CIS 236 – Programming in C

Program:	**Week 12**
Points:	**20**
Chapters:	**10**

Description

Write a program that stores information about movies, using an array of structures.

Prompt the user for the number of movies to process. Then prompt the user for the title and number of downloads for each movie.

When all the data has been entered, display the list of movies and the number of downloads.

You must use functions as described in the requirements below.

Extra credit is available for this assignment.

Learning Objectives

In this assignment, you will:

- Use an array of programmer-defined structures
- Use a repetition control structure
- Use a function using an output argument to get data from the user
- Use a function with an array argument to display output to the screen
- Use enumerated data types (extra credit)

Requirements

Your code **must** use these functions, using these names (in addition to main):

1. getMovieInfo
2. displayMovieInfo

The information for each movie must be stored in a structure containing the title of the movie (a string of size 21) and the number of downloads. The information for all movies is stored as an array of these structures. Be sure to use the appropriate data type for the number of downloads.

Requirements for the getMovieInfo Function

Purpose:	This function prompts the user for movie information and stores the information in the output parameter.
Parameter:	1 movie info structure as an output parameter

Algorithm:	Prompt the user for the name of the movie as a string which may include spaces. Display a message if the length of the movie title exceeds 20 characters. Always set the last element in the string to the null character, regardless of the length. Prompt the user for the number of downloads of this movie.
Return value:	None

Requirements for the displayMovieInfo Function

Purpose:	This function displays the contents of the movie array.
Parameter:	1. array of movie structures 2. size of the array
Algorithm:	Use a counter-controlled loop to display the contents of the array in a neatly formatted list, per the sample run.
Return value:	None

Requirements for main:

1. Prompt the user for the number of movies to be processed and create an array of movie structures using this value.
2. Using a counter-controlled loop, call the getMovieInfo function to get the data for one movie. Pass each array element to this function as an output argument.
3. After the loop, call the displayMovieInfo function.

Extra Credit – Max 10 Points – Add Genre to the Movie Information

Add information about genre to the movie information data.

The genre is stored as an enumerated type in the structure, using these enumeration constants, in this order: action, animation, drama, sci-fi, superhero.

Prompt for the genre (as a number) in the getMovieInfo function. This function must also check that the value entered for the genre is within the correct range for the enum values (as noted above). Your code must continue to ask the user for a valid genre, as in the sample run. The check must use the enum constants, not the numbers represented by the enum constants.

The displayMovieInfo must use a switch statement to determine which genre text to print. Remember, the genre for each movie is stored as an enum value, not as a string. Your output should display actual words, like Action or Drama.

Sample Run – Required

```
How many movies to process? 5

Title of movie (max 20 chars): The Suicide Squad
Number of downloads: 10000000

Title of movie (max 20 chars): Birds of Prey: Harley Quinn
Title exceeds 20 characters and will be truncated
Number of downloads: 3000000

Title of movie (max 20 chars): Avengers: Endgame
Number of downloads: 3000000

Title of movie (max 20 chars): Wonder Woman 1984
Number of downloads: 17340

Title of movie (max 20 chars): Toy Story 4
Number of downloads: 10000000

Title                    Downloads
=====                    =========
The Suicide Squad         10000000
Birds of Prey: Harle       3000000
Avengers: Endgame          3000000
Wonder Woman 1984            17340
Toy Story 4               10000000
```

Sample Run – Extra Credit

```
How many movies to process? 5

Title of movie (max 20 chars): The Suicide Squad
Number of downloads: 10000000
Genre (0-action, 1-animation, 2-drama, 3-sci-fi, 4-superhero): 3

Title of movie (max 20 chars): Birds of Prey: Harley Quinn
Title exceeds 20 characters and will be truncated
Number of downloads: 3000000
Genre (0-action, 1-animation, 2-drama, 3-sci-fi, 4-superhero): 4

Title of movie (max 20 chars): Avengers: Endgame
Number of downloads: 3000000
Genre (0-action, 1-animation, 2-drama, 3-sci-fi, 4-superhero): 4

Title of movie (max 20 chars): Wonder Woman 1984
Number of downloads: 17340
Genre (0-action, 1-animation, 2-drama, 3-sci-fi, 4-superhero): 5
Invalid genre
Genre (0-action, 1-animation, 2-drama, 3-sci-fi, 4-superhero): 4
```

```
Title of movie (max 20 chars): Toy Story 4
Number of downloads: 10000000
Genre (0-action, 1-animation, 2-drama, 3-sci-fi, 4-superhero): 1

Title                    Downloads             Genre
=====                    =========             =====
The Suicide Squad         10000000             Sci-fi
Birds of Prey: Harle       3000000             Sci-fi
Avengers: Endgame          3000000             Superhero
Wonder Woman 1984            17340             Superhero
Toy Story 4               10000000             Animation
```

Requirements for Full Credit on This Project

SUBMIT YOUR OWN WORK – Plagiarism is not tolerated in this course. Please review the section on the Academic Honor Code in the syllabus. I will not hesitate to drop you from this class if you submit a program that is plagiarized.

COMPLETE AND ACCURATE – Your program must compile, execute, and give accurate output.

FOLLOW ALL REQUIREMENTS ACCORDING TO THE INSTRUCTIONS – Follow the instructions as written for completing this project, even if you [think you] know a "better" way to do something.

COMMENTS – Include comments in your code. There must be a comment at the top of your program that includes your name, the program number, and a description of the program. There must be comments at each important step in your program that describes that step. Every variable must include a comment describing its purpose.

BEST PRACTICES – Follow best practices in C programming as discussed in class and in the textbook, including, but not limited to, appropriate use of white space, indenting, alignment, meaningful identifier names, etc. Points will be deducted for sloppy code that is hard to read, even if it works, so pay attention to these details.

SUBMIT ONLY .c SOURCE CODE – Pay attention to the file extension of the source code file you submit. I will deduct points for not following this requirement.

SUBMIT ALL FILES BEFORE THE DUE DATE – Submit your .c source code file to the dropbox for this assignment on Canvas before the due date. Do not submit executable files. Do not submit project files from an IDE. I will not accept links to online storage.