Assignment

8/8/2023

Question 1

```
package assignment;

import java.util.*;

interface AdvancedArithmetic{

	int divisor_sum(int n);

}

public class MyCalculator implements AdvancedArithmetic{


	@Override

	public int divisor_sum(int n) {

		int m=0;

		for(int i=1;i<=n;i++) {

			if(n%i==0) {

				m+=i;

			}

		}

		return m;

	}

	public static void main(String[] args) {

		Scanner sc=new Scanner(System.in);

		int n=sc.nextInt();

		MyCalculator c=new MyCalculator();
```

```
            System.out.println(c.divisor_sum(n));
      }

}
```

Question 2

```
package assignment;

import java.util.*;

public class language {


      public static void main(String[] args) {
            Scanner sc=new Scanner(System.in);
            int n=sc.nextInt();
            int k=sc.nextInt();
            String [] dict=new String[n];
            char dict1[]=new char[n];
            for(int i=0;i<n;i++) {
                  dict[i]=sc.next();


            }
            for(int i=0;i<n;i++) {
                  dict1[i]=dict[i].charAt(0);


            }


            String order=sc.next();
            int m=0,s=0;
            char t=dict1[m];
```

```
for(int i=0;i<n;i++) {
	int p=-1;
	for(int j=0;j<order.length();j++) {
		if(order.charAt(j)==dict1[i]) {
			p=j;
			break;
		}
	}
	for(int y=0;y<i;y++) {
		int u=0;
		for(int x=p+1;x<order.length();x++) {
			if(order.charAt(x)==dict1[y]) {
				u=1;
				break;
			}
		}
		if(u==1) {
			s=1;
			break;
		}
	}
}
if(s==0) {
	System.out.println(1);
}
else {
	System.out.println(0);
}
```

```
	}


}
```

Question 3

```
package assignment;

import java.util.*;


interface MenuItem{

	String name1="Sandwich";

	String name2="Salad";

	String name3="Drink";

	String name4="Trio";


}

class Sandwich implements MenuItem{

    float MS=4f;

	float CS=3f;

	float CB=1.65f;

	float CLS=3.75f;

	public void getdata() {

		System.out.println("You are having 4 types of sandwich\n\n1.Mushroom
Sandwich: "+this.MS+"\n2.Chicken Sandwich :"+this.CS+"\n3.Cheesse Burger
:"+this.CB+"\n4.Club Sandwich :"+this.CLS);
```

```
      }


}
class Salad implements MenuItem{
    float S=3.2f;
      float C=3.7f;
      float F=2.65f;
      ;
      public void getdata() {
            System.out.println("You are having 3 types of salad\n\n1.Spinach:
"+this.S+"\n2.Coleslow: "+this.C+"\n3.Fruit Salad :"+this.F);




      }


}
class Drink implements MenuItem{
    float O=1.2f;
      float C=3.8f;
      float L=1.65f;
      float U=2.75f;
      float S=1.8f;
      float CC=1.89f;
      public void getdata() {
            System.out.println("You are having 6 types of drinks\n\n1.Orange
Soda: "+this.O+"\n2.Cappuccino :"+this.C+"\n3.Lemon Soda :"+this.L+"\n4.7up
:"+this.U+"\n5.Sprite :"+this.S+"\n6.Coca Cola :"+this.CC);
```

```
	}

}

public class mess {

	public static void main(String[] args) {
		Scanner sc=new Scanner(System.in);
		Sandwich s=new Sandwich();
		Salad s1=new Salad();
		Drink d=new Drink();
		s.getdata();
		System.out.println();
		s1.getdata();
		System.out.println();
		d.getdata();
		System.out.println("There is an offer if you are choosing a trio of one sandwich one salad and one drink you will be provided with an offer in which one among the 3 will be free!!!!!!!!");
		System.out.println("Are ready to get a trio??\n1.Yes\n2.No\nProvide your choice");
		int r=sc.nextInt();
		if(r==1) {
			String salad1="";
			String sand1="";
			String drink1="";
			s.getdata();
			s1.getdata();
			d.getdata();
```

```
System.out.println("Enter the sandwich you want");
int sand=sc.nextInt();
System.out.println("Enter the salad you want");
int salad=sc.nextInt();
System.out.println("Enter the drink you want");
int drink=sc.nextInt();
float price[]=new float[3];
if(sand==1) {
	sand1="Mushroom Sandwich";
	price[0]=s.MS;
}
else if(sand==2) {
	sand1="Chicken Sandwich";
	price[0]=s.CS;
}
else if(sand==3) {
	sand1="Cheese Burger";
	price[0]=s.CB;
}
else if(sand==4) {
	sand1="Club SandWich";
	price[0]=s.CLS;
}
else {
	System.out.println("You entered a wrong input");
}
if(salad==1) {
	salad1="Spinach";
```

```
        price[1]=s1.S;


}
else if(salad==2) {
        salad1="Coleslow";
        price[1]=s1.C;


}


else if(salad==3) {
        salad1="Fruit Salad";
        price[1]=s1.F;


}
else {
        System.out.println("You entered a wrong input");
}
if(drink==1) {
        drink1="Orange Soda";
        price[2]=d.O;
}
else if(drink==2) {
        drink1="Cappuccino ";
        price[2]=d.C;
}
else if(drink==3) {
        drink1="Lemon Soda";
        price[2]=d.L;
```

```
                }
                else if(drink==4) {
                        drink1="7Up";
                        price[2]=d.U;
                }
                else if(drink==5) {
                        drink1="Sprite";
                        price[2]=d.S;
                }
                else if(drink==6) {
                        drink1="Coca Cola";
                        price[2]=d.CC;
                }
                else {
                        System.out.println("You entered a wrong input");
                }
                System.out.println("\n\nEnjoy your Trio Pack");
                System.out.println(" You ordered
"+sand1+"/"+salad1+"/"+drink1+"/trio");
                if(price[0]<price[1]&&price[0]<price[2]) {
                        System.out.println("Your bill amount is
"+price[1]+price[2]);
                }
                else if(price[1]<price[0]&&price[1]<price[2]) {
                        System.out.println("Your bill amount is
"+price[0]+price[2]);
                }
                else if(price[2]<price[1]&&price[2]<price[0]) {
                        System.out.println("Your bill amount is
"+price[1]+price[0]);
```

```
                }


            }
            else if(r==2) {
                  float price=0;
                  while(true) {
                  s.getdata();
                  System.out.println("Enter the sandwich type you want");
                  int sand=sc.nextInt();
                  System.out.println("Enter the quantity you want");
                  int q=sc.nextInt();
                  System.out.println("Are you want another type of
sandwich?\ny/n");
                  char e=sc.next().charAt(0);
                  if(sand==1) {
                        price+=s.MS;
                  }
                  else if(sand==2) {
                        price+=s.CS;
                  }
                  else if(sand==3) {
                        price+=s.CB;
                  }
                  else if(sand==4) {
                        price+=s.CLS;
                  }
                  else {
```

```
                        System.out.println("You entered a wrong input");
                  }
                  if(e=='n') {
                        break;
                  }
                  }
                  while(true) {
                        s1.getdata();
                        System.out.println("Enter the salad type you want");
                        int salad=sc.nextInt();
                        System.out.println("Enter the quantity you want");
                        int q=sc.nextInt();
                        System.out.println("Are you want another type of
salad?\ny/n");
                        char e=sc.next().charAt(0);

                        if(salad==1) {
                              price+=s1.S;

                        }
                        else if(salad==2) {
                              price+=s1.C;

                        }

                        else if(salad==3) {
                              price+=s1.F;

                        }
```

```
                        else {
                              System.out.println("You entered a wrong input");
                        }                        if(e=='n') {
                              break;
                        }
                        }
                  while(true) {
                        d.getdata();
                        System.out.println("Enter the drink type you want");
                        int drink=sc.nextInt();
                        System.out.println("Enter the quantity you want");
                        int q=sc.nextInt();
                        System.out.println("Are you want another type of
sandwich?\ny/n");
                        char e=sc.next().charAt(0);
                        if(drink==1) {
                              price+=d.O;
                        }
                        else if(drink==2) {
                              price+=d.C;
                        }
                        else if(drink==3) {
                              price+=d.L;
                        }
                        else if(drink==4) {
                              price+=d.U;
                        }
                        else if(drink==5) {
                              price=+d.S;
```

```
                        }
                        else if(drink==6) {
                              price+=d.CC;
                        }
                        else {
                              System.out.println("You entered a wrong input");
                        }
                        if(e=='n') {
                              break;
                        }
                        }
                  System.out.println("\n\nThanks for order");
                  System.out.println("Your bill is "+price);
            }


      }

}
```

Question 4

```
package assignment;
interface DigitalTree{
      int absorbSunlinght(int hours);
      void getTreeDetails();
```

```
}
class BinaryTree implements DigitalTree{
	String name;
	BinaryTree(String name){
		this.name=name;
	}
	@Override
	public int absorbSunlinght(int hours) {
		// TODO Auto-generated method stub
		return 2*hours;
	}

	@Override
	public void getTreeDetails() {
		// TODO Auto-generated method stub
		System.out.println("This is a "+name);
		System.out.println("It produces the energy of double of the hours");

	}

}
class QuantumTree implements DigitalTree{
	String name;
	QuantumTree(String name){
		this.name=name;
	}
	@Override
```

```
	public int absorbSunlinght(int hours) {
		// TODO Auto-generated method stub
		return 3*(hours*hours);
	}

	@Override
	public void getTreeDetails() {
		// TODO Auto-generated method stub
		System.out.println("This is a "+name);
		System.out.println("It produces the energy of double of the hours");

	}

}
class NeuralTree implements DigitalTree{
	String name;
	NeuralTree(String name){
		this.name=name;
	}
	@Override
	public int absorbSunlinght(int hours) {
		// TODO Auto-generated method stub
		return hours*hours*hours;
	}

	@Override
	public void getTreeDetails() {
		// TODO Auto-generated method stub
```

```
            System.out.println("This is a "+name);
            System.out.println("It produces the energy of double of the hours");

      }

}
class ForestManager{
      int total=0;
      public void produceEnergyforForest() {
            BinaryTree  b=new BinaryTree ("Oak Tree");
            QuantumTree q=new QuantumTree("pine tree");
            NeuralTree n=new NeuralTree("Maple tree");
            int total=0;
            total+=b.absorbSunlinght(5);
            total+=q.absorbSunlinght(10);
            total+=n.absorbSunlinght(6);
            b.getTreeDetails();
            q.getTreeDetails();
            n.getTreeDetails();
            System.out.println("The total energy produced is "+total);



      }
}
public class tree {

      public static void main(String[] args) {
```

```
            // TODO Auto-generated method stub
            ForestManager f=new ForestManager();
            f.produceEnergyforForest();

        }

}
```