WEEK-8 (Extra Programs)

1.)
```
import java.util.Scanner;
abstract class Solid {
    float r;
    float h;
}
class Cylinder extends Solid {
    double area;
    double volume;
    void calAreaVolume() {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the value of r and
                                        h: ");
        r = sc.nextFloat();
        h = sc.nextFloat();
        volume = ((3.14 * 3.14) * r * h);
        area = (2 * (3.14) * r * (r+h));
        System.out.println("The area of the cylinder: "
                                        +area);
        System.out.println("The volume of the cylinder:"
                                        +volume);
    }
}
class Sphere extends Solid {
    double area;
    double volume;
    void calAreaVolume1() {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the value of r: ");
        r = sc.nextFloat();
```

```
        volume = (4*3.14*r*r*r)/3;
        area = 4*3.14*r*r;
        System.out.println("The area of the sphere: "
                                        +area);
        System.out.println("The volume of the sphere "
                                        +volume);
    }
}
class Cone extends Solid {
    double area;
    double volume;
    void calAreaVolume2(){
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the value of r and
                                        h: ");
        r = sc.nextFloat();
        h = sc.nextFloat();
        volume = (3.14*r*r*h)/3;
        area = 3.14*r*(r+Math.sqrt(r*r+h*h));
        System.out.println("The area of the cone: "
                                        +area);
        System.out.println("The volume of the cone: "
                                        +volume);
    }
}
class Solidmain {
    public static void main(String args[]) {
        int option;
        do{
            System.out.println("Enter the option:
                \n1.Cylinder \n2.Sphere \n3.Cone
                                \n4.Exit \n");
```

```
Scanner sc=new Scanner(System.in);
option = sc.nextInt();
switch(option){
    case 1: Cylinder C= new Cylinder();
            C.calAreaVolume();
            break;
    case 2: Sphere S= new Sphere();
            S.calAreaVolume1();
            break;
    case 3: Cone C1= new Cone();
            C1.calAreaVolume2();
            break;
    case 4: System.exit(0);
            break;
    }
}while(option!=4);
}
}
```

2)
```
import java.util.Scanner;
class Person {
  String name;
  Scanner sc=new Scanner(System.in);
  void Details1() {
    System.out.println("Enter the name: ");
    name=sc.next();
    System.out.println("Name: "+name);
  }
}
class Employee extends Person {
  int emp_id;
  Scanner sc=new Scanner(System.in);
  void Details2() {
    Details1();
    System.out.println("Enter the employee Id: ");
    emp_id=sc.nextInt();
    System.out.println("Id: "+emp_id);
  }
}
class Student extends Person {
  int st_id;
  Scanner sc=new Scanner(System.in);
  void Details3() {
    Details1();
    System.out.println("Enter the Student Id: ");
    st_id= sc.nextInt();
    System.out.println("Id: "+st_id);
  }
}
```

```
class Teaching extends Employee {
  double sal;
  Scanner sc = new Scanner (System.in);
  void Details4 () {
    Details2 ();
    System.out.println ("Enter the teaching employee
                                    salary: ");
    sal = sc.nextDouble ();
    System.out.println ("Salary: " +sal);
  }
}
class Nonteaching extends Employee {
  double sal;
  Scanner sc = new Scanner (System.in);
  void Details5 () {
    Details2 ();
    System.out.println ("Enter non-teaching
                          employee salary: ");
    sal = nextDouble ();
    System.out.println ("Salary: " +sal);
  }
}
class UG extends Student {
  int sem;
  Scanner sc = new Scanner (System.in);
  void Details6 () {
    Details3 ();
    System.out.println ("Enter the semester for
                                UG Students: ");
    sem = sc.nextInt ();
    System.out.println ("Semester: " +sem);
  }
}
```

```
class PG extends Student {
 int sem;
 Scanner sc = new Scanner (System.in);
 void Details7() {
    Details3();
    System.out.println("Enter the semester for
                                    PG students: ");
    sem = sc.nextInt();
    System.out.println("Semester: "+sem);
  }
}
class Personmain {
  public static void main (String args[]) {
     Teaching T1 = new Teaching();
     T1.Details4();
     Nonteaching N1 = new Nonteaching();
     N1.Details5();
     UG U1 = new UG();
     U1.Details6();
     PG P1 = new PG();
     P1.Details7();
  }
}
```