secondpracticeexamara2010.pdf

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Programación 1

1º Grado en Ingeniería Informática

Escuela Politécnica Superior
Universidad de Alicante

PROGRAMMING 1
SECOND PRACTICE EXAM

December 22th 2010

Full name _____

DNI _____

Signature

Implement a program in C to keep track of a **collection of movies**. It should be able to store up to 100 movies. Each movie consists of the following data:

- *Title*
- *Director*
- *Genre* (each genre is represented by a character: **A** for action, **C** for comedy, **H** for horror, and **D** for drama)
- *Rating* (recommended minimum age for watching the movie)
- *Duration* (in minutes)

When the program is executed, it shows the following main menu:

1. *Enter a new movie*
2. *List all the movies*
3. *Show recommended movies*
4. *Show statistics*
5. *Exit*

The available options are:
1) *Enter a new movie*: It asks the user to enter all the information for adding a new movie to the collection. Only the genre should be validated.
2) *List all the movies*: It displays a list of all the movies in our collection. For each movie it shows its title, director, genre (its full name, not only the character that represents it), rating, and duration.
3) *Show recommended movies*: It asks the user for his preferred genre and the minimum age of the audience, and shows a list of all the movies of the entered genre whose rating is lower or equal than the minimum age of our audience.
4) *Show statistics*: It displays the percentage of movies of each genre, and the average duration of all the movies.
5) *Exit*: It terminates the program execution.

You must implement the following modules:
- **printMenu**: A module that displays the main menu.
- **readMovie**: A module that asks the user to enter a new movie. Only the genre should be validated. It returns the data of the entered movie.
- **printMovie**: A module for displaying all the information about a single movie. It takes as input the data of the movie to be displayed.
- **showAllMovies**: A module that displays the list of all the movies. It takes as input the list of movies to be displayed.

- **showRecommended**: A module that displays only the movies that match the specified search criteria (minimum age and genre). It takes as input the list of all the movies, the preferred genre, and the minimum age of our audience. It shows the movies that satisfy these criteria.
- **computeStatistics**: A module that computes the statistics of our collection. It takes as input the list of all the movies, and returns the obtained statistics (the statistics will be displayed by another module).
- **printStatistics**: A module that displays the statistics of our collection. It receives as input the statistics data, and displays them.

IMPORTANT:

- The program should work as it is specified
- Suitable data structures should be properly declared and used
- You should choose the most convenient type of module for each case, and a proper type for its parameters
- **YOU MUST NOT** use global variables
- Code must be properly **indented**, not doing this penalises a 5% of the mark
- A non-compiling program will penalise a 20% of the mark
- We will consider the use of comments describing the program to evaluate the exam

EXECUTION EXAMPLE

```
1. Enter a new movie
2. List all the movies
3. Show recommended movies
4. Show statistics
5. Exit
Enter an option: 1

Title: The Shining
Director: Stanley Kubrick
Minimum age: 18
Duration: 119
Genre (A/C/H/D): T
Genre (A/C/H/D): H

1. Enter a new movie
2. List all the movies
3. Show recommended movies
4. Show statistics
5. Exit
Enter an option: 1

Title: The Shawshank Redemption
Director: Frank Darabont
Minimum age: 13
Duration: 142
Genre (A/C/H/D): D
```

Si ya tuviste sufi con tanto estudio...
Te dejamos este espacio
para desahogarte.

Pinta, arranca,
llora... tú decides ;)

¿Te sientes más liberado?
Sigue siéndolo con la **Cuenta NoCuenta:**
libre de comisiones*, y de lloraditas.
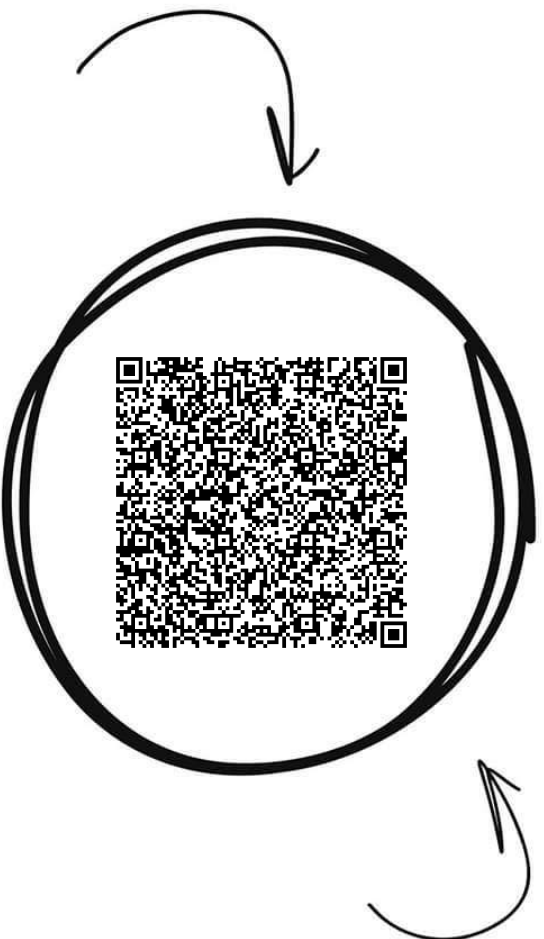
¡Quiero una de esas!

*TIN 0 % y TAE 0 %.

do your thing

Programación 1

Comparte estos flyers en tu clase y consigue más dinero y recompensas

1 Imprime esta hoja

2 Recorta por la mitad

3 Coloca en un lugar visible para que tus compis puedan escanar y acceder a apuntes

4 Llévate dinero por cada descarga de los documentos descargados a través de tu QR

Banco de apuntes de la

WUOLAH

```
1. Enter a new movie
2. List all the movies
3. Show recommended movies
4. Show statistics
5. Exit
Enter an option: 2

**************************
Title: The Shining
Director: Stanley Kubrick
Minimum age: 18
Duration: 119 min
Genre: Horror
**************************
**************************
Title: The Shawshank Redemption
Director: Frank Darabont
Minimum age: 13
Duration: 142 min
Genre: Drama
**************************

1. Enter a new movie
2. List all the movies
3. Show recommended movies
4. Show statistics
5. Exit
Enter an option: 3

Enter the minimum age of the audience: 15
Enter your preferred genre (A/D/H/C): D

**************************
Title: The Shawshank Redemption
Director: Frank Darabont
Minimum age: 13
Duration: 142 min
Genre: Drama
**************************

1. Enter a new movie
2. List all the movies
3. Show recommended movies
4. Show statistics
5. Exit
Enter an option: 3

Enter the minimum age of the audience: 15
Enter your preferred genre (A/D/H/C): H
```

```
1. Enter a new movie
2. List all the movies
3. Show recommended movies
4. Show statistics
5. Exit
Enter an option: 3

Enter the minimum age of the audience: 21
Enter your preferred genre (A/D/H/C): H

**************************
Title: The Shining
Director: Stanley Kubrick
Minimum age: 18
Duration: 119 min
Genre: Horror
**************************

1. Enter a new movie
2. List all the movies
3. Show recommended movies
4. Show statistics
5. Exit
Enter an option: 4

Action: 0%
Drama: 50%
Comedy: 0%
Horror: 50%
Average duration: 130.5 min

1. Enter a new movie
2. List all the movies
3. Show recommended movies
4. Show statistics
5. Exit
Enter an option: 5

Terminating program
```