**Due Date: June 1st, 2022 11:59pm**

**IMDB Movie Database** *Red-Black Binary Search Trees and Hashing*

The assignment is about design and development of a movie database for IMDB movie data. You are given a .csv file which stores the following information for each movie. There are around 5000 movies listed in the file.

* id
* Color
* movie\_title
* duration
* director\_name
* actor\_1\_name
* actor\_2\_name
* actor\_3\_name
* movie\_imdb\_link
* language
* country
* content\_rating
* year
* imdb\_score

**Functional and Design Requirements**

Your program

* creates a movie database by reading the data from .csv file into an array
* creates a hash table of red black trees to perform search operation by fields including year, imdb\_score, language and content\_rating. [red black tree where key is year; another red black tree where key is imdb\_score, etc.]
* stores red black trees in a hash table
* performs search operation by **year**, **imdb\_score**, by **content\_rating** and/or **language** using the indexing trees
* prompts the user to enter search criteria (- for ignore)
* Prints the information of all the movies that are in the result set

**What to submit:**

* All source files (.java)

//simple.csv

id,color,movie\_title,duration,director\_name,actor\_1\_name,actor\_2\_name,actor\_3\_name,movie\_imdb\_link,language,country,content\_rating,title\_year,imdb\_score

1,Color,Avatar ,178,James Cameron,CCH Pounder,Joel David Moore,Wes Studi,http://www.imdb.com/title/tt0499549/?ref\_=fn\_tt\_tt\_1,English,USA,PG-13,2009,7.9

2,Color,Pirates of the Caribbean: At World's End ,169,Gore Verbinski,Johnny Depp,Orlando Bloom,Jack Davenport,http://www.imdb.com/title/tt0449088/?ref\_=fn\_tt\_tt\_1,English,USA,PG-13,2007,7.1

3,Color,Spectre ,148,Sam Mendes,Christoph Waltz,Rory Kinnear,Stephanie Sigman,http://www.imdb.com/title/tt2379713/?ref\_=fn\_tt\_tt\_1,English,UK,PG-13,2012,6.8

4,Color,John Carter ,132,Andrew Stanton,Daryl Sabara,Samantha Morton,Polly Walker,http://www.imdb.com/title/tt0401729/?ref\_=fn\_tt\_tt\_1,English,USA,PG-13,2012,6.6

5,Color,Spider-Man 3 ,156,Sam Raimi,J.K. Simmons,James Franco,Kirsten Dunst,http://www.imdb.com/title/tt0413300/?ref\_=fn\_tt\_tt\_1,English,USA,PG-13,2012,6.1

6,Color,Tangled ,100,Nathan Greno,Brad Garrett,Donna Murphy,M.C. Gainey,http://www.imdb.com/title/tt0398286/?ref\_=fn\_tt\_tt\_1,English,USA,PG,2010,7.8

7,Color,Avengers: Age of Ultron ,141,Joss Whedon,Chris Hemsworth,Robert Downey Jr.,Scarlett Johansson,http://www.imdb.com/title/tt2395427/?ref\_=fn\_tt\_tt\_1,English,USA,PG-13,2015,7.5

8,Color,Harry Potter and the Half-Blood Prince ,153,David Yates,Alan Rickman,Daniel Radcliffe,Rupert Grint,http://www.imdb.com/title/tt0417741/?ref\_=fn\_tt\_tt\_1,English,UK,PG,2009,7.5

9,Color,Batman v Superman: Dawn of Justice ,183,Zack Snyder,Henry Cavill,Lauren Cohan,Alan D. Purwin,http://www.imdb.com/title/tt2975590/?ref\_=fn\_tt\_tt\_1,English,USA,PG-13,2016,6.9

10,Color,Superman Returns ,169,Bryan Singer,Kevin Spacey,Marlon Brando,Frank Langella,http://www.imdb.com/title/tt0348150/?ref\_=fn\_tt\_tt\_1,English,USA,PG-13,2012,6.1

**Sample Run:**

Year: 2012

Score: 6.1

Language:-

Rating:-

Results (Movies -> year:2012 score:6.1)

[5, 10]

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id:5

color:Color

title:Spider-Man 3

duration:156

director\_name:Sam Raimi

act1:J.K. Simmons

act2:James Franco

act3:Kirsten Dunst

movie\_imdb\_link:http://www.imdb.com/title/tt0413300/?ref\_=fn\_tt\_tt\_1

language:English

country:USA

content\_rating:PG-13

title\_year:2012

imdb\_score:6.1

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id:10

color:Color

title:Superman Returns

duration:169

director\_name:Bryan Singer

act1:Kevin Spacey

act2:Marlon Brando

act3:Frank Langella

movie\_imdb\_link:http://www.imdb.com/title/tt0348150/?ref\_=fn\_tt\_tt\_1

language:English

country:USA

content\_rating:PG-13

title\_year:2012

imdb\_score:6.1