

# PROGRAM FOUR – MOVIE DATABASE



## ASSIGNMENT & DUE DATES

- **Assignment Date:** Monday, November 13, 2017
- **Due Date:** Monday, December 4, 2017
  - **5 points extra credit if you turn it in Friday, December 1, 2017**
  - **OOPS POLICY can only be used for up to 2 days late.**
  - **I can't grade it if I receive it after Wednesday, December 6, 2017.**

## DESCRIPTION:

You are completing a program for people who love movies and who own many of them. You are helping these people by organizing their movies in a movie database. Users should be able to read movie data from a file, save movies to a file, add a movie, delete a movie, edit a movie, print all movies, and delete all movies.

## WHAT'S NEW IN PROGRAM 4

The biggest difference with this program besides working with pointers is that I am providing most of the code for you. This is a humongous program and there is no way that most students could write the entire program from scratch in this little amount of time. Therefore, you will have to understand the code I give you and then add the code that I specify in this document. **You should not modify my code AT ALL unless specified in this document.** It is an important programming skill to be able to take someone else's code and understand it and expand on it.

## MULTIPLE FILES

This program contains multiple files as described below

- **Text.h** – header file for a structure version of the C++ String Class [do not modify this code]
- **Text.cpp** – source file containing function definitions required for the structure version of the C++ String Class [do not modify this code]
- **Movie.h** – header file for a Movie structure and functions that can be performed with the Movie structure.
- **Movie.cpp** – source file containing the function definitions required for the Movie structure.
- **Movies.h** – header file for a Movies structure and functions that can be performed with the Movies structure.
- **Movies.cpp** – source file containing the function definitions required for the Movies structure.
- **Makefile** – provided for you [if you do not have Windows you will not be able to use this]
- **runProgram.bat** – provided for you [if you do not have Windows you will not be able to use this]
- **crockett\_movie\_data.txt** – text file containing data on several movies that you can use to test your program



## SPECIFICATIONS

You will need to read the comments and code provided for you. I placed a comment above most function prototypes describing what should be sent to the function, what the function returns, and what the purpose of the function is.

DO NOT CHANGE ANY OF THE ALREADY WRITTEN FUNCTIONS UNLESS STATED BELOW!!!!

Below is the list of functions that should be modified:

### TEXT.H & TEXT.CPP

Do not make any changes to these files.

### MOVIE.H & MOVIE.CPP

YOU WILL NEED TO ADD THE FOLLOWING FUNCTION PROTOTYPES IN MOVIE.H:

- **printMovieDetailsToFile()**

YOU WILL NEED TO WRITE THE FOLLOWING FUNCTION DEFINITIONS IN MOVIE.CPP:

- **createMovie()** – the overloaded version that contains ALL the movie data (not just title & length). This function should dynamically allocate a new movie. Then, assign parameter data to the structure members. Then, return a pointer to the new movie.
- **editMovie()** – pay close attention to sample output to see how this function should behave. The element of the movie library movie that needs to be edited is sent to this function. You will need to display a menu that shows each type of data that can be edited. Then, display the current value of whatever the user chose. Then, allow the user to enter in a new value to replace the old one. Do not end this function until the user selects #8 (done editing) from the menu!

### MOVIES.H & MOVIES.CPP

YOU WILL NEED TO ADD THE FOLLOWING FUNCTION PROTOTYPES IN MOVIES.H:

- **addMovieToArray()**
- **readMoviesFromFile()**

YOU WILL NEED TO WRITE THE FOLLOWING FUNCTION DEFINITIONS IN MOVIES.CPP:

- **removeMovieFromArray()** - This function should be called when the user wants to remove one single movie from the movie library. The movie to be removed must be identified before calling this function because this function needs the element number (not the subscript/index number) of the movie to be removed. This function should release the dynamically allocated memory for the movie. Then, you must move all the array elements back one element so that there is not a blank element in the middle of the array. Then, make sure the last element that was moved is set to NULL. Don't forget to decrement the current number of movies. Print a confirmation to the screen that the movie was deleted.
- **displayMovieTitles()** – This function should print all the movie titles in the movie library.

## DRIVER.CPP

Do not make any changes to this file.

## SAMPLE OUTPUT

```
C:\WINDOWS\system32\cmd.exe
g++ -I ./ -c Movie.cpp
g++ -I ./ -c Movies.cpp
g++ -o Program4.exe Driver.o Movie.o Movies.o Text.o

what is the maximum number of movies you can have in your library?
50

what would you like to do?
1. Read movies from file.
2. Save movies to a file.
3. Add a movie.
4. Delete a movie.
5. Edit a movie.
6. Print all movies.
7. Delete ALL movies and end the program.
CHOOSE 1-7: 1

what is the name of the file? (example.txt): crockett_movie_data.txt

The Shawshank Redemption was added to the movie library!
The Godfather was added to the movie library!
The Dark Knight was added to the movie library!
Schindler's List was added to the movie library!
The Lord of the Rings: The Return of the King was added to the movie library!
Fight Club was added to the movie library!
The Lord of the Rings: Fellowship of the Ring was added to the movie library!
```

```
C:\WINDOWS\system32\cmd.exe
Fight Club was added to the movie library!
The Lord of the Rings: Fellowship of the Ring was added to the movie library!
Forrest Gump was added to the movie library!
The Matrix was added to the movie library!
The Lord of the Rings: The Two Towers was added to the movie library!
One Flew Over the Cuckoo's Nest was added to the movie library!
Se7en was added to the movie library!
It's a Wonderful Life was added to the movie library!
Saving Private Ryan was added to the movie library!
Interstellar was added to the movie library!
The Green Mile was added to the movie library!
Raiders of the Lost Ark was added to the movie library!
Back to the Future was added to the movie library!

18 movies were read from the file and added to your movie library.

what would you like to do?
1. Read movies from file.
2. Save movies to a file.
```

```
C:\WINDOWS\system32\cmd.exe
3. Add a movie.
4. Delete a movie.
5. Edit a movie.
6. Print all movies.
7. Delete ALL movies and end the program.
CHOOSE 1-7: 3

MOVIE TITLE: Braveheart
MOVIE LENGTH (in minutes): 178
MOVIE YEAR: 1995
MOVIE GENRE: Biography, Drama, History
MOVIE RATING: R
NUMBER OF OSCARS WON: 5
STAR RATING (out of 10): 8.4

what would you like to do?
1. Read movies from file.
2. Save movies to a file.
3. Add a movie.
4. Delete a movie.
5. Edit a movie.
6. Print all movies.
7. Delete ALL movies and end the program.
CHOOSE 1-7: 6

-----MOVIE 1-----
Movie Title: The Shawshank Redemption
```

```
C:\WINDOWS\system32\cmd.exe
Length (minutes): 82
Year Released: 1994
Genre: Drama, Crime
Rating: R
Number of Nominations: 0
Number of Stars: 9.3

-----MOVIE 2-----
Movie Title: The Godfather
Length (minutes): 115
Year Released: 1972
Genre: Drama, Crime
Rating: R
Number of Nominations: 3
Number of Stars: 9.2

-----MOVIE 3-----
Movie Title: The Dark Knight
Length (minutes): 92
Year Released: 2008
Genre: Action, Crime
Rating: PG-13
Number of Nominations: 2
Number of Stars: 9

-----MOVIE 4-----
Movie Title: Schindler's List
Length (minutes): 195
Year Released: 1993
Genre: Biography
Rating: R
Number of Nominations: 7
```

```
C:\WINDOWS\system32\cmd.exe
Number of Stars: 8.9

-----MOVIE 5-----
Movie Title: The Lord of the Rings: The Return of the King
Length (minutes): 201
Year Released: 2003
Genre: Adventure
Rating: PG-13
Number of Nominations: 11
Number of Stars: 8.9

-----MOVIE 6-----
Movie Title: Fight Club
Length (minutes): 139
Year Released: 1999
Genre: Drama
Rating: R
Number of Nominations: 0
Number of Stars: 8.8

-----MOVIE 7-----
Movie Title: The Lord of the Rings: Fellowship of the Ring
Length (minutes): 178
Year Released: 2001
Genre: Adventure
Rating: PG-13
Number of Nominations: 4
Number of Stars: 8.8

-----MOVIE 8-----
Movie Title: Forrest Gump
```

```
C:\WINDOWS\system32\cmd.exe

Length (minutes): 142
Year Released: 1994
Genre: Drama
Rating: PG-13
Number of Nominations: 6
Number of Stars: 8.8

-----MOVIE 9-----
Movie Title: The Matrix
Length (minutes): 136
Year Released: 1999
Genre: Action, Sci-Fi
Rating: R
Number of Nominations: 4
Number of Stars: 8.7

-----MOVIE 10-----
Movie Title: The Lord of the Rings: The Two Towers
Length (minutes): 179
Year Released: 2002
Genre: Adventure
Rating: PG-13
Number of Nominations: 2
Number of Stars: 8.7

-----MOVIE 11-----
Movie Title: One Flew Over the Cuckoo's Nest
Length (minutes): 133
Year Released: 1975
Genre: Drama
Rating: R
Number of Nominations: 5
```

```
C:\WINDOWS\system32\cmd.exe

Number of Stars: 8.7

-----MOVIE 12-----
Movie Title: Se7en
Length (minutes): 127
Year Released: 1995
Genre: Crime, Drama, Mystery
Rating: R
Number of Nominations: 1
Number of Stars: 8.6

-----MOVIE 13-----
Movie Title: It's a Wonderful Life
Length (minutes): 130
Year Released: 1946
Genre: Drama, Family, Fantasy
Rating: PG
Number of Nominations: 0
Number of Stars: 8.6

-----MOVIE 14-----
Movie Title: Saving Private Ryan
Length (minutes): 169
Year Released: 1998
Genre: Drama, War
Rating: R
Number of Nominations: 5
Number of Stars: 8.6

-----MOVIE 15-----
Movie Title: Interstellar
```

```
C:\WINDOWS\system32\cmd.exe

Length (minutes): 169
Year Released: 2014
Genre: Adveture, Drama, Sci-Fi
Rating: PG-13
Number of Nominations: 1
Number of Stars: 8.6

-----MOVIE 16-----
Movie Title: The Green Mile
Length (minutes): 189
Year Released: 1999
Genre: Crime, Drama, Fantasy
Rating: R
Number of Nominations: 0
Number of Stars: 8.5

-----MOVIE 17-----
Movie Title: Raiders of the Lost Ark
Length (minutes): 115
Year Released: 1981
Genre: Action, Adventure
Rating: PG
Number of Nominations: 4
Number of Stars: 8.5

-----MOVIE 18-----
Movie Title: Back to the Future
Length (minutes): 116
Year Released: 1985
Genre: Adventure, Comedy, Sci-Fi
Rating: PG
Number of Nominations: 1
```

```
C:\WINDOWS\system32\cmd.exe

Number of Stars: 8.5

-----MOVIE 19-----
Movie Title: Braveheart
Length (minutes): 178
Year Released: 1995
Genre: Biography, Drama, History
Rating: R
Number of Nominations: 5
Number of Stars: 8.4

What would you like to do?
1. Read movies from file.
2. Save movies to a file.
3. Add a movie.
4. Delete a movie.
5. Edit a movie.
6. Print all movies.
7. Delete ALL movies and end the program.
CHOOSE 1-7: 5

Choose from the following movies to edit:
MOVIE 1: The Shawshank Redemption
MOVIE 2: The Godfather
MOVIE 3: The Dark Knight
MOVIE 4: Schindler's List
MOVIE 5: The Lord of the Rings: The Return of the King
MOVIE 6: Fight Club
MOVIE 7: The Lord of the Rings: Fellowship of the Ring
MOVIE 8: Forrest Gump
```

```
C:\WINDOWS\system32\cmd.exe
MOVIE 9: The Matrix
MOVIE 10: The Lord of the Rings: The Two Towers
MOVIE 11: One Flew Over the Cuckoo's Nest
MOVIE 12: Se7en
MOVIE 13: It's a Wonderful Life
MOVIE 14: Saving Private Ryan
MOVIE 15: Interstellar
MOVIE 16: The Green Mile
MOVIE 17: Raiders of the Lost Ark
MOVIE 18: Back to the Future
MOVIE 19: Braveheart
Choose a movie to remove between 1 & 19: 2

which detail do you wish to edit?
1. Title
2. Length
3. Year
4. Genre
5. Rating
6. Number of Oscars Won
7. Number of Stars
8. DONE EDITING
CHOOSE 1-8: 4

Current Genre: Drama, Crime
NEW GENRE: Crime

which detail do you wish to edit?
1. Title
2. Length
3. Year
4. Genre
5. Rating
```

```
C:\WINDOWS\system32\cmd.exe
6. Number of Oscars Won
7. Number of Stars
8. DONE EDITING
CHOOSE 1-8: 8

What would you like to do?
1. Read movies from file.
2. Save movies to a file.
3. Add a movie.
4. Delete a movie.
5. Edit a movie.
6. Print all movies.
7. Delete ALL movies and end the program.
CHOOSE 1-7: 4

Choose from the following movies to remove:
MOVIE 1: The Shawshank Redemption
MOVIE 2: The Godfather
MOVIE 3: The Dark Knight
MOVIE 4: Schindler's List
MOVIE 5: The Lord of the Rings: The Return of the King
MOVIE 6: Fight Club
MOVIE 7: The Lord of the Rings: Fellowship of the Ring
MOVIE 8: Forrest Gump
MOVIE 9: The Matrix
MOVIE 10: The Lord of the Rings: The Two Towers
MOVIE 11: One Flew Over the Cuckoo's Nest
MOVIE 12: Se7en
MOVIE 13: It's a Wonderful Life
MOVIE 14: Saving Private Ryan
MOVIE 15: Interstellar
MOVIE 16: The Green Mile
```



```
C:\WINDOWS\system32\cmd.exe
MOVIE 17: Raiders of the Lost Ark
MOVIE 18: Back to the Future
MOVIE 19: Braveheart
Choose a movie to remove between 1 & 19: 12

The movie has been successfully deleted.

What would you like to do?
1. Read movies from file.
2. Save movies to a file.
3. Add a movie.
4. Delete a movie.
5. Edit a movie.
6. Print all movies.
7. Delete ALL movies and end the program.
CHOOSE 1-7: 2

What do you want to name the file? (example.txt): new_movie_list.txt

All movies in your library have been printed to new_movie_list.txt

What would you like to do?
1. Read movies from file.
2. Save movies to a file.
3. Add a movie.
4. Delete a movie.
5. Edit a movie.
6. Print all movies.
7. Delete ALL movies and end the program.
CHOOSE 1-7:
```

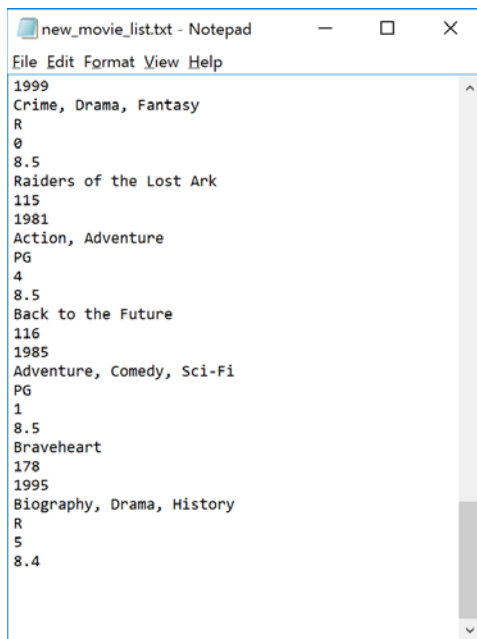
```
C:\Windows\System32\cmd.exe
CHOOSE 1-7: 7

GOODBYE!

C:\Users\acrockett\Desktop\CSC1300 Fall 2017\PROGRAMS\PROGRAM FOUR - Movie progr
```

## CONTENTS OF NEW\_MOVIE\_LIST.TXT

| new_movie_list.txt - Notepad                  | new_movie_list.txt - Notepad          |
|---|---------------------------------------|
| File Edit Format View Help                    | File Edit Format View Help            |
| The Shawshank Redemption                      | 142                                   |
| 82  | 1994                                  |
| 1994  | Drama                                 |
| Drama, Crime                                  | PG-13                                 |
| R   | 6                                     |
| 0   | 8.8                                   |
| 9.3   | The Matrix                            |
| The Godfather                                 | 136                                   |
| 115   | 1999                                  |
| 1972  | Action, Sci-Fi                        |
| Crime   | R                                     |
| R   | 4                                     |
| 3   | 8.7                                   |
| 9.2   | The Lord of the Rings: The Two Towers |
| The Dark Knight                               | 179                                   |
| 92  | 2002                                  |
| 2008  | Adventure                             |
| Action, Crime                                 | PG-13                                 |
| PG-13   | 2                                     |
| 2   | 8.7                                   |
| 9   | One Flew Over the Cuckoo's Nest       |
| Schindler's List                              | 133                                   |
| 195   | 1975                                  |
| 1993  | Drama                                 |
| Biography                                     | R                                     |
| R   | 5                                     |
| 7   | 8.7                                   |
| 8.9   | It's a Wonderful Life                 |
| The Lord of the Rings: The Return of the King | 130                                   |
| 201   | 1946                                  |
| 2003  | Drama, Family, Fantasy                |
| Adventure                                     | PG                                    |
| PG-13   | 0                                     |
| 11  | 8.6                                   |
| 8.9   | Saving Private Ryan                   |
| Fight Club                                    | 169                                   |
| 139   | 1998                                  |
| 1999  | Drama, War                            |
| Drama   | R                                     |
| R   | 5                                     |
| 0   | 8.6                                   |
| 8.8   | Interstellar                          |
| The Lord of the Rings: Fellowship of the Ring | 169                                   |
| 178   | 2014                                  |
| 2001  | Adventure, Drama, Sci-Fi              |
| Adventure                                     | PG-13                                 |
| PG-13   | 1                                     |
| 4   | 8.6                                   |
| 8.8   | The Green Mile                        |
| Forrest Gump                                  | 189                                   |



```
new_movie_list.txt - Notepad
File Edit Format View Help
1999
Crime, Drama, Fantasy
R
8.5
Raiders of the Lost Ark
115
1981
Action, Adventure
PG
4
8.5
Back to the Future
116
1985
Adventure, Comedy, Sci-Fi
PG
1
8.5
Braveheart
178
1995
Biography, Drama, History
R
5
8.4
```