import java.util.Scanner;

class Advertisement {

private static int nextId = 1;

protected int Advertisement\_id;

protected String Client\_Name;

protected String start\_date;

public Advertisement(String Client\_Name, String start\_date) {

this.Advertisement\_id = nextId++;

this.Client\_Name = Client\_Name;

this.start\_date = start\_date;

}

}

class Commercial\_Add extends Advertisement {

private int size\_of\_add;

private double price\_per\_cm;

public Commercial\_Add(String Client\_Name, String start\_date, int size\_of\_add, double price\_per\_cm) {

super(Client\_Name, start\_date);

this.size\_of\_add = size\_of\_add;

this.price\_per\_cm = price\_per\_cm;

}

public int getsize\_of\_add() {

return size\_of\_add;

}

public double getprice\_per\_cm() {

return price\_per\_cm;

}

public double addCost() {

return size\_of\_add \* price\_per\_cm;

}

}

class Free\_Add extends Advertisement {

private int free\_add\_time\_duration;

public Free\_Add(String Client\_Name, String start\_date, int free\_add\_time\_duration) {

super(Client\_Name, start\_date);

this.free\_add\_time\_duration = free\_add\_time\_duration;

}

public int getfree\_add\_time\_duration() {

return free\_add\_time\_duration;

}

}

public class AdvertisementManager {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

final int MAX\_ADS = 50;

Advertisement[] adsArray = new Advertisement[MAX\_ADS];

int adsCount = 0;

while (true) {

System.out.println("Choose an option:");

System.out.println("1. Read values for Commercial Add");

System.out.println("2. Read values for Free Add");

System.out.println("3. Display values of Commercial Add and Free Add instances");

System.out.println("4. Display the add cost for commercial add for the given advertisement id");

System.out.println("5. Display all the free adds with a duration more than 3 months");

System.out.println("6. Display the total income from commercial add");

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

int choice = scanner.nextInt();

switch (choice) {

case 1:

if (adsCount < MAX\_ADS) {

adsArray[adsCount++] = readCommercial\_Add(scanner);

} else {

System.out.println("Maximum number of advertisements reached!");

}

break;

case 2:

if (adsCount < MAX\_ADS) {

adsArray[adsCount++] = readFree\_Add(scanner);

} else {

System.out.println("Maximum number of advertisements reached!");

}

break;

case 3:

displayAdvertisementDetails(adsArray, adsCount);

break;

case 4:

displayCommercial\_AddCost(scanner, adsArray, adsCount);

break;

case 5:

displayFree\_AddsMoreThan3Months(adsArray, adsCount);

break;

case 6:

displayTotalIncomeFromCommercial\_Add(adsArray, adsCount);

break;

case 0:

System.exit(0);

default:

System.out.println("Invalid choice. Please try again.");

}

}

}

private static Commercial\_Add readCommercial\_Add(Scanner scanner) {

System.out.println("Enter client name:");

String Client\_Name = scanner.next();

System.out.println("Enter start date:");

String start\_date = scanner.next();

System.out.println("Enter size of add in cm:");

int size\_of\_add = scanner.nextInt();

System.out.println("Enter price per cm:");

double price\_per\_cm = scanner.nextDouble();

return new Commercial\_Add(Client\_Name, start\_date, size\_of\_add, price\_per\_cm);

}

private static Free\_Add readFree\_Add(Scanner scanner) {

System.out.println("Enter client name:");

String Client\_Name = scanner.next();

System.out.println("Enter start date:");

String start\_date = scanner.next();

System.out.println("Enter free add time duration in months:");

int free\_add\_time\_duration = scanner.nextInt();

return new Free\_Add(Client\_Name, start\_date, free\_add\_time\_duration);

}

private static void displayAdvertisementDetails(Advertisement[] adsArray, int adsCount) {

for (int i = 0; i < adsCount; i++) {

Advertisement ad = adsArray[i];

if (ad instanceof Commercial\_Add) {

Commercial\_Add Commercial\_Add = (Commercial\_Add) ad;

System.out.println("Commercial Add - ID: " + Commercial\_Add.Advertisement\_id +

", Client: " + Commercial\_Add.Client\_Name +

", Start Date: " + Commercial\_Add.start\_date +

", Size: " + Commercial\_Add.getsize\_of\_add() + " cm" +

", Price: $" + Commercial\_Add.getprice\_per\_cm() + " per cm" +

", Cost: $" + Commercial\_Add.addCost());

} else if (ad instanceof Free\_Add) {

Free\_Add Free\_Add = (Free\_Add) ad;

System.out.println("Free Add - ID: " + Free\_Add.Advertisement\_id +

", Client: " + Free\_Add.Client\_Name +

", Start Date: " + Free\_Add.start\_date +

", Duration: " + Free\_Add.getfree\_add\_time\_duration() + " months");

}

}

}

private static void displayCommercial\_AddCost(Scanner scanner, Advertisement[] adsArray, int adsCount) {

System.out.println("Enter Advertisement ID for Commercial Add:");

int adId = scanner.nextInt();

for (int i = 0; i < adsCount; i++) {

Advertisement ad = adsArray[i];

if (ad instanceof Commercial\_Add && ad.Advertisement\_id == adId) {

Commercial\_Add Commercial\_Add = (Commercial\_Add) ad;

System.out.println("Advertisement ID: " + adId +

", Client: " + Commercial\_Add.Client\_Name +

", Start Date: " + Commercial\_Add.start\_date +

", Cost: $" + Commercial\_Add.addCost());

return;

}

}

System.out.println("Commercial Add with Advertisement ID " + adId + " not found.");

}

private static void displayFree\_AddsMoreThan3Months(Advertisement[] adsArray, int adsCount) {

for (int i = 0; i < adsCount; i++) {

Advertisement ad = adsArray[i];

if (ad instanceof Free\_Add) {

Free\_Add Free\_Add = (Free\_Add) ad;

if (Free\_Add.getfree\_add\_time\_duration() > 3) {

System.out.println("Free Add - ID: " + Free\_Add.Advertisement\_id +

", Client: " + Free\_Add.Client\_Name +

", Start Date: " + Free\_Add.start\_date +

", Duration: " + Free\_Add.getfree\_add\_time\_duration() + " months");

}

}

}

}

private static void displayTotalIncomeFromCommercial\_Add(Advertisement[] adsArray, int adsCount) {

double totalIncome = 0;

for (int i = 0; i < adsCount; i++) {

Advertisement ad = adsArray[i];

if (ad instanceof Commercial\_Add) {

Commercial\_Add Commercial\_Add = (Commercial\_Add) ad;

totalIncome += Commercial\_Add.addCost();

}

}

System.out.println("Total Income from Commercial Adds: $" + totalIncome);

}

}















