19BCE1244
SURIYA KUMAR

DIGITAL ASSIGNMENT 1

1.

```
package da;
import java.util.Scanner;

class Salary{
    int total_pay;
    void salary(int bp, int agp, int da, int ta, int hra ){
        total_pay= bp+agp+da+ta+hra;
        System.out.print("Emp Desig: Project Manager\nTotal Pay:
"+total_pay);
    }
    void salary(int bp, int ta){
        total_pay= bp+ta;
        System.out.print("Emp Desig: Software Engineer\nTotal Pay:
"+total_pay);
    }
    void salary(int bp){
        total_pay= bp;
        System.out.print("Emp Desig: Technical Assistant\nTotal Pay:
"+total_pay);
    }
}



public class AmazonSalary {

    public static void main(String[] args) {
        Scanner n = new Scanner(System.in);
        System.out.println("Enter Emp designation: (1-PM/2-SE/3-TA)\n");
        int ed = n.nextInt();
        System.out.println("Enter Basic Pay\n");
        int bp = n.nextInt();
        System.out.println("Enter Allowances(AGP, DA, TA, HRA)\n");
        int agp = n.nextInt();
        int da = n.nextInt();
        int ta = n.nextInt();
        int hra = n.nextInt();
        Salary s = new Salary();
        if (ed == 1) {
            s.salary(bp, agp, da, ta, hra);
        } else if (ed == 2) {
            s.salary(bp, ta);
        } else if (ed == 3) {
            s.salary(bp);
        } else
            System.out.println("Invalid");

    }
}
```

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```
"C:\Program Files\Java\jdk-15.0.2\bin\java.exe" "-javaagent:C:\
Enter Emp designation: (1-PM/2-SE/3-TA)

1
Enter Basic Pay

25000
Enter Allowances(AGP, DA, TA, HRA)

3200
1500
2000
1500
Emp Desig: Project Manager
Total Pay: 33200
Process finished with exit code 0
```

2.

```
package da;
import java.util.Scanner;
abstract class Shape {
    abstract void getdata();
    abstract void display_area();
}

class Rectangle extends Shape{
    int a,b;
    Scanner in= new Scanner(System.in);
    void getdata(){
        System.out.println("Enter l&b: ");
        a=in.nextInt();
        b=in.nextInt();
    }

    void display_area(){
        System.out.println("Area: "+a*b);
    }
}

class Ellipse extends Shape{
    float a,b;
    Scanner in= new Scanner(System.in);
    void getdata(){
        System.out.println("Enter r1&r2: ");
        a=in.nextInt();
        b=in.nextInt();
    }

    void display_area(){
        System.out.println("Area: "+(3.14*a*b));
    }
}

class Triangle extends Shape{
```

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```
    float a,b;
    Scanner in= new Scanner(System.in);
    void getdata(){
        System.out.println("Enter l&b: ");
        a=in.nextInt();
        b=in.nextInt();
    }

    void display_area(){
        System.out.println("Area: "+(0.5*a*b));
    }
}

class Square extends Shape{
    Scanner in= new Scanner(System.in);
    int a;
    void getdata(){
        System.out.println("Enter s: ");
        a=in.nextInt();
    }


    void display_area(){
        System.out.println("Area: "+(a*a));
    }


}

class Circle extends Shape{
    Scanner in= new Scanner(System.in);
    float a;
    void getdata(){
        System.out.println("Enter r: ");
        a=in.nextInt();
    }


    void display_area(){
        System.out.println("Area: "+(a*a*3.14));
    }


}
class shapes{
    public static void main(String args[]) {

        Scanner in= new Scanner(System.in);
        System.out.println("Enter shape (1-Square, 2-Rect, 3-Circle, 4-
Triangle, 5-Ellipse): ");
        int x=in.nextInt();
        switch(x) {
            case 1:
                Shape sq=new Square();
                sq.getdata();
                sq.display_area();
                break;
            case 2:
                Shape rec=new Rectangle();
                rec.getdata();
                rec.display_area();
```

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```
                break;
            case 3:
                Shape ci=new Circle();
                ci.getdata();
                ci.display_area();
                break;
            case 4:
                Shape tri=new Triangle();
                tri.getdata();
                tri.display_area();
                break;
            case 5:
                Shape el=new Ellipse();
                el.getdata();
                el.display_area();
                break;
        }

    }
}
```

```
"C:\Program Files\Java\jdk-15.0.2\bin\java.exe" "-javaagent:C:\Progr
Enter shape (1-Square, 2-Rect, 3-Triangle, 4-Circle, 5-Ellipse):
5
Enter r1&r2:
12
10
Area: 376.8
```

```
Enter shape (1-Square, 2-Rect, 3-Circle, 4-Triangle, 5-Ellipse):
4
Enter l&b:
12
20
Area: 120.0

Process finished with exit code 0
```

3.

```
package da;
import java.util.Scanner;
import java.lang.String;
public class name {
    public static void main(String[] args){
        int ct=0;
        int x=0;
```

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```
        Scanner n= new Scanner(System.in);
        String[] a= new String[20];
        String name1="";
        for(int i=0; i<20; i++){
            a[i]=n.nextLine();
            if(a[i].equals("stop")){
                break;
            }
            if(a[i].length()>=x){
                x=a[i].length();
                name1=a[i];
            }
            ct++;
        }
        System.out.println("Longest name: "+name1+"\n"+"Length:
"+x+"\n"+"Friends: "+ct);
    }
}
```

```
"C:\Program Files\Java\jdk-15.0.2\bin\java.exe
Jack
Jones
Jim
Jake
stop
Longest name: Jones
Length: 5
Friends: 4

Process finished with exit code 0
```

4.

```
package da;
import java.util.Scanner;
import java.lang.Math;
public class SpeedingFine {
    public static void main(String[] args){
        Scanner n= new Scanner(System.in);
        System.out.println("Speed: ");
        float speed= n.nextInt();
        System.out.println("Limit: ");
        float limit= n.nextInt();
        if(speed>limit) {
            float perc = Math.round((limit / speed) * 100);
            float fine = perc * 15;
            System.out.println("Fine: $" + fine);
        }
        else
            System.out.println("Speed below limit");
    }
}
```

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```
"C:\Program Files\Java\jdk-15.0.2\bin\java.exe"
Speed:
50
Limit:
25
Fine: $750.0
```

5.

```
package da;
import java.util.Scanner;
interface AdvancedArithmetic{
    public int divisor_sum(int n);
}
class mycalc implements AdvancedArithmetic{
    public int divisor_sum(int n){
        int sum=0;
        for(int i=1;i<=n;i++)
        {
            if(n%i==0)
                sum+=i;
        }
        return sum;
    }
}
public class MyCalculator{
    public static void main(String[] args){
        Scanner n= new Scanner(System.in);
        System.out.println("Enter Number: ");
        int num=n.nextInt();
        mycalc c = new mycalc();
        int result = c.divisor_sum(num);
        System.out.println("Divisor sum: "+result);
    }
}
```

```
"C:\Program Files\Java\jdk-15.0.2\bin\java.exe" "-java
Enter Number:
10
Divisor sum: 18

Process finished with exit code 0
```

6.

```
package da;
import java.util.Scanner;
class person{
    String namee;
    String address;
    Scanner n= new Scanner(System.in);
    int age;
    person(){
        System.out.println("Enter Person Details \n");
```

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```
        System.out.println("Age: ");
        age=n.nextInt();
        System.out.println("Name: ");
        namee=n.next();
        System.out.println("Address: ");
        address=n.next();
    }
}
class employee extends person{
    Scanner n= new Scanner(System.in);
    int age, rsalary;
    String salary, namee, address;
    employee(){
        super();
        System.out.println("Enter Salary: ");
        this.namee=super.namee;
        this.age=super.age;
        this.address=super.address;
        salary=n.nextLine();
        rsalary=Integer.parseInt(salary);
    }
    void display(){
        System.out.println("Employee
Details:"+"\n"+namee+"\n"+age+"\n"+address+"\n"+rsalary);
    }
}
public class Emplyee_deets{
    public static void main(String[] args){
        employee E = new employee();
        E.display();

    }
}
```

```
"C:\Program Files\Java\jdk-15.0.2\bin\java.exe" "-javaagent:C:\Pr
Enter Person Details

Age:
20
Name:
John
Address:
abcxyz
Enter Salary:
20000
Employee Details:
John
20
abcxyz
20000

Process finished with exit code 0
```

7.

```
package da;
import java.util.Scanner;

public class rotation{
    public static void main(String[] args){
        int flag= 0;
```

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```
        Scanner S =new Scanner(System.in);
        String s1 = S.nextLine();
        String s2 = S.nextLine();
        int n = s1.length();
        char[] c1 = s1.toCharArray();
        char[] c2 = s2.toCharArray();
        if(s1.length()!=s2.length()){
            System.out.println("No");
        }
        else{
            for(int i=0;i<n;i++){
                if(c1[i]!=c2[n-i-1])
                    flag= 1;
                else
                    continue;
            }
        }
        if(flag==0)
            System.out.println("Yes");
        else
            System.out.println("No");
    }
}
```

```
"C:\Program Files\Java\jdk-15.0.2\bin\java.exe"
java
avaj
Yes

Process finished with exit code 0
```

8.

```
package da;
import java.io.File;
import java.io.FileNotFoundException;
import java.util.Scanner;
public class tdarray{
    public static void main(String[] args){
        int[][] arr= new int[10][10];
        int row=0,col=0,k=2;
        String str = args[0];
        char[] c = str.toCharArray();
        row = Character.getNumericValue(c[0]);
        col = Character.getNumericValue(c[1]);
        for (int i = 0; i <row; i++) {
            for (int j = 0; j < col; j++,k++) {
                arr[i][j] = Character.getNumericValue(c[k]);
            }
        }
        for(int i=0;i<row;i++)
        {
            System.out.print("\n");
            for(int j=0;j<col;j++)
                System.out.print(arr[i][j]);
        }
    }
}
```

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```
C:\Users\crazy\IdeaProjects\First\src\com\company>java Main.java 221111

11
11
```

9.

(i) If you don't want to instantiate a class, use "abstract" modifier.

Declare a no argument private constructor.

(ii) By making method final in the base class.

By making a method static in the base class.

By making a method private in the base class.

(iii) You can override a method with the same signature but return a subclass of the object returned. In another words, a method in a subclass can return an object whose type is a subclass of the type returned by the method with the same signature in the superclass. This code compiles and runs.

(iv)Interface methods are by definition public and abstract, so you cannot have non-abstract methods in your interface. After Java 8, you can define non-abstract methods inside an interface using "default" keyword as fallows. In Java, interface methods are public and abstract by default. So first option is bad practice.

(v) Method overloading is one of the ways that java support Polymorphism. Yes, we can overload the main method in java but JVM only calls the original main method, it will never call our overloaded main method.

10.

```
package da;
class nameandcount
{
    String name;
    int count;
    nameandcount(String name, int count){
        this.name= name;
        this.count=count;
    }
}
class comparable extends nameandcount
{
    String name;
    int count;
    comparable(String name, int count){
        super(name, count);
        getname();
        getcount();
        increment();
    }
    public void getname()
    {
```

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```
        this.name=super.name;
    }
    public void getcount()
    {
        this.count=super.count;
    }
    public void increment()
    {
        this.count++;
    }
    boolean equals(String str)
    {   if(str.equals(this.name))
            return true;
        else
            return false;
    }
}

public class namecount
{
    public static void main(String args[])
    {
        comparable obj=new comparable("vit", 12);
        boolean res=obj.equals("vit");
        System.out.println("Details: \nName:"+obj.name+"\nCount:
"+obj.count);
        System.out.println("Compare result: "+res);
    }
}
```

```
"C:\Program Files\Java\jdk-15.0.2\bin\java.exe"
Details:
Name:vit
Count: 13
Compare result: true
```