**package** Default;

**import** java.util.Scanner;

**import** java.util.Collections;

**import** java.util.Comparator;

**import** java.io.IOException;

**import** java.util.ArrayList;

**import** java.util.InputMismatchException;

**public** **class** cameraRental {

**static** ArrayList <camera> *camerasList*= **new** ArrayList<>(); //list of all available cameras will be stored here

**static** ArrayList <camera> *mycamerasList*= **new** ArrayList<>();// list of user cameras will be stored here

**static** **double** *walletBalance* = 500.00;//User's wallet amount

**static** **int** *id*=1;//to initialize id for camera

**public** **static** **void** main(String[] args) **throws** IOException, InterruptedException {

*addcameravalues*();//adds default cameras

Scanner sc=**new** Scanner(System.***in***);

String username,password;

**int** flag=0;

System.***out***.println("+---------------------------------------+");

System.***out***.println("|\t WELCOME TO CAMERA RENTAL APP\t|");

System.***out***.println("+---------------------------------------+");

**while**(flag<=3) {

System.***out***.println("Please log in to continue");

System.***out***.println("USERNAME - ");

username=sc.nextLine();

System.***out***.println("PASSWORD - ");

password=sc.nextLine();

**if**(username.equals("admin") && password.equals("admin123")) {//authentication

System.***out***.println("LOGIN SUCESSFUL");

Thread.*sleep*(1000);

*optionselect*();

}

**else**{ flag++;System.***err***.println("Incorrect username or password. Please re-ty with valid inputs");

}

}

System.***err***.println("Too many Incorrect tries. Please try again later!");

}

**static** **void** optionselect() **throws** InterruptedException {

Scanner sc=**new** Scanner(System.***in***);

**int** choice=0;

**while**(**true**) {

System.***out***.println("1. MY CAMERA");

System.***out***.println("2. RENT A CAMERA");

System.***out***.println("3. VIEW ALL CAMERAS");

System.***out***.println("4. MY WALLET");

System.***out***.println("5. EXIT");

System.***out***.println("Enter your choice");

**try**{choice=sc.nextInt();

}**catch**(InputMismatchException e) {

System.***err***.println("Invalid input. Please enter a valid integer choice.");

sc.nextLine();

*optionselect*();

}

**switch**(choice) {

**case** 1: **int** ch=0;

**while**(**true**) {

System.***out***.println("1. ADD");

System.***out***.println("2. REMOVE");

System.***out***.println("3. VIEW MY CAMERAS");

System.***out***.println("4. GO TO PREVIOUS MENU");

System.***out***.println("Enter your choice");

**try**{ch=sc.nextInt();

}**catch**(InputMismatchException e) {

System.***err***.println("Please enter a valid integer value.");

*optionselect*();

};

**switch**(ch) {

**case** 1:

**double** price=0.0;

System.***out***.println("ENTER THE CAMERA BRAND");

sc.nextLine();

String brand=sc.nextLine();

System.***out***.println("ENTER THE MODEL");

String model=sc.nextLine();

System.***out***.println("ENTER THE PRINCE (INR)");

**try** {

price=sc.nextDouble();

sc.nextLine();

}**catch**(InputMismatchException e) {

System.***err***.println("Please Enter valid input type(double)");

*optionselect*();

}

camera unit=**new** camera(*id*,brand,model,price);//creation of camera object

*id*++;

*mycamerasList*.add(unit);//adding the created camera into list of all cameras

*camerasList*.add(unit);//adding the created camera into list of user cameras

System.***out***.println("Your Camera has been sucessfully added");

**break**;

**case** 2:**int** cameraid=0;

*printcameras*(*mycamerasList*);

System.***out***.println("ENTER THE CAMERA ID TO REMOVE");

**try**{cameraid=sc.nextInt();

}**catch**(InputMismatchException e) {

System.***err***.println("Invalid input. Please enter a valid integer choice.");

sc.nextLine();

*optionselect*();

}

**boolean** found = **false**;

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

camera obj = *camerasList*.get(i);

**if** (obj.getid() == cameraid) {//checks for the id of camera that matches the id given by user

*camerasList*.remove(obj);

found = **true**;

**break**;

}

}

**if** (found) {

**for** (**int** i = 0; i < *mycamerasList*.size(); i++) {//repeating same and removing from user list aswell

camera obj = *mycamerasList*.get(i);

**if** (obj.getid() == cameraid) {

*mycamerasList*.remove(obj);

**break**;

}

}

System.***out***.println("CAMERA SUCCESSFULLY REMOVED FROM THE LIST");

} **else** {

System.***err***.println("Invalid ID. Please try again with a valid camera ID.");

}

**break**;

**case** 3:

*printcameras*(*mycamerasList*);

**break**;

**case** 4:*optionselect*();**break**;

**default**: System.***out***.println("Please enter a valid choice");

}

}

**case** 2:

System.***out***.println("Following are a list of cameras to rent");

*printcameras*(*camerasList*);

**int** c = 0;

**boolean** isValidInput = **false**;

**while** (!isValidInput) {

**try** {

System.***out***.println("Please select the id of the camera you want to rent");

c = sc.nextInt();

isValidInput = **true**;

**break**;

} **catch** (InputMismatchException e) {

System.***err***.println("Invalid input! Please enter a valid camera id.");

*optionselect*();

}

}

**boolean** cameraRented = **false**;

**int** flag=0;

**for** (camera obj : *camerasList*) {

**if** (obj.getid() == c) {//checking if camera id existss

**if**(obj.getstatus().equals("Rented")) {//checking if its already rented out

System.***err***.println("Camera is already rented. Please try a different camera\n");*optionselect*();

};

**if** (*walletBalance* >= obj.getprice()) {//checking if sufficient funds are available

obj.status = "Rented";

*walletBalance* -= obj.getprice();

cameraRented = **true**;

System.***out***.printf("YOUR TRANSACTION FOR CAMERA - " + obj.getbrand() + " " + obj.getmodel()

+ " with rent INR. %.2f HAS SUCCESSFULLY COMPLETED!\n", obj.getprice());

} **else** {

System.***err***.print("INSUFFICIENT FUNDS...TRANSACTION FAILED!!\n");

flag=1;

}

}

}

**if** (!cameraRented && flag==0) {

System.***err***.println("Camera rental failed. Please select a valid camera id.");

}

*optionselect*();

**break**;

**case** 3:

*printcameras*(*camerasList*);

Thread.*sleep*(2000);

**break**;

**case** 4: System.***out***.println("YOUR CURRENT ACCOUNT BALANCE IS - INR."+*walletBalance*);

System.***out***.println("Do you want to deposit money to your account? \n 1.Yes \n 2.No ");

**boolean** check=**true**;

**int** opt=0;

**while**(check) {

**try** {

opt = sc.nextInt();

sc.nextLine();

check=**false**;

} **catch** (InputMismatchException e) {

System.***err***.println("Invalid input! Please enter a valid option (1 or 2).");

sc.nextLine();

}

}

**if**(opt==1) {

System.***out***.println("Please enter the amount you want to add to your wallet");

**double** amt=0.0;

**try** {

amt = sc.nextDouble();

sc.nextLine();

**if** (amt <= 0) {//ensuring user doesn't give negative amount

**throw** **new** IllegalArgumentException("Invalid amount! Transaction Failed...");

}

} **catch** (InputMismatchException e) {

System.***err***.println("Invalid input! Transaction Failed...");

*optionselect*();

} **catch** (IllegalArgumentException e) {

System.***err***.println(e.getMessage());

*optionselect*();

}

System.***out***.println("Please enter your Password");

String pass=sc.nextLine();

**if**(pass.equals("admin123"))//authenticating user to ensure only he is able to add money to account

*walletBalance*+=amt;

**else** {System.***err***.println("Wrong Password, Transaction Failed");*optionselect*();

}

System.***out***.println("YOUR UPDATED ACCOUNT BALANCE IS - INR."+*walletBalance*);

Thread.*sleep*(2000);

}

**if**(opt==2) {

System.***out***.println("You have chosen to cancel the transaction...Please wait while we re-direct you to the main menu");

Thread.*sleep*(3000);

*optionselect*();

}

**break**;

**case** 5: System.***out***.println("Visit again!!");

System.*exit*(0);

**break**;

**default**:System.***out***.println("Please Enter a valid choice!!");

}

}

}

**static** **void** addcameravalues() {

//adding few default camera options

*camerasList*.add(**new** camera(*id*++, "Canon", "EOS R5", 200.0));

*camerasList*.add(**new** camera(*id*++, "Nikon", "Z7 II", 180.0));

*camerasList*.add(**new** camera(*id*++, "Sony", "Alp IV", 220.0));

*camerasList*.add(**new** camera(*id*++, "Fujifilm", "X-T4", 150.0));

*camerasList*.add(**new** camera(*id*++, "Panasonic", "Lumix", 190.0));

*camerasList*.add(**new** camera(*id*++, "Olympus", "Mark III", 170.0));

*camerasList*.add(**new** camera(*id*++, "Leica", "SL2-S", 240.0));

*camerasList*.add(**new** camera(*id*++, "Pentax", "K-1 ", 160.0));

*camerasList*.add(**new** camera(*id*++, "Hasselblad", "X1D I", 260.0));

*camerasList*.add(**new** camera(*id*++, "Phase One", "IQ4 1P", 280.0));

*camerasList*.add(**new** camera(*id*++, "Sigma", "fp L", 140.0));

*camerasList*.add(**new** camera(*id*++, "Fuji", "GFX 100S", 230.0));

*camerasList*.add(**new** camera(*id*++, "Nikon", "D850", 180.0));

*camerasList*.add(**new** camera(*id*++, "Canon", "EOS 5D", 200.0));

*camerasList*.add(**new** camera(*id*++, "Sony", "Al III", 220.0));

*camerasList*.add(**new** camera(*id*++, "Fujifilm", "X-Pro3", 150.0));

*camerasList*.add(**new** camera(*id*++, "Panasonic", " GH5", 190.0));

*camerasList*.add(**new** camera(*id*++, "Olympus", "Pen-F", 170.0));

*camerasList*.add(**new** camera(*id*++, "Leica", "Q2", 240.0));

*camerasList*.add(**new** camera(*id*++, "Pentax", "K-70", 160.0));

}

**static** **void** printcameras(ArrayList <camera> cam) **throws** InterruptedException { //function to print all cameras

**if**(cam.size()>0) {

Collections.*sort*(cam, Comparator.*comparing*(camera::getid)); //Print in ascending order.

System.***out***.println("==========================================================================");

System.***out***.println("| CAMERA ID | BRAND | MODEL | PRICE(PER DAY) | STATUS |");

System.***out***.println("==========================================================================");

**for** (camera obj : cam) {

System.***out***.printf("| %-10d | %-10s | %-11s | %-14.2f | %-10s |\n",

obj.getid(), obj.getbrand(), obj.getmodel(), obj.getprice(), obj.getstatus());

}

System.***out***.println("==========================================================================");

}

**else** {

System.***err***.println("No Data Present at This Moment to display.");

System.***out***.println("Please add the cameras first");

Thread.*sleep*(2000);

}

}

}

**class** camera

{

**int** camid;

String brand;

String model;

**double** rentperday;

String status="Available";

camera(**int** id,String brand,String model,**double** price) {

**this**.camid=id;

**this**.brand=brand;

**this**.model=model;

**this**.rentperday=price;

}

**int** getid() {

**return** camid;

}

String getbrand() {

**return** brand;

}

String getmodel() {

**return** model;

}

String getstatus() {

**return** status;

}

**double** getprice() {

**return** rentperday;

}

}