



**SHRI VILEPARLE KELAVANI MANDAL'S
DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING**
(Autonomous College Affiliated to the University of Mumbai)
NAAC ACCREDITED with "A" GRADE (CGPA : 3.18)

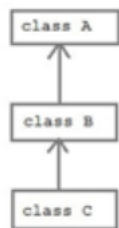


Object Oriented Programming using Java Laboratory (DJS22FEL22)

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BRANCH: Information Technology
BATCH: 1

Aim: To implement Inheritance

Problem Statement 1: WAP to demonstrate the role of Constructors in inheritance in the following class diagram:



```
import java.util.*;

class Base
{
    float r;
    public Base()
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter radius:");
        r=sc.nextFloat();
    }
}

class Der extends Base
{
    float area;
    public Der()
    {
        area=3.14f*r*r;
        System.out.println("Area of Circle = "+area);
    }
}

class SDer extends Der
{
    float vol;
    public SDer()
    {
        vol=4*r/3*area;
        System.out.println("volume of Sphere = "+vol);
    }
}

class Inheritance
{
    public static void main(String args[])
    {
        SDer d=new SDer();
    }
}
```



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```
C:\Users\ayush\Desktop\JAVA_assignment>javac Inheritance.java  
  
C:\Users\ayush\Desktop\JAVA_assignment>java Inheritance  
Enter radius:  
10  
Area of Circle = 314.0  
volume of Sphere = 4186.6665
```

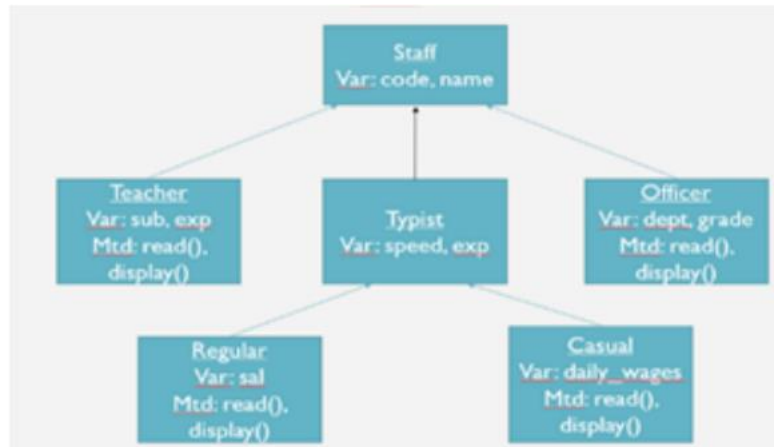


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Problem Statement 2: Display data of the specialized classes given in the following class diagram.



CODE:

```
import java.util.*;
```

```
class Staff
```

```
{
```

```
    int code;
```

```
    String name;
```

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

```
}
```

```
class Teacher extends Staff
```

```
{
```

```
    String subject;
```

```
    int experience;
```

```
    public void read()
```

```
    {
```

```
        System.out.println("Enter name of the teacher: ");
```



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```
        name=sc.nextLine();
        System.out.println("Enter code of the teacher: ");
        code=sc.nextInt();
        sc.nextLine(); // Consume the newline character
        System.out.println("Enter subject of the teacher: ");
        subject=sc.nextLine();
        System.out.println("Enter years of experience of the teacher: ");
        experience=sc.nextInt();
        System.out.println("");
    }
    public void display(){
        System.out.println("The name of the teacher is: "+name);
        System.out.println("The code of the teacher is: "+code);
        System.out.println("The subject of the teacher is: "+subject);
        System.out.println("The years of experience of the teacher is: "+experience);
    }
}

class Officer extends Staff{
    String grade;
    String department;
    public void read(){
        System.out.println("Enter name of the Officer: ");
        name=sc.nextLine();
        System.out.println("Enter code of the Officer: ");
        code=sc.nextInt();
        sc.nextLine(); // Consume the newline character
```



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```
        System.out.println("Enter grade of the officer: ");
        grade=sc.nextLine();
        System.out.println("Enter department of the officer: ");
        department=sc.nextLine();
        System.out.println("");
    }
    public void display(){
        System.out.println("The name of the Officer is: "+name);
        System.out.println("The code of the Officer is: "+code);
        System.out.println("The grade of the Officer is: "+grade);
        System.out.println("The department of the Officer is: "+department);
    }
}

class Typist extends Staff
{
    int speed;
    int experience;
}

class Regular extends Typist
{
    int salary;
    public void read()
    {
        System.out.println("Enter name of the Regular Typist: ");
        name=sc.nextLine();
    }
}
```



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```
        System.out.println("Enter code of the Regular Typist: ");
        code=sc.nextInt();
        System.out.println("Enter speed of the Regular Typist: ");
        speed=sc.nextInt();
        System.out.println("Enter years of experience of the Regular Typist: ");
        experience=sc.nextInt();
        System.out.println("Enter salary of the Regular Typist: ");
        salary=sc.nextInt();
        System.out.println("");
    }
    public void display()
    {
        System.out.println("The name of the Regular Typist is: "+name);
        System.out.println("The code of the Regular Typist is: "+code);
        System.out.println("The speed of the Regular Typist is: "+speed);
        System.out.println("The years of experience of the Regular Typist is:
"+experience);
        System.out.println("The salary of the Regular Typist is: "+salary);
    }
}
class Casual extends Typist
{
    int dailywages;
    public void read()
    {
        System.out.println("Enter name of the Casual Typist: ");
```



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```
name=sc.nextLine();
System.out.println("Enter code of the Casual Typist: ");
code=sc.nextInt();
System.out.println("Enter speed of the Casual Typist: ");
speed=sc.nextInt();
System.out.println("Enter years of experience of the Casual Typist: ");
experience=sc.nextInt();
System.out.println("Enter daily wages of the Casual Typist: ");
dailywages=sc.nextInt();
System.out.println("");
}
public void display()
{
    System.out.println("The name of the Casual Typist is: "+name);
    System.out.println("The code of the Casual Typist is: "+code);
    System.out.println("The speed of the Casual Typist is: "+speed);
    System.out.println("The years of experience of the Casual Typist is:
"+experience);
    System.out.println("The dailt wages of the Casual Typist is: "+dailywages);
}
}
public class Student{
    public static void main(String[] args)
    {
        Teacher t= new Teacher();
        Officer o = new Officer();
```



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```
Regular r = new Regular();  
Casual c = new Casual();  
t.read();  
o.read();  
r.read();  
c.read();  
System.out.println("");  
t.display();  
System.out.println("");  
o.display();  
System.out.println("");  
r.display();  
System.out.println("");  
c.display();  
}  
}
```




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```
C:\Users\ayush\Desktop\JAVA_assignment>javac Student.java

C:\Users\ayush\Desktop\JAVA_assignment>java Student
Enter name of the teacher:
Ayush
Enter code of the teacher:
001
Enter subject of the teacher:
Math
Enter years of experience of the teacher:
3

Enter name of the Officer:
Dhruv
Enter code of the Officer:
002
Enter grade of the officer:
Candidate
Enter department of the officer:
Finance

Enter name of the Regular Typist:
Ramesh
Enter code of the Regular Typist:
003
Enter speed of the Regular Typist:
125
Enter years of experience of the Regular Typist:
5
Enter salary of the Regular Typist:
25000

Enter name of the Casual Typist:
Suresh
Enter code of the Casual Typist:
004
Enter speed of the Casual Typist:
150
Enter years of experience of the Casual Typist:
7
Enter daily wages of the Casual Typist:
250

The name of the teacher is: Ayush
The code of the teacher is: 1
The subject of the teacher is: Math
The years of experience of the teacher is: 3

The name of the Officer is: Dhruv
The code of the Officer is: 2
The grade of the Officer is: Candidate
The department of the Officer is: Finance

The name of the Regular Typist is: Ramesh
The code of the Regular Typist is: 3
The speed of the Regular Typist is: 125
The years of experience of the Regular Typist is: 5
The salary of the Regular Typist is: 25000

The name of the Casual Typist is: Suresh
The code of the Casual Typist is: 4
The speed of the Casual Typist is: 150
The years of experience of the Casual Typist is: 7
The dailt wages of the Casual Typist is: 250
```