Object Oriented

Programming project.

Topic:

FAD Cinema.

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Computer Science

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Introduction

As a students group from College of Science and Humanities in Jubail majored in Computer Science, we decided to create an application written by Java programming language. Our application main concept is publish a cinema application for the community.

The problem statement

Many people nowadays search for an easy way to book for movies. According to this FAD cinema application it’s the perfect way to book your tickets fast and in easy way.

The target

This application aims all the community to provide them a high efficiency application to book cinema tickets easily.

UML

Graphical user interface, application, Word

Description automatically generated

Full code

Main class

import java.util.\*;

public class Main {

public static Scanner scanner = new Scanner(System.in);

public static ArrayList<Movie> moviesArr = new ArrayList<Movie>();

public static Admin admin = new Admin("Admin", 21, "admin@email.com", "1234");

public static void main(String[] args) {

Sys.runApp();

}

}

Admin class:

public class Admin extends Person {

private String email;

private String password;

Admin(String name , int age , String email , String password ) {

super(name , age) ;

this.email = email ;

this.password = password;

}

@Override

public String getName() {

return this.name;

}

@Override

public int getAge() {

return this.age;

}

public String getEmail(){

return this.email ;

}

public String getPassowrd(){

return this.password ;

}

public static void runAdmin(){

System.out.println("-------- Admin Menu --------");

System.out.println("1 - Add New Movie .");

System.out.println("2 - Display All Costumers .");

System.out.println("3 - Delete Movie .");

System.out.println("0 - Exit .");

System.out.print("What Would You Like To Do : ");

int choice = Main.scanner.nextInt() ;

switch(choice){

case 1 :

Operations.addMovie();

break ;

case 2 :

Operations.showCostumers() ;

break ;

case 3 :

Operations.deleteMovie();

break ;

case 0 :

break ;

default :

System.out.println("Wrong Input Please Try Again ... ");

Main.scanner.nextInt() ;

Main.scanner.nextInt() ;

}

if(choice != 0 ){

runAdmin() ;

}

}

}

Costumer class:

public class Costumer extends Person {

String seat;

Costumer(String name, int age, String seat) {

super(name, age);

this.seat = seat;

}

@Override

public String getName() {

return this.name;

}

@Override

public int getAge() {

return this.age;

}

}

Movie class:

import java.util.ArrayList;

public class Movie {

private String name;

private int leastAge;

private int duration;

private int rating;

public static ArrayList<Costumer> costumersArr = new ArrayList<Costumer>();

String theater[][] = createTheater();

public Movie(String name, int leastAge, int duration, int rating) {

this.name = name;

this.leastAge = leastAge;

this.duration = duration;

this.rating = rating;

takeSeates() ;

}

Movie() {

};

public String getName() {

return this.name;

}

public void setName(String name) {

this.name = name;

}

public int getLeastAge() {

return this.leastAge;

}

public void setLeastAge(int leastAge) {

this.leastAge = leastAge;

}

public int getDuration() {

return this.duration;

}

public void setDuration(int duration) {

this.duration = duration;

}

public int getRating() {

return this.rating;

}

public void setRating(int rating) {

this.rating = rating;

}

public void bookSeat(int columnIndex, int rowIndex) {

this.theater[columnIndex][rowIndex] = "XXX";

}

// ! Overloading

public void bookSeat(String seat) {

int columnIndex = -1;

int rowIndex = -1;

for (int i = 0; i < this.theater.length; i++) {

for (int j = 0; j < this.theater[i].length; j++) {

if ((this.theater[i][j].charAt(0) == seat.charAt(0)

|| this.theater[i][j].charAt(0) + 32 == seat.charAt(0))

&& this.theater[i][j].substring(1).equalsIgnoreCase(seat.substring(1))) {

columnIndex = i;

rowIndex = j;

break;

}

}

}

if (columnIndex == -1 || rowIndex == -1) {

} else {

bookSeat(columnIndex, rowIndex);

}

}

public boolean isTaken(String seat) {

int columnIndex = -1;

int rowIndex = -1;

for (int i = 0; i < this.theater.length; i++) {

for (int j = 0; j < this.theater[i].length; j++) {

if ((this.theater[i][j].charAt(0) == seat.charAt(0)

|| this.theater[i][j].charAt(0) + 32 == seat.charAt(0))

&& this.theater[i][j].substring(1).equalsIgnoreCase(seat.substring(1))) {

columnIndex = i;

rowIndex = j;

break;

}

}

}

if (columnIndex != -1 && rowIndex != -1) {

return false;

} else {

return true;

}

}

private String[][] createTheater() {

String theater[][] = new String[14][16];

for (int i = 0; i < theater.length; i++) {

for (int j = 0; j < theater[i].length; j++) {

theater[i][j] = ((char) (65 + i)) + "" + j + "";

}

}

return theater;

}

public void displayTheatre() {

for (int i = 0; i < this.theater.length; i++) {

for (int j = 0; j < this.theater[i].length; j++) {

System.out.printf("%5s", this.theater[i][j]);

}

System.out.println();

}

}

public void takeSeates(){

for(int i = 0 ; i < costumersArr.size() ; i++){

bookSeat(costumersArr.get(i).seat) ;

}

}

}

Operations class:

public class Operations {

public static void deleteMovie() { // delete a movie after taking the index as a user input

for (int i = 0; i < Main.moviesArr.size(); i++) {

System.out.println("( Index : " + i + " ) --> " + Main.moviesArr.get(i).getName());

}

System.out.print("Which Movie Would You Like To Select ( Index ) : ");

int index = Main.scanner.nextInt();

if (0 <= index && index < Main.moviesArr.size()) {

Main.moviesArr.remove(index);

} else {

System.out.print("Out Of Bounds ");

}

}

public static void showCostumers() { // display all costumers info after taking the movie index as a user input

for (int i = 0; i < Main.moviesArr.size(); i++) {

System.out.println("( Index : " + i + " ) --> " + Main.moviesArr.get(i).getName());

}

System.out.print("Which Movie Would You Like To Select ( Index ) : ");

int index = Main.scanner.nextInt();

if (0 <= index && index < Main.moviesArr.size()) {

for (int i = 0; i < Main.moviesArr.get(index).costumersArr.size(); i++) {

System.out.println("Name : " + Main.moviesArr.get(index).costumersArr.get(i).getName() + " | Age : "

+ Main.moviesArr.get(index).costumersArr.get(i).getAge() + " | Seat : "

+ Main.moviesArr.get(index).costumersArr.get(i).seat);

}

System.out.print("Return To Admin Menu ");

} else {

System.out.print("Out Of Bounds ");

}

}

public static void addMovie() { // Take name , leastAge, duration, rating To Make A New Movie ,Add It To The

// "arrMovies"

String name;

int leastAge, duration, rating;

System.out.print("Please Enter Movie's Name : ");

Main.scanner.nextLine(); // Taking The Crap

name = Main.scanner.nextLine();

System.out.print("Please Enter Movie's Least Age : ");

leastAge = Main.scanner.nextInt();

System.out.print("Please Enter Movie's Duration ( Minutes ) : ");

duration = Main.scanner.nextInt();

System.out.print("Please Enter Movie's Rating : ");

rating = Main.scanner.nextInt();

Movie newMovie = new Movie(name, leastAge, duration, rating);

Main.moviesArr.add(newMovie);

}

public static void bookCostumer() { // Enter name , age to book costumer and seat to select it

String name;

int age;

System.out.print("Please Enter ( His / Her ) Name : ");

name = Main.scanner.next();

System.out.print("Please Enter ( His / Her ) Age : ");

age = Main.scanner.nextInt();

for (int i = 0; i < Main.moviesArr.size(); i++) {

System.out.println("( Index : " + i + " ) --> " + Main.moviesArr.get(i).getName());

}

System.out.print("For Which Movie : ");

int index = Main.scanner.nextInt();

if (index >= 0 && index < Main.moviesArr.size()) {

if (Main.moviesArr.get(index).getLeastAge() <= age) {

Main.moviesArr.get(index).displayTheatre();

System.out.print("Which Seat Would You Like To Choose : ");

String seat = Main.scanner.next();

if (!Main.moviesArr.get(index).isTaken(seat)) {

Main.moviesArr.get(index).bookSeat(seat);

Main.moviesArr.get(index).costumersArr.add(new Costumer(name, age, seat));

} else {

System.out.println("This Seat Is Taken Please Try Another One .");

}

} else {

System.out.print("Sorry You Must Be " + Main.moviesArr.get(index).getLeastAge()

+ " Or Older To Enter This Movie. ");

}

} else {

System.out.println("Wrong Input!\nPlease Try Again");

}

}

public static void displayMoviesInfo() { // display all the movie info after taking the index as a user input

for (int i = 0; i < Main.moviesArr.size(); i++) {

System.out.println("( Index : " + i + " ) --> " + Main.moviesArr.get(i).getName());

}

System.out.print("Which Movie Would You Like To Display : ");

int index = Main.scanner.nextInt();

System.out.println("1 - Display Information . ");

System.out.println("2 - Display Theater .");

System.out.print("What Would You Like To Do : ");

int choice = Main.scanner.nextInt();

switch (choice) {

case 1:

System.out.println("Movie Name : " + Main.moviesArr.get(index).getName() + " .");

System.out.println("Least Age : " + Main.moviesArr.get(index).getLeastAge() + " .");

System.out.println("Duration : " + Main.moviesArr.get(index).getDuration() + " Minutes .");

System.out.print("Rating : ");

for (int i = 0; i < Main.moviesArr.get(index).getRating(); i++) {

System.out.print("\* ");

}

break;

case 2:

Main.moviesArr.get(index).displayTheatre();

break;

default:

System.out.println("Wrong Input!\nPlease Try Again");

}

}

public static void displayAllMovies() { // display all the movies info

System.out.println("-----------------------------------------------------\n");

for (int index = 0; index < Main.moviesArr.size(); index++) {

System.out.println("Movie Name : " + Main.moviesArr.get(index).getName() + " .");

System.out.println("Least Age : " + Main.moviesArr.get(index).getLeastAge() + " .");

System.out.println("Duration : " + Main.moviesArr.get(index).getDuration() + " Minutes .");

System.out.print("Rating : ");

for (int i = 0; i < Main.moviesArr.get(index).getRating(); i++) {

System.out.print("\* ");

}

System.out.println("\n\n-----------------------------------------------------");

}

}

}

Person class:

abstract public class Person {

String name;

int age;

Person(String name , int age){

this.name = name;

this.age = age;

}

abstract public String getName();

abstract public int getAge();

}

Sys class:

public class Sys {

public static void runApp() {

System.out.println("----- X Movies ---- ");

System.out.println("1 - Display All Movies .");

System.out.println("2 - Book A Costumer .");

System.out.println("3 - Information About A Movie . ");

System.out.println("0 - Exit . ");

System.out.print("What Would You Like To Do : ");

int choice = Main.scanner.nextInt();

switch (choice) {

case 1:

// Operations.addMovie();

Operations.displayAllMovies();

break;

case 2:

Operations.bookCostumer();

break;

case 3:

Operations.displayMoviesInfo();

break;

case 9:

String email, password;

System.out.print("Please Enter Admin Email : ");

email = Main.scanner.next();

System.out.print("Please Enter Admin PCode : ");

password = Main.scanner.next();

if (Main.admin.getEmail().equalsIgnoreCase(email) && Main.admin.getPassowrd().equals(password)) {

Admin.runAdmin();

} else {

System.out.println("Wong Password Or Email !\nPlease Try Again.");

}

}

if (choice != 0) {

runApp();

}

}

}

Conclusion

We used Java language to create a complete application. This project must help the society to gain a better usage of technology. Also, helps in saving time for and meet their needs by having this application. In conclusion, it has devolved our knowledge of java and its usage in applications.