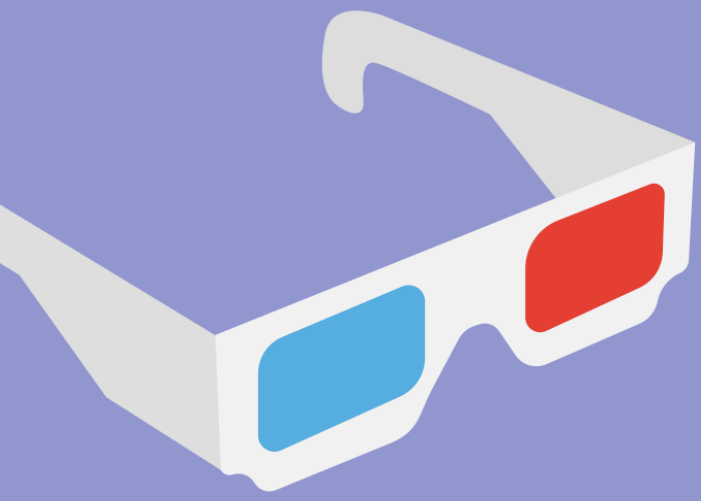

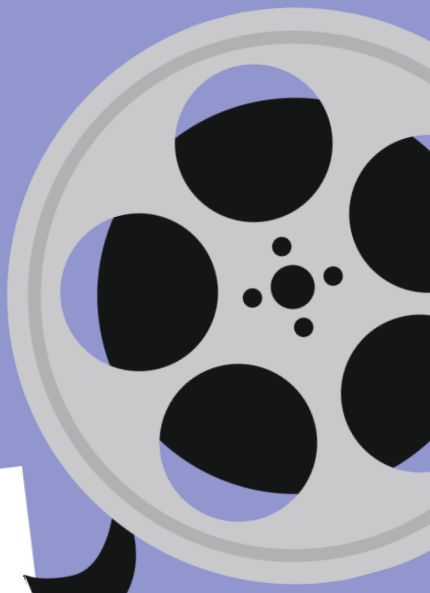

Cinema System

Data Structure Project

Dr. Enas EL. Sharawy
T.A. Hessa Almutairi

CINEMA SYSTEM

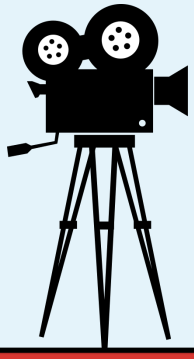

TABLE OF CONTENTS:

INTRODUCTION

Our project talks about an application for a cinema where the user can book, a movie that he wants, where after writing his age, a list of the movies available to him will appear and he can book and certainly when we talk about movies and cinema halls, we must reserve the seat and choose the snack. This is how we designed our program where the user can book the movie And the seat and choosing the snack is easy by offering him some choices

In the beginning, our project is divided into three main classes, a class for booking the film, a class for booking a seat, and finally a class for choosing a snack.

We used a structure in a project, which is the tree, so what is the tree in the data structure?

It is one of the simplest non-linear data structures that stores elements hierarchically consisting of nodes connected by edges without any of them.

at the end, we said that structuring data is one of the simplest structuring, but in our project, it has its implementation and writing code, we faced some difficulty

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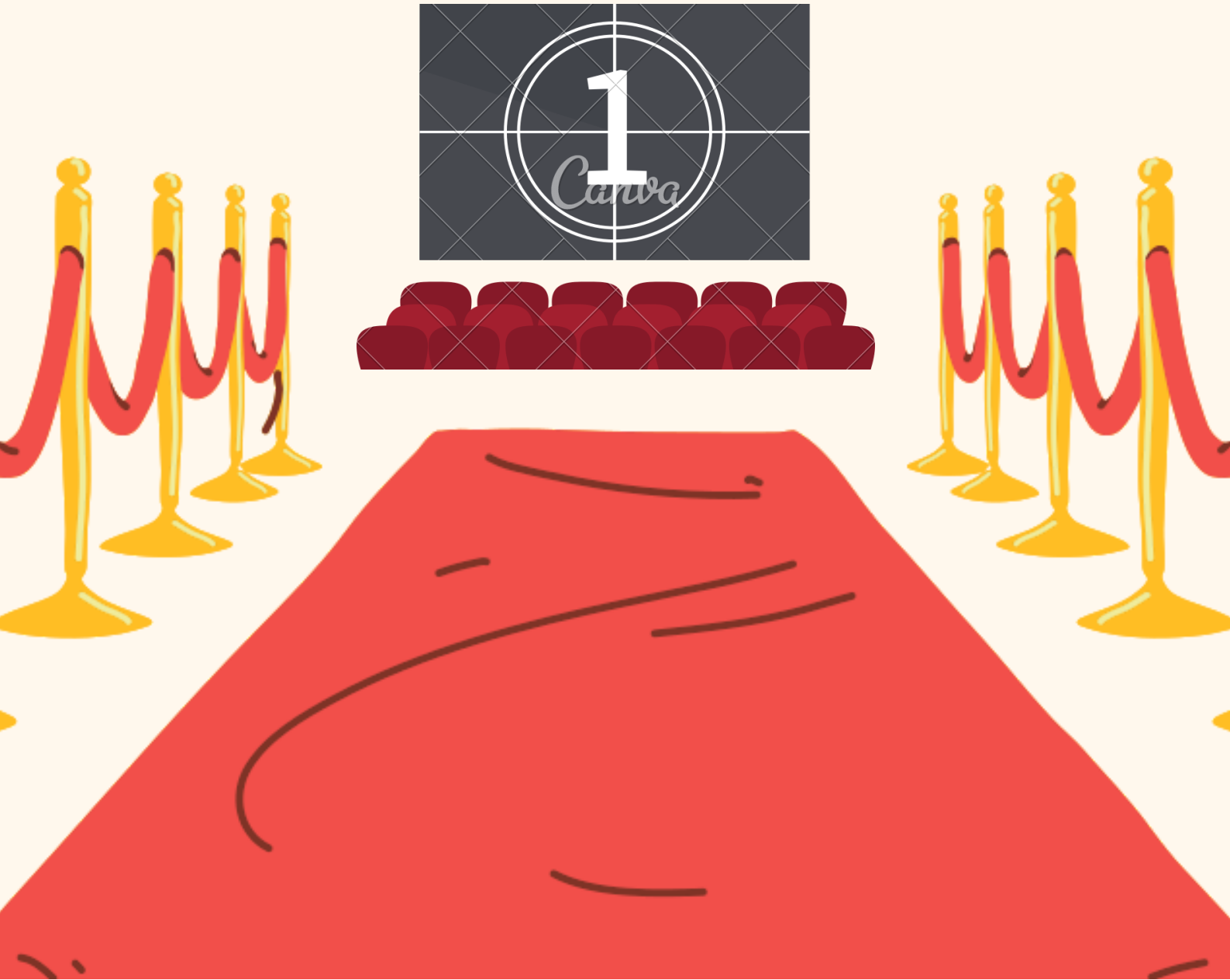
CHALLENGES

In general, the challenges we faced are few, and through the spirit of teamwork, we were able to overcome them with strength. The first thing we faced with it the type of structure we use because It is a new topic with some difficulty. Also, in the stage of choosing an appropriate topic that corresponds to the right concept of tree,

it took us some time and Tree is almost more complex than other algorithms and it took us a lot of time to practice and master the model of the tree structure. Also, one of the biggest challenges we faced is the method of applying and creating the Tree that we studied did not fully agree with our project, just this thing caused us some concern.

SOLUTION

We used lectures and research to better understand the design and concept of the tree, we also used other research sources to search for a tree design that matches our work and used a different method than the one studied. The biggest thing that helped us in implementing the project was the distribution of the work well and easy so that which helped us in facilitating the application as well, and the ease of communication with the course professors helped us a lot when we needed to understand something during the application.



METHODS AND EXPLANATION

Movie methods:

isertMovies(): Filling the binary tree with movie names.

checkAge(): to determine whether the user's age less than 18 or older.

movieType(): Filling the binary tree with movie types.

book(): allow the user to choose the movie he/she wants to book depending on the age and movie type.

Booking seats methods:

insertSeat(): Filling the binary tree with both VIP and classic seats.

VipType() / classicType(): printing method for booking seats statement and show the seat status.

Reserve(): Return a true value with the seat is already reserved for any category or stay with default value (false).

METHODS AND EXPLANATION

Snack methods:

insertSnack(): Filling the binary tree with all the available snacks type.

ChoosedType(): will offer three options for the user:
1-drinks
2-Popcorn
0-Exit.

DType(): conditional method for main drink types offer two options:
1-water
2-soft drinks

Drinks(): conditional method for drink types offer two options:
1-Pepsi
2-cola

PType(): conditional method for popcorn types offer two options:
1- popcorn with flavor
2- popcorn without flavor

PopCorn(): conditional method for popcorn types offer three options:
1- pizza popcorn
2- caramel popcorn
3- origina

OUTPUT AND SCREENSHOT

1

```
**** Welcome to our Cinema ****

Enter your Name :
Sara
Enter your Age :
10
The Available Movie Type :
000 Cartoon
111 Animation
Choose a Movie Type :
111
The Available Movies :
303 JUJUTSU KAISEN
404 DETECTIVE CONAN : THE BRIDE OF SHIBUYA
Enter The Number Of the Movie You Want To Book :
404
Confirmed Booking Movie 404 DETECTIVE CONAN : THE BRIDE OF SHIBUYA
```

2

```
**** Welcome to our Cinema ****

Enter your Name :
Sara
Enter your Age :
10
The Available Movie Type :
000 Cartoon
111 Animation
Choose a Movie Type :
000
The Available Movies :
101 FIREHEART
202 SONIC 2
Enter The Number Of the Movie You Want To Book :
101
Confirmed Booking Movie 101 FIREHEART
```

3

```
**** Reserve Seat ****

choose your seat type (VIP =1 or classic=2):
1
Type of seat : VIP  - Number of seat : 1 - the state of reserve: false
Type of seat : VIP  - Number of seat : 2 - the state of reserve: false
Type of seat : VIP  - Number of seat : 3 - the state of reserve: false
Type of seat : VIP  - Number of seat : 4 - the state of reserve: false
Type of seat : VIP  - Number of seat : 5 - the state of reserve: false
Type of seat : VIP  - Number of seat : 6 - the state of reserve: false
Type of seat : VIP  - Number of seat : 7 - the state of reserve: false
Type of seat : VIP  - Number of seat : 8 - the state of reserve: false
Type of seat : VIP  - Number of seat : 9 - the state of reserve: false
Type of seat : VIP  - Number of seat : 10 - the state of reserve: false
choose the number of seat:
1
You get Successfully Reserved
```

4

```
**** Reserve Seat ****

choose your seat type (VIP =1 or classic=2):
2
Type of seat : classic  - Number of seat : 1 - the state of reserve: false
Type of seat : classic  - Number of seat : 2 - the state of reserve: false
Type of seat : classic  - Number of seat : 3 - the state of reserve: false
Type of seat : classic  - Number of seat : 4 - the state of reserve: false
Type of seat : classic  - Number of seat : 5 - the state of reserve: false
Type of seat : classic  - Number of seat : 6 - the state of reserve: false
Type of seat : classic  - Number of seat : 7 - the state of reserve: false
Type of seat : classic  - Number of seat : 8 - the state of reserve: false
Type of seat : classic  - Number of seat : 9 - the state of reserve: false
Type of seat : classic  - Number of seat : 10 - the state of reserve: false
choose the number of seat:
6
You get Successfully Reserved
```

5

```
Are you done with reserve seat ? (Not yet 1 , Done 0)
0

 **** SNACKS MENU ****


WHAT WOULD YOU LIKE TO ORDER:
1-ENTER *1* FOR drink.
2-ENTER *2* FOR popcorn.
3-ENTER *3* TO EXIT.
```

6

```
 **** SNACKS MENU ****


WHAT WOULD YOU LIKE TO ORDER:
1-ENTER *1* FOR drink.
2-ENTER *2* FOR popcorn.
3-ENTER *3* TO EXIT.
1
Drinks

Subtype of drinks:
Enter *3* for Water.
Enter *4* for Soft Drinks.
3
Water
```

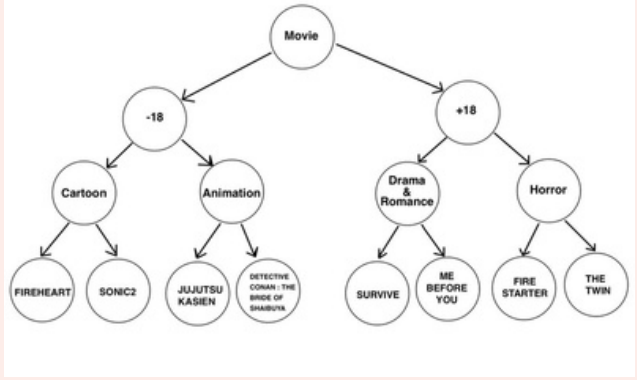
7

```
 **** SNACKS MENU ****


WHAT WOULD YOU LIKE TO ORDER:
1-ENTER *1* FOR drink.
2-ENTER *2* FOR popcorn.
3-ENTER *3* TO EXIT.
2
PopCorn

Subtype of pop corn:
Enter *8* for popcorn with flavor.
Enter *9* for popcorn without flavor.
8
With flavor
Popcorn flavor :
Enter *10* for Pizza flavor.
Enter *11* for Caramel flavor.
Enter *12* for Original.
10
Pizza flavor
```

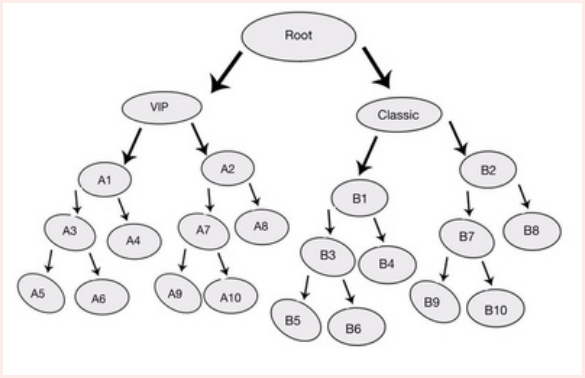
8

```
 **** SNACKS MENU ****


WHAT WOULD YOU LIKE TO ORDER:
1-ENTER *1* FOR drink.
2-ENTER *2* FOR popcorn.
3-ENTER *3* TO EXIT.
3
BUILD SUCCESSFUL (total time: 2 minutes 27 seconds)
```

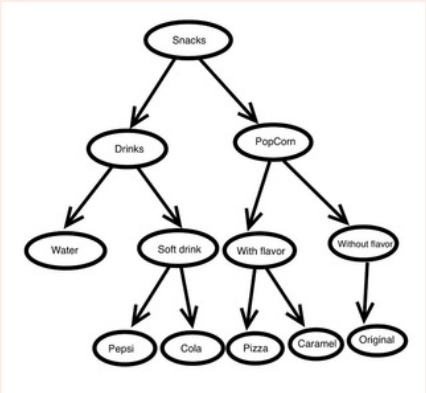
TREE OF MOVIES



TREE OF SEATS



TREE OF SNACKS



CONCLUSION:

A cinema system has been designed to make it easier for the individual to reserve seats, movies and snacks by using the binary tree, which is a type of non-linear data structure that provides a flexible way to store or maintain data in a hierarchical form, which is characterized by the ease of adding reservations in the menu and easy understanding of data management and organization It is faster than a link list and less than an array when it reaches the elements