**Introduction to Systems Programming (Systems I)**

**Homework # 3**

**Due: Tuesday June 16 2020 before 11:59 PM**

**Email-based help Cutoff: 5:00 PM on Monday, June 15 2020**

Maximum Points: 50

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| **Submission Instructions**  This part of the homework assignment must be turned-in electronically via Canvas. Ensure you name this document *MUid\_homework3*.docx, where *MUid* is your Miami University unique ID. Complete the method shown for each problem. For each method, you can develop and test them in NetBeans and just copy-paste your solutions into this document.  Once you have completed answering the questions save this document as a PDF file (don’t just rename the document; that is not the correct way to save as PDF) and upload it to Canvas  **General Note**: Upload each file associated with homework (or lab exercises) individually to Canvas. Do not upload archive file formats such as zip/tar/gz/7zip/rar etc. |

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| **Objective** |
| The objective of this homework is to:  • Develop a custom C++ class to encapsulate Movie information.  • Continue to review the use of file streams for text file I/O  • Further understand the use of std::unordered\_map.  • Continue to gain familiarity with developing C++ program involving simple string manipulation   * Gain familiarity with C++ split design (.h .cpp) |

Background

In this homework you will be developing a simple program to process movie entries stored in a text file. Your program should enable the user to search the database and print relevant movie information. See sample outputs for commands and options.

Data file format

The supplied movies\_db.txt has a space-separated data in the following columnar format:

moveID "Title" year "Genres" ImdbID Rating #Raters

|  |  |  |  |
| --- | --- | --- | --- |
| Col# | Name | Data Type | Description |
| 1 | moveID | int | Unique ID for a movie |
| 2 | Title | std::string | A double-quoted title for the movie |
| 3 | Year | int | The year when the movie was released |
| 4 | Genres | std::string | A double-quoted list of genres for the movie |
| 5 | imdbID | int | The IMDB (Internet Movie Data Base) identifier for the movies |
| 6 | Rating | float | An average movie rating (assigned by many reviewers) |
| 7 | numRaters | int | Number of reviewers who contributed to rating. |

Starter Code

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| --- | --- |
| File Name | Description |
| Movie.h | The header file to define a class called Movie with suitable instance variables to encapsulate the 7 fields for each Movie as listed in Data file format. This file have:  1. Constructor  2. Destructor  3. Stream-insertion operator  4. Stream-extraction operator  5. A to\_string method |
| Movie.cpp | The source file that implements the methods associated with the Movie class. |
| Homework3.cpp | This class *must* contain all the necessary logic associated with loading, finding, searching *and listing* movies as discussed below. This file use an std::unordered\_map to manage movie entries. (all the required functionalities have already been implemented, your task is just to implement the list() function) |

Sample outputs

User inputs are shown in **bold**

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| Enter a command:  **exit** |

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| Enter a command:  **find 1**  1 "Toy Story" 1995 "Adventure|Animation|Children|Comedy|Fantasy" 114709 3.92093 215 |

|  |
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| Enter a command:  **find 36000**  Movie with ID 36000 not found in database. |

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| Enter a command:  **search Titanic**  4864 "Titanica" 1992 "Documentary|IMAX" 105601 2.5 1  3403 "Raise the Titanic" 1980 "Drama|Thriller" 81400 4 1  3404 "Titanic" 1953 "Action|Drama" 46435 3.58333 6  1721 "Titanic" 1997 "Drama|Romance" 120338 3.41429 140  Found 4 matche(s). |

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| Enter a command:  **list**  **.**  **.**  4061 "The Man in the Moon" 1991 "Drama|Romance" 102388 4 2  39414 "Shopgirl" 2005 "Comedy|Drama|Romance" 338427 3 7  851 "Basquiat" 1996 "Drama" 115632 2.83333 6  848 "Spitfire Grill, The" 1996 "Drama" 117718 3.28571 7  78746 "Best Worst Movie" 2009 "Documentary" 1144539 4 1  4051 "Horrors of Spider Island (Ein Toter Hing im Netz)" 1960 "Horror|Sci-Fi" 56600 0.5 1  81949 "Romantics, The" 2010 "Comedy|Drama|Romance" 1403988 3 1  842 "Tales from the Crypt Presents: Bordello of Blood" 1996 "Comedy|Horror" 117826 2.54167 12  840 "House Arrest" 1996 "Children|Comedy" 116571 3.375 4  839 "Crow: City of Angels, The" 1996 "Action|Thriller" 115986 2.83333 15  7266 "Lost Skeleton of Cadavra, The" 2002 "Comedy|Horror|Sci-Fi" 307109 4 1  7263 "Miracle" 2004 "Drama" 349825 3.35 10  72178 "Welcome to Dongmakgol" 2005 "Comedy|Drama|War" 475783 4.5 1  4042 "Alamo, The" 1960 "Action|Drama|War|Western" 53580 3.375 4  833 "High School High" 1996 "Comedy" 116531 2 6  163056 "Shin Godzilla" 2016 "Action|Adventure|Fantasy|Sci-Fi" 4262980 4 1  7260 "Latter Days" 2003 "Comedy|Drama|Romance" 345551 3.5 1  829 "Joe's Apartment" 1996 "Comedy|Fantasy|Musical" 116707 2.66667 9  313 "Swan Princess, The" 1994 "Animation|Children" 111333 3.33333 3  52245 "Blades of Glory" 2007 "Comedy|Romance" 445934 3.08824 17  7256 "Touching the Void" 2003 "Adventure|Documentary" 379557 4 8  72171 "Black Dynamite" 2009 "Action|Comedy" 1190536 3.5 2  824 "Kaspar Hauser" 1993 "Drama|Mystery" 110246 4 1  7251 "Where the Day Takes You" 1992 "Drama" 105810 4 1  **.**  **.**  4221 "Necessary Roughness" 1991 "Comedy" 102517 2.625 4  Found 9742 entries. |

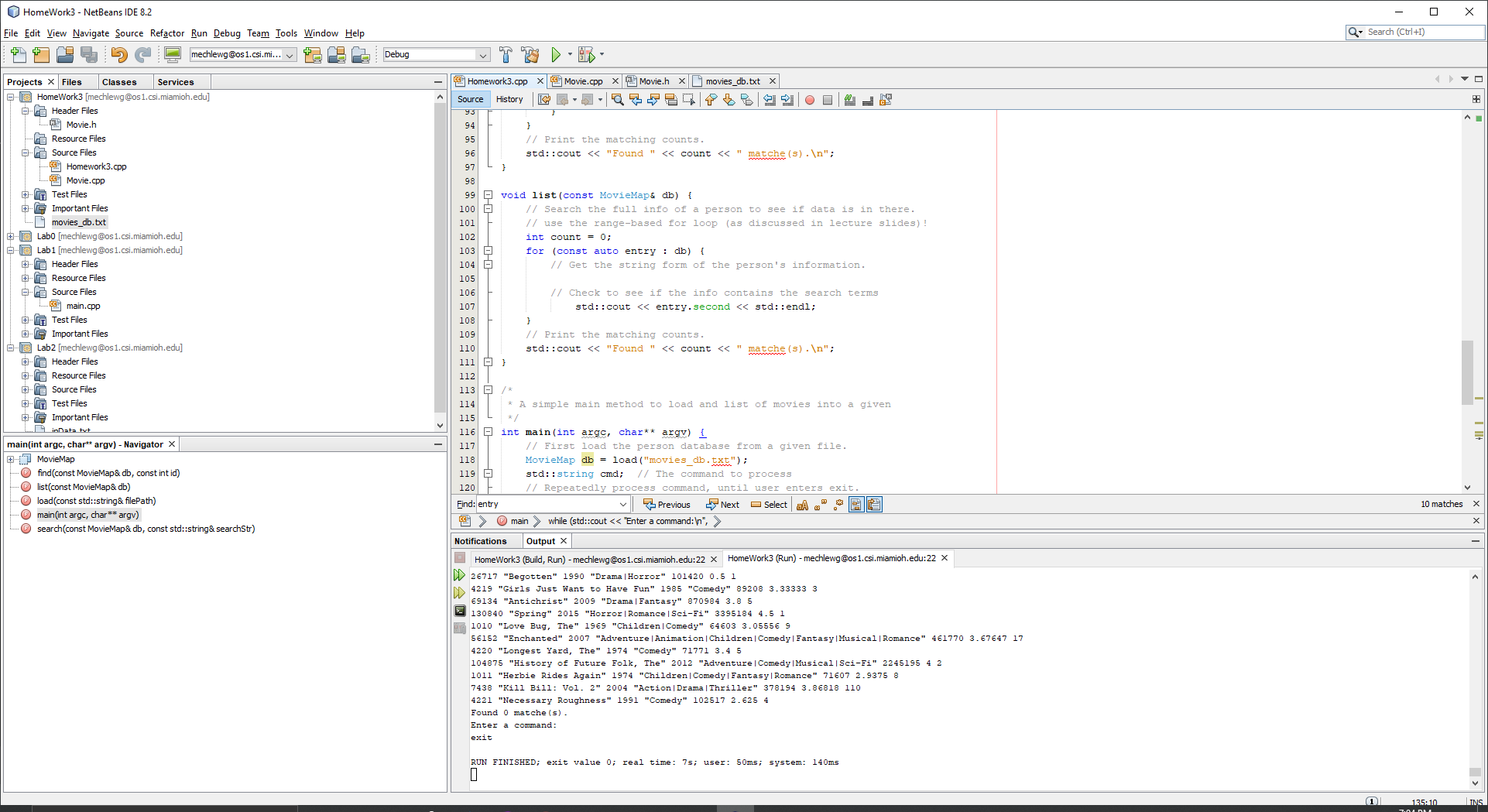
NB: Note that . . means so on and so forth, you don’t have to cout << “ . .”

Attach some of your test run sample output (one sample page will be fine) in this docx file.

# Submission

* No late assignments will be accepted!
* This work is to be done individually
* The submission file will be saved with the name ***HW3yourMUID.pdf***
* The submission file will be saved with the name ***HW3yourMUID.cpp***
* Assignment is due Tuesday June 16, 2020 before Midnight
* On or before the due time, drop the *electronic copy* of your work in the *canvas*

Don’t forget to Turn in the files! HW3\_yourMUID.pdf & HW3\_yourMUID.cpp

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