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TOP 20 MOVIES of 2020

The program created for the 2-day assessment resembles a database to some extent, this program reads the characteristics of each of the 20 movies in arrays. These 20 movies are assumed to have been released at the very beginning of the year 2020(January). The program then performs various statistical calculation on the data read.

The program firstly reads the data stored in 5 files these being **"description.txt", "movie.txt", "URL.txt"**, **"types.txt"**, **"rating.txt"** and **"views.txt"**. This data was initially stored within a single file however due to the variety of data types contain within them the function ***getline()*** was returning a bug resulting in some data not being read thus the data was separated.

The components of each file are as follows:

(1) **"movie.txt":**

This file contains names of each of the 20 movies and is read into a string array ***title_movie [].***

(2)"**types.txt":**

This file contains the respective genre for each of the movies and is read into a string array call ***genre[].***

(3) **"description.txt":**

Contains the respective descriptions for each movie and is read into a string array ***descript[].***

(4) **“URL.txt”:**

Contains respective links to each movie’s trailer and is read into a string array ***url[]***.

(5) **“views.txt”:**
Contains the views per month for each movie hence each movie has 12 reading in the **“views.txt”** file and is read into the array ***views [].***
The array ***views []*** is further broken down separating the views for each month in respective arrays, hence each month array would hold a value for each movie in the movie array ***title_movie []***.

In addition, the array ***views []*** is used to find the total views for each movie for the entire year and is stored in the array ***total_views []***.

(6) **“rating.txt”**

Contains the rating for each movie and is stored in the array ***rating [].***

This completes the reading stage of the program.

The program then utilizes these filled arrays to perform various statistical operations, some basic operations performed are calculating the highest and lowest rating and displaying the respective movie that yielded this rating. In addition to these two statistics the program also calculates the sum of views given a particular month and also displays the movie that obtained the highest views.

The program also performs various “interesting statistics” such as searching for views over a specific threshold within a month by use of the users input, the program displays all movies whose views were over the threshold for the given month. Another “interesting statistics” is the comparison of movie characteristics whereby the user is given the option to choose two movies he/she wishes to compare and selects the characteristic that he/she desires to compare example rating or views, the program then displays which movie was rated or viewed more than the other. Another “interesting statistic”, searching for consecutive spikes for a requested movie, a consecutive spike occurs when the post ceding month’s views

is more than the preceding month's views. These statistical operations satisfy the 2 day's assessment criteria for both statistical and interesting statistical operations.

The program satisfies the criteria for user functions as it contains several functions that are used to perform statistical operations. One of these functions are used to search for a specific genre and returns all movies with that genre, satisfying the criteria for searching for multiple occurrences of the same data, however the search feature is limited to searching with lowercase letters only.

Values can be added or changed within the array through the use to the menu function. Additionally, the current values in the arrays can be printed out to a file, the option to perform this operation is left to the user. A function called ***printStars*** is utilized in creating a graph based of the total views for each movie throughout the year, the graph depicts a star for every 10 million views. The aim of this graph is to give the user a visual image of the (popularity/most views) for each movie.

The program can also perform a special feature whereby the user is allowed the option to search a movie, the program returns a brief description of the movie and gives the user the option to view the trailer of the movie.

The menu function creates a list of operations that the program can accomplish at the user's fingertips. The user is capable of assessing all statistics and data values through the menu as mentioned before.

Here is a more Structure Description of the Menu options.

Option 1: Which movie had the highest and the lowest rating?
If the user selects this option the program calculates and displays the highest and the lowest rating and displays the movie that yielded this rating.

Option 2: Search for movies with a specific genre.
If the user selects this option, he/she is asked to enter a genre example action, adventure, which needs to be typed in. The program then searches the database and displays all movies classified under that genre. **Only one genre may be entered, the genre entered must be in lower case**.

Option 3: Movies with views over N for a particular month.
If the user selects this option, the program prompts the user to enter a value for N and the month he/she wishes to search, the month is indicated by typing in an integer value example (1 for January). If invalid input is entered the user is prompted to re-enter. The program then displays all movies and its respective views that were over the value N.

Option 4: Which movie was viewed/rated more than another throughout the year.
If the user selects this option, the program returns a list of the movies in the database and produces and index value next to each. The user is then prompted to select two movies by use of the indexes. The user is then asked, if he/she want to compare them base of views or ratings and accepts a value of ("r" or "v"). If an invalid input is entered the user is prompted to re-enter. If the user enters "r" the program displays which movie had a greater rating and by how much. If the user enters "v" the program displays which movie had greater total views(entire year) and by how many.

Option 5: Check for Consecutives Spikes in views for a Particular movie.
If the user selects this option the program returns a list of movies in the database and an index for each. The user is allowed to enter the movie they wish to check for consecutives spikes, by use of the index. The program then returns the name of the movie and the months that the spikes occurred followed by the how much the spike in views was.

Option 6: Month statistics(Sum, Highest views for that month).
If the user selects this option, the user is prompted to enter the month he/she wishes to know the statistics of, by use or an integer input example 1 for January. The program returns the sum of views for all movies in that month and displays the movie that obtained the highest views for that month.

Option 7: Generate a graph showing total views for each movie throughout the year.
If the user selects this option the program returns a graph for each movie's total views for the year 2020, the graph depicts a star for every 10 million views.

Option 8: Update Data in an array

If the user selects this option the program returns a list of movies in the database and provides an index to access it example (0,1,2). The programs accept the index and displays the programs current rating. If an invalid input is entered the user is prompted to re-enter. The program prompts the user to enter a new rating. The program then prompts the user to re-enter the index of the movie and the program verifies that the rating has been changed.

Option 9: Add Data to an array.

If the user selects this option, the user is prompted to enter all the characteristics of a new movie, Name, Genre, Views for each month, Brief Description, Rating and a URL with the link to its trailer.

Option 10: Save data to a file.

If the user selects this option, the program saves all the data from all arrays except the arrays that contain the description and the views per month and prints it onto the file **"output.txt".** The description and views per month were left out due too those arrays have large amount of data stored within them and would make it difficult to locate changes or additions to the data.

Option 11: Surprise Feature.

If the user selects this option, the program returns a list of movies in the database together with an index. The program prompts the user to select a movie they wish to know more about. The program returns a brief description of the movie from IMBd's website. The user is then prompted with the option to view the trailer of the movie by indication of y/n. If yes the program directs the user to the trailer whereby, they can view it.

Option 12: QUIT
If the user selects this option the programs ends.

SEE BELOW FOR AN IN DEPT VIEW OF HOW DATA WAS STORED WITHIN FILES.

“movies.txt”

Movie1
Movie2
etc.

“types.txt”

Movie1’s genre
Movie2’s genre
etc.

“description.txt”

Movie1’s description
Movie2’s description
etc.

“rating.txt”

Movie1’s rating
Movie2’s rating
etc.

“URL.txt”

Movie1’s URL
Movie2’s URL
etc.

“views.txt”

Views for January
Views for February
Views for March
Views for April
Views for May
Views for June
Views for July
Views for August
Views for September
Views for October
Views for November
Views for December

Views for January
Views for February
Views for March
Views for April
Views for May
Views for June
Views for July
Views for August
Views for September
Views for October
Views for November
Views for December