (or higher)
 - (7) Page Number (within 50 pages)
- Enter criteria number: 3

Enter value: Fiction

Book Details:

ISBN-13	Title	Authors	Year	Rating	Number Pages	Number Ratings
9780141026282	The Epic of Gilgamesh		2006	3.67	120	51735
9780141181226	One Flew Over the Cuckoo's Nest		1962	4.19	281	3859
9780385503952	Atonement		2001	3.89	351	1539
9780425198735	Blow Fly		2004	3.76	467	31269
9780451194862	Wizard and Glass		1998	4.25	702	864
9780451210845	The Gunslinger		2003	3.96	300	5740

9780515131093	Out of this World		2001	4.07	357	5915
9780812972122	The Mysterious Island		2004	4.10	723	28969
9780974935997	The Mind Parasites		2005	3.79	240	888
9781400078479	Love		2005	3.73	224	7095
9781402728112	The Book of the Dragon		2005	4.18	144	357
9781585425495	Any Woman's Blues		2006	3.51	362	422
9780452281431	Beauty's Punishment	A. N. Roquelaure;Anne Rice	1984	3.62	233	21844
9780452156616	Sleeping Beauty Novels	A.N. Roquelaure	1999	3.99	724	10728
9780553578973	Iron Fist	Aaron Allston	1998	4.03	320	7448
9780156030168	The Liberated Bride	Abraham B. Yehoshua;Hillel Halkin	2004	3.76	576	449
9781400054879	Angry Black White Boy	Adam Mansbach	2005	3.55	352	607
9780743499484	The Dead Yard	Adrian McKinty	2006	4.12	364	1408
9780007121014	Taken at the Flood	Agatha Christie	2002	3.71	352	8852
9780007151677	Endless Night	Agatha Christie	2002	3.77	303	12740
9780312970079	Black Coffee	Agatha Christie	1999	3.48	304	9592
9780312981662	Crooked House	Agatha Christie	2002	4.02	276	22176
9780425200452	Murder on the Orient Express	Agatha Christie	2004	4.16	322	144452
9781579126230	Murder on the Orient Express	Agatha Christie	1934	4.16	266	1475
9781579126247	The A.B.C. Murders	Agatha Christie	1936	4.00	252	63488
9781579126254	Murder at the Vicarage	Agatha Christie	2005	4.05	288	113459
9781579126261	The Body in the Library	Agatha Christie	2006	3.85	191	43669
9781579126278	The Murder of Roger Ackroyd	Agatha Christie	1926	4.23	288	93453

Welcome to the Book Recommendation Engine

Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 2

Choose the following criteria

- (3) Category
 - (5) Year Published
 - (6) Average Rating (or higher)
 - (7) Page Number (within 50 pages)
- Enter criteria number: 6

Enter value: 4.50

Book Details:

ISBN-13	Title	Authors	Year	Rating	Number Pages	Number Ratings
9780738511672	Middlesex Borough		2003	5.00	128	2
9780395883976	The Gettysburg Address	Abraham Lincoln	1997	4.53	32	4967
9780141014081	Complete Maus	Art Spiegelman	2003	4.55	296	100212
97808051512280	The Valley of Vision	Arthur Bennett	1975	4.53	223	8939
9780393059168	The New Annotated Sherlock Holmes	Arthur Conan Doyle	2005	4.63	1878	1396
9780711983083	The Beatles years	Barry Miles;Keith Badman	2001	4.53	376	12
9780723257639	The World of Peter Rabbit	Beatrix Potter	2006	4.63	1072	210
9780740748479	The Complete Calvin and Hobbes	Bill Watterson	2005	4.82	1456	31249
9780751504835	Something Under the Bed is Drooling	Bill Watterson	1988	4.70	127	137
9780751517200	It's a Magical World	Bill Watterson	1997	4.76	176	138
9780836217353	The Days Are Just Packed	Bill Watterson	1993	4.69	176	20021
9780836217698	Homicidal Psycho Jungle Cat	Bill Watterson	1994	4.72	176	14952
9780836218053	The Essential Calvin And Hobbes	Bill Watterson	1988	4.64	256	102955
9780836221367	It's a Magical World	Bill Watterson	1996	4.76	176	23336
9780618391004	The Lord of the Rings	Chris Smith	2003	4.53	218	18934
9780618391028	JRR Tolkien Companion & Guide	Christina Scull;Wayne G. Hammond	2006	4.53	1002	37
9781551052700	Ecuador Nature Guide	Christopher D. Jiggins	2000	5.00	96	1
9780310249870	Fanning the Flame	Christopher J. H. Wright	2003	5.00	336	1
9780756616342	Animal	David Burnie;Don E. Wilson	2005	4.52	624	551
9781883477370	Nineteen Sixty Eight	David Charles Hoeh	2000	4.50	246	2

Welcome to the Book Recommendation Engine

Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 2

Choose the following criteria

- (3) Category
- (5) Year Published
- (6) Average Rating (or higher)

(7) Page Number (within 50 pages)
Enter criteria number: 5

Enter value: 2001

Book Details:

ISBN-13	Title	Authors	Year	Rating	Number Pages	Number Ratings
9780192751164	Tales of the Norse Gods		2001	4.07	160	40
9780385503952	Atonement		2001	3.89	351	1539
9780515131093	Out of this World		2001	4.07	357	5915
9780375758232	Paris to the Moon	Adam Gopnik	2001	3.76	368	12094
9780007111503	Partners in Crime	Agatha Christie	2001	3.77	347	9506
9780007113804	Murder in Mesopotamia	Agatha Christie	2001	3.89	264	25692
9780007119332	Death in the Clouds	Agatha Christie	2001	3.80	333	21123
9780007119356	Appointment with Death	Agatha Christie	2001	3.86	303	24859
9780007120680	Hallowe'en Party	Agatha Christie	2001	3.66	336	18820
9780007120697	Hercule Poirot's Christmas	Agatha Christie	2001	3.93	335	23113
9780007122585	The Secret of Chimneys	Agatha Christie	2001	3.86	400	11110
9780385492249	An Invisible Sign of My Own	Aimee Bender	2001	3.68	256	3624
9780345418685	Reunion	Alan Dean Foster	2001	3.87	352	1339
9781564781314	Point Counter Point	Aldous Huxley	2001	3.85	432	9227
9781566633949	Complete Essays	Aldous Huxley	2001	4.33	416	6
9780226424156	The Collaborator	Alice Kaplan	2001	3.84	308	67
9780375707490	Lives of Girls and Women	Alice Munro	2001	3.99	277	8085
9780440228844	Demon in My View	Amelia Atwater-Rhodes	2001	4.04	192	10803
9780006550433	The Bonesetter's Daughter	Amy Tan	2001	3.98	352	414
9780689846175	Sagwa, The Chinese Siamese Cat	Amy Tan	2001	4.02	40	967
9780141183718	A Spy In The House Of Love	Anais Nin	2001	3.68	124	290
9780743202558	New Jewish Wedding, Revised	Anita Diamant	2001	3.96	288	678
9780451203267	The Stranger Beside Me	Ann Rule	2001	4.14	550	47930
9781582791807	Agnes Grey	Anne Brontë	2001	3.68	190	37
9780859653237	Blink-182	Anne Hoppus	2001	4.41	112	61
9780439178822	The Pen is Mightier Than the Sword	Anne Mazer	2001	3.96	128	1063

Welcome to the Book Recommendation Engine

Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 2

Choose the following criteria

- (3) Category
 - (5) Year Published
 - (6) Average Rating (or higher)
 - (7) Page Number (within 50 pages)
- Enter criteria number: 7

Enter value: 87

Book Details:

ISBN-13	Title	Authors	Year	Rating	Number Pages	Number Ratings
9780140509786	Burt Dow, Deep-Water Man		1989	4.10	64	645
9780141026282	The Epic of Gilgamesh		2006	3.67	120	51735
9780375802430	Flap Your Wings		2000	4.24	48	1228
9780375822971	Big Dog ... Little Dog		2003	4.11	48	86
9780394800837	McElligot's Pool		1974	4.07	64	4403
9780394800912	Dr. Seuss's Sleep Book		1962	4.17	58	8683
9780573605734	Breakfast of Champions		1984	4.00	106	15
9780679406839	Gift from the Sea		1991	4.17	132	1314
9780738511672	Middlesex Borough		2003	5.00	128	2
9780751363784	The Three Musketeers		2000	4.07	64	56
9780762404780	Irish Blessings		1999	4.13	128	28
9780763631604	Beauty and the Beast		2006	4.36	64	3609
9780785118954	Supreme Power		2006	3.42	120	223
9780794503291	Gulliver's Travels		2003	3.34	64	13
9780762408283	The Mini Zen Gardening Kit	Abd Al-Hayy Moore	2000	3.21	40	13
9780152057664	Frankenstein Makes a Sandwich	Adam Rex	2006	4.21	40	1860
9780764537158	CliffsNotes On Joyce's Dubliners	Adam Sexton	2003	3.50	80	4
9781887953795	Legend of the Five Rings	Aeg	2003	3.68	96	44
9781559362108	A Tempest	Aimé Césaire;Richard Miller	2002	3.55	69	1309
9780679420262	The Stranger	Albert Camus;Matthew Ward	1993	3.97	117	1041
9781400095087	The Finer Points of Sausage Dogs	Alexander McCall Smith	2003	3.69	128	4724
9781557046864	The Sideways Guide to Wine and Life	Alexander Payne;Jim Taylor	2005	4.43	64	7
9781562549428	The Three Musketeers	Alexandre Dumas	2010	3.56	61	9
9780231085076	Discovering Plato	Alexandre Koyre	1960	3.26	118	7
9780689716041	The Bears on Hemlock Mountain	Alice Dalgliesh	1992	3.78	64	2017

Welcome to the Book Recommendation Engine
 Choose one of below options:
 1. Find a book with a title
 2. Filter books by a certain criteria
 3. Recommend a book
 4. Quit the program
 Enter option: 4

Test 4

Enter file name: books.csv

Welcome to the Book Recommendation Engine
 Choose one of below options:
 1. Find a book with a title
 2. Filter books by a certain criteria
 3. Recommend a book
 4. Quit the program
 Enter option: 3

Enter the desired category: fiction

Enter the desired rating: 2.00

Enter the desired page number: 200

Enter 1 for A-Z sorting, and 2 for Z-A sorting: 1

Enter keywords (space separated): happy life

Book Details:	Title	Authors	Year	Rating	Number Pages	Number Ratings
ISBN-13	Love		2005	3.73	224	7095
9781400078479	Carly's Sound	Ali Vali	2006	4.21	212	441
9781933110455	Broken Vessels	Andre Dubus	1992	4.32	195	348
9780879239480	Heart Songs and Other Stories	Annie Proulx	1995	3.93	203	1822
9780020360759	Factotum tie-in	Charles Bukowski	2006	3.96	208	395
9780061131271	Mockingbird Wish Me Luck	Charles Bukowski	2002	4.13	160	1769
9780876851388	Child of God	Cormac McCarthy	1994	3.86	197	57
9780374530303	Martin and John	Dale Peck	2006	3.73	248	694
9780679732549	Shoot the Piano Player	David Goodis	1990	4.02	158	2691
9781852426743	Of Tender Sin	David Goodis	1952	3.69	181	143
9780843943993	Mountain Madness	David Thompson	1998	4.48	170	21
9780486424545	Howards End	E. M. Forster	2002	3.96	246	54709
9781400034291	The Dew Breaker	Edwidge Danticat	2005	3.79	244	5664
9781555837235	Stir-fry	Emma Donoghue	1994	3.58	240	1521
9780020199854	The Love of the Last Tycoon	F. Scott Fitzgerald	1994	3.65	169	6836
9780684804422	The Pat Hobby Stories	F. Scott Fitzgerald	1995	3.58	192	889
9780156030489	Kiffe Kiffe Tomorrow	Faiza Guène;Sarah Adams	2006	3.38	179	1026
9781400043330	The General in His Labyrinth	Gabriel García Márquez	2004	3.68	248	11460
9781840681123	Divine Filth	Georges Bataille	2004	3.93	160	74
9781567921588	W, Or, The Memory of Childhood	Georges Perec	2003	3.88	176	1395
9781590171943	The Strangers in the House	Georges Simenon	2006	3.76	194	633
9780671019099	The Tenth Man	Graham Greene	1998	3.72	160	2769
9780451205551	Trauma	Graham Masterton	2002	3.54	224	333
9780684856476	The Rum Diary	Hunter S. Thompson	1999	3.82	224	43921
9780374500528	Gimpel the Fool and Other Stories	Isaac Bashevis Singer	1988	4.16	205	36
9780142002001	Youth	J. M. Coetzee	2003	3.79	176	4722
9780316769488	The Catcher in the Rye	J.D. Salinger	1991	3.80	234	18849
9780060594527	Lost Horizon	James Hilton	2004	3.92	241	11794
9780312321208	P.S. Your Cat Is Dead	James Kirkwood	2003	3.75	218	1291
9780446518628	The Celestine Prophecy	James Redfield	1994	3.63	247	1280
9780312890216	The Starry Rift	James Tiptree	1994	3.82	250	220
9780156631402	Mrs. Miniver	Jan Struther	1990	3.96	162	1040
9780060598846	Love Overboard	Janet Evanovich	2005	3.65	244	11223
9780060598853	Back to the Bedroom	Janet Evanovich	2005	3.67	234	9839
9780060598891	The Rocky Road to Romance	Janet Evanovich	2004	3.67	249	9470
9781582344720	Soldiers of Salamis	Javier Cercas;Anne McLean	2005	3.79	213	398
9780679744474	Written on the Body	Jeanette Winterson	1994	4.07	192	20182
9780345468031	The Franklin Affair	Jim Lehrer	2006	3.12	208	141
9781891620416	White Widow	Jim Lehrer	2000	3.01	224	174
9780374529949	Play It As It Lays	Joan Didion	2005	3.87	231	21868
9781400097029	The Sea	John Banville	2006	3.51	195	18513
9780373792733	The Perfect Score	Julie Kenner	2006	3.25	240	108
9780375726514	The Box Man	Kôbô Abe	2001	3.65	178	3293
9781932234299	Birthday	Kôji Suzuki;Glynné Walley	2006	3.68	216	837
9780446607131	Death of a Gossip	M. C. Beaton	1999	3.72	179	9244
9780446609197	A Highland Christmas	M. C. Beaton	2002	3.86	160	3455
9780553409680	Death of a Snob	M. C. Beaton	1996	3.78	192	17
9780394743042	The Ravishing of Lol Stein	Marquerite Duras	1986	3.67	181	1939
9780002005883	Gilead	Marilynne Robinson	2004	3.85	247	361
9780312288013	Serious Girls	Maxine Swann	2004	3.19	240	202

9780743281591	Diary of a Mistress	Miasha	2006	4.35	182	2449
9780060928414	Slowness	Milan Kundera	1997	3.66	156	9454
9780226204192	Bengal Nights	Mircea Eliade	1995	3.93	184	245
9780375704437	For the relief of unbearable urges	Nathan Englander	2000	3.94	205	2344
9780385721912	Man Walks Into a Room	Nicole Krauss	2003	3.33	248	5322
9781557424297	The Picture of Dorian Gray	Oscar Wilde	2005	4.07	187	329
9781426423703	The Adventures of Sally	P. G. Wodehouse	2007	3.78	232	10
9780060527990	The Devil and Miss Prym	Paulo Coelho	2006	3.60	205	46113
9780060887964	The Alchemist - Gift Edition	Paulo Coelho	2006	3.85	192	814
9780061122415	The Alchemist	Paulo Coelho	2006	3.85	197	1592632
9780061124266	Veronika Decides to Die	Paulo Coelho	2006	3.70	210	126224
9780062513342	The Valkyries	Paulo Coelho	1996	3.31	212	696
9780099742005	Total Recall	Piers Anthony	1990	3.93	224	7932
9780060777333	The Cat's Pajamas	Ray Bradbury	2005	3.73	234	1316
9780679723691	Cathedral	Raymond Carver	1989	4.29	230	21140
9780618710508	The Diezmo	Rick Bass	2006	3.46	224	11
9780446614160	Words of Silk	Sandra Brown	2005	3.55	224	2600
9780553297836	A Whole New Light	Sandra Brown	1992	3.55	227	2817
9781551666723	The Thrill of Victory	Sandra Brown	2003	3.60	240	1051
9781599982939	Naughty Little Secret	Shelley Bradley	2006	3.73	212	2270
9780312422738	A Feather on the Breath of God	Sigrid Nunez	2005	3.87	192	447
9780671001957	Pieces	Stephen Chbosky	2000	3.52	155	1087
9780446390576	Bare Bones	Stephen King/Tim Underwood	1989	4.16	224	3050
9780385316576	Follow Your Heart	Susanna Tamaro	1995	3.57	208	3170
9780765351548	Debt of Bones	Terry Goodkind	2004	3.86	160	25701
9780571207992	The Wars	Timothy Findley	2001	3.87	218	6229
9780151009985	Mrs. Dalloway	Virginia Woolf	2002	3.79	194	167000
9780156628709	Mrs. Dalloway	Virginia Woolf	1981	3.79	197	7971
9780812972580	The Ox-Bow Incident	Walter Van Tilburg Clark	2004	3.82	247	4116
9780440362050	My Name is Aram	William Saroyan	1966	4.15	151	975
9780061120060	Their Eyes Were Watching God	Zora Neale Hurston	2006	3.90	219	209110

Welcome to the Book Recommendation Engine

Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 4

Test 5

Enter file name: book.csv

Error opening file. Please try again.

Enter file name: books.csv

Welcome to the Book Recommendation Engine

Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 5

Invalid option

Welcome to the Book Recommendation Engine

Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 2

Choose the following criteria

- (3) Category
 - (5) Year Published
 - (6) Average Rating (or higher)
 - (7) Page Number (within 50 pages)
- Enter criteria number: 1

Invalid input

Choose the following criteria

(3) Category
(5) Year Published
(6) Average Rating (or higher)
(7) Page Number (within 50 pages)
Enter criteria number: a

Invalid input

Choose the following criteria
(3) Category
(5) Year Published
(6) Average Rating (or higher)
(7) Page Number (within 50 pages)
Enter criteria number: 6

Enter value: five

Invalid input

Enter value: 4.67

Book Details:

ISBN-13	Title	Authors	Year	Rating	Number Pages	Number Ratings
9780738511672	Middlesex Borough		2003	5.00	128	2
9780740748479	The Complete Calvin and Hobbes	Bill Watterson	2005	4.82	1456	31249
9780751504835	Something Under the Bed is Drooling	Bill Watterson	1988	4.70	127	137
9780751517200	It's a Magical World	Bill Watterson	1997	4.76	176	138
9780836217353	The Days Are Just Packed	Bill Watterson	1993	4.69	176	20021
9780836217698	Homicidal Psycho Jungle Cat	Bill Watterson	1994	4.72	176	14952
9780836221367	It's a Magical World	Bill Watterson	1996	4.76	176	23336
9781551052700	Ecuador Nature Guide	Christopher D. Jiggins	2000	5.00	96	1
9780310249870	Fanning the Flame	Christopher J. H. Wright	2003	5.00	336	1
9781932206081	Insights	Frederick Lenz	2003	5.00	304	1
9781931082884	Novels, 1901-1902	Henry James;Leo Bersani	2006	4.68	713	25
9780439682589	Harry Potter	J. K. Rowling	2004	4.78	2690	38872
9780439827607	The Harry Potter Collection	J. K. Rowling	2005	4.73	3342	27410
9780312643065	The Price of the Ticket	James Baldwin	1985	4.70	712	396
9780738539560	Lake Orion	James E. Ingram;Lori Grove	2006	5.00	128	0
9781890995522	The Diamond Color Meditation	John Diamond	2006	5.00	74	5
9780446578271	The Everyday Life Bible	Joyce Meyer	2006	4.70	2208	1715
9780851621814	The Complete Theory Fun Factory	Katie Elliott;Ian Martin	1996	5.00	96	1
9781930901353	The Irish Anatomist	Keith Donohue	2002	5.00	222	1
9780310929550	Zondervan NIV Study Bible	Kenneth L. Barker;Donald W. Burdick	2002	4.70	2198	4092
9780809166589	Love You Until...	Lisa McCourt	1999	4.67	32	3
9780567044716	Colossians and Philemon	Robert McL Wilson	2005	5.00	512	1

Welcome to the Book Recommendation Engine
Choose one of below options:
1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program
Enter option: 2

Choose the following criteria
(3) Category
(5) Year Published
(6) Average Rating (or higher)
(7) Page Number (within 50 pages)
Enter criteria number: 7

Enter value: one

Invalid input

Enter value: 1

Book Details:

ISBN-13	Title	Authors	Year	Rating	Number Pages	Number Ratings
9780375802430	Flap Your Wings		2000	4.24	48	1228
9780375822971	Big Dog ... Little Dog		2003	4.11	48	86
9780679888093	The Little Butterfly		1998	4.06	24	16
9780698115675	The Legend of the Poinsettia		1997	4.19	32	2285
9780823408818	A Picture Book of Thomas Jefferson		1991	3.72	32	14
9780823410781	A Picture Book of Anne Frank		1993	4.17	32	208

9780859537285	Head, Shoulders, Knees and Toes ...		2002	4.06	12	1083
9780762408283	The Mini Zen Gardening Kit	Abd Al-Hayy Moore	2000	3.21	40	13
9780395883976	The Gettysburg Address	Abraham Lincoln	1997	4.53	32	4967
9780749858520	Little Miss Scary	Adam Hargreaves;Roger Hargreaves	2003	3.73	32	175
9780152057664	Frankenstein Makes a Sandwich	Adam Rex	2006	4.21	40	1860
9780803729780	Time for Ballet	Adèle Geras;Shelagh McNicholas	2004	3.71	32	68
9781845390105	Scary Edwin Page	Alec Sillifant;Daniel Postgate	2004	3.21	24	14
9780689718762	The Fourth of July Story	Alice Dalgliesh	1995	4.00	32	242
9780689874093	I Love Saturdays y domingos	Alma Flor Ada	2004	4.03	32	33
9780689846175	Sagwa, The Chinese Siamese Cat	Amy Tan	2001	4.02	40	967
9780590598873	Babysitters Club	Ann M. Martin	1995	3.85	0	5241
9780486292724	Black Beauty Coloring Book	Anna Sewell;John Green	1996	4.25	48	68
9780413735904	A Clockwork Orange	Anthony Burgess	1998	3.82	51	27
9780670915415	In the Shadow of No Towers	Art Spiegelman	2004	3.68	48	2818
9780140503449	Christmas in Noisy Village	Astrid Lindgren;Ilon Wikland	1981	4.18	32	797
9780804104555	The 13th directorate	Barry Chubin	1989	2.62	0	8
9780723258056	A Journal	Beatrix Potter (Illustratorin)	2006	4.34	32	341
9780439781473	Fourth of July mice	Bethany Roberts	2005	3.23	32	1
9780590956161	The Meanest Thing to Say	Bill Cosby;Varnette P. Honeywood	1997	3.53	40	956
9780753459645	I Wonder Why the Sun Rises	Brenda Walpole	2006	3.95	32	50
9780753456101	I Wonder Why I Blink	Brigid Avison	2003	3.93	32	37

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Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 4

Test 6

Enter file name: books.csv

Welcome to the Book Recommendation Engine

Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 1

Input a book title: A Tale of Two Cities

Book Details:

ISBN-13		Title	Authors
Year	Rating	Number Pages	Number Ratings
9780141439600		A Tale of Two Cities	Charles Dickens
2003	3.83	489	693045

Welcome to the Book Recommendation Engine

Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 2

Choose the following criteria

- (3) Category
 - (5) Year Published
 - (6) Average Rating (or higher)
 - (7) Page Number (within 50 pages)
- Enter criteria number: 3

Enter value: Fiction

Book Details:

ISBN-13	Title	Authors	Year	Rating	Number Pages	Number Ratings
9780141026282	The Epic of Gilgamesh		2006	3.67	120	51735
9780141181226	One Flew Over the Cuckoo's Nest		1962	4.19	281	3859
9780385503952	Atonement		2001	3.89	351	1539

9780425198735	Blow Fly		2004	3.76	467	31269
9780451194862	Wizard and Glass		1998	4.25	702	864
9780451210845	The Gunslinger		2003	3.96	300	5740
9780515131093	Out of this World		2001	4.07	357	5915
9780812972122	The Mysterious Island		2004	4.10	723	28969
9780974935997	The Mind Parasites		2005	3.79	240	888
9781400078479	Love		2005	3.73	224	7095
9781402728112	The Book of the Dragon		2005	4.18	144	357
9781585425495	Any Woman's Blues		2006	3.51	362	422
9780452281431	Beauty's Punishment	A. N. Roquelaure;Anne Rice	1984	3.62	233	21844
9780452156616	Sleeping Beauty Novels	A.N. Roquelaure	1999	3.99	724	10728
9780553578973	Iron Fist	Aaron Allston	1998	4.03	320	7448
9780156030168	The Liberated Bride	Abraham B. Yehoshua;Hillel Halkin	2004	3.76	576	449
9781400054879	Angry Black White Boy	Adam Mansbach	2005	3.55	352	607
9780743499484	The Dead Yard	Adrian McKinty	2006	4.12	364	1408
9780007121014	Taken at the Flood	Agatha Christie	2002	3.71	352	8852
9780007151677	Endless Night	Agatha Christie	2002	3.77	303	12740
9780312970079	Black Coffee	Agatha Christie	1999	3.48	304	9592
9780312981662	Crooked House	Agatha Christie	2002	4.02	276	22176
9780425200452	Murder on the Orient Express	Agatha Christie	2004	4.16	322	144452
9781579126230	Murder on the Orient Express	Agatha Christie	1934	4.16	266	1475
9781579126247	The A.B.C. Murders	Agatha Christie	1936	4.00	252	63488
9781579126254	Murder at the Vicarage	Agatha Christie	2005	4.05	288	113459
9781579126261	The Body in the Library	Agatha Christie	2006	3.85	191	43669
9781579126278	The Murder of Roger Ackroyd	Agatha Christie	1926	4.23	288	93453

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Choose one of below options:

1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 3

Enter the desired category: fiction

Enter the desired rating: 4.00

Enter the desired page number: 500

Enter 1 for A-Z sorting, and 2 for Z-A sorting: 2

Enter keywords (space separated): happy life

ISBN-13	Title	Authors	Year	Rating	Number Pages	Number Ratings
9780671040840	The Living Blood	Tananarive Due	2002	4.33	515	1777
9780743437493	The Shining	Stephen King	2002	4.21	505	1283
9780375400704	Molloy	Samuel Beckett	1997	4.28	512	6612
9780679724773	I, Claudius	Robert Graves	1989	4.27	468	43469
9780679729914	The Best of Roald Dahl	Roald Dahl	1990	4.38	520	6067
9780060572976	The Good, the Bad, and the Undead	Kim Harrison	2005	4.26	453	53112
9780765345905	Wolfskin	Juliet Marillier	2004	4.00	544	5531
9780756403454	Regeneration	Julie E. Czerneda	2006	4.13	543	53
9780061150142	The Pact	Jodi Picoult	2006	4.01	512	237587
9780679755487	The Death of Virgil	Hermann Broch	1995	4.19	496	756
9780802151803	Sexus	Henry Miller	1987	4.04	506	7024
9780743292498	True Evil	Greg Iles	2006	4.08	512	12524
9780061120077	A Tree Grows in Brooklyn	Betty Smith	2006	4.26	496	326733
9781400032921	The Complete Short Novels	Anton Pavlovich Chekhov	2005	4.47	548	10275

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2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 2

Choose the following criteria

- (3) Category
- (5) Year Published
- (6) Average Rating (or higher)
- (7) Page Number (within 50 pages)

Enter criteria number: 3

Enter value: electro

Book Details:

Nothing to print.

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1. Find a book with a title
2. Filter books by a certain criteria
3. Recommend a book
4. Quit the program

Enter option: 4