```
package A4;

import java.util.Scanner;

/**
 *
 * @author Lakshmi Priya
 */

class Person{
    private String name, address;


    public Person(String name, String address)
    {
        this.name=name;
        this.address=address;
    }

    public String getName(){
        return name;
    }

    public String getAddress(){
        return address;
    }

    public void setAddress(String address){
        this.address=address;
    }

}


class Employee extends Person{
    private String empid, dept;
    private int basic;

    public Employee(String name, String address, String empid,
String dept, int basic){
        super(name, address);
        this.empid=empid;
        this.dept=dept;
        this.basic=basic;
    }

    public String getEmpid(){
        return empid;
    }

    public String getDept(){
        return dept;
    }

    public void setDept(String dept){
        this.dept=dept;
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    }

    public void setBasic(int basic){
        this.basic=basic;
    }

    public int getBasic(){
        return basic;
    }

    public float calSalary(){
        return (float) (basic+.6*basic+.1*basic-
(.085*basic+.08*basic));
    }
}



class Faculty extends Employee{
    private String designation, course;

    public Faculty(String name, String address, String empid, String
dept, int basic, String desig, String course){
        super(name, address, empid, dept, basic);
        designation=desig;
        this.course=course;
    }

    public String getDesig(){
        return designation;
    }

    public void setDesig(String desig){
        designation=desig;
    }

    public String getCourse(){
        return course;
    }

    public void setCourse(String course){
        this.course=course;
    }

    public float calSalary(){
        int basic=getBasic();
        return (float) (basic+.7*basic+.2*basic-
(.085*basic+.08*basic));
    }
}



interface Student{
    public float []getMarks();
    public float calcGPA();
```

```
}


class ResearchAssistant extends Employee implements Student{
    private String project, course;
    private float marks[];

    public ResearchAssistant(String name, String address, String
empid, String dept, int basic, String project, String course){
        super(name, address, empid, dept, basic);
        this.project=project;
        this.course=course;
    }

    public String getProject(){
        return project;
    }

    public String getCourse(){
        return course;
    }

    public void setCourse(String course){
        this.course=course;
    }

    public float []getMarks(){
        return marks;
    }

    public void setMarks(){
        Scanner in=new Scanner(System.in);
        System.out.println("Enter Student Marks: ");
        for(int i=0;i<5;i++){
            System.out.println("\tMark "+i+1+". ");
            marks[i]=in.nextFloat();
        }
    }

    public float calcGPA(){
        float tot=0;
        for(int i=0;i<5;i++)
            tot+=marks[i];
        return tot/50;
    }

    public float calSalary(){
        int basic=getBasic();
        return (float) (basic+.4*basic+.05*basic-
(.085*basic+.08*basic));
    }
}
```

```
public class TestInterface {
    public static void main(String[] args) {
        int choice;
        String name, address,desig, course, empid, dept, project;
        int basic;
        float marks[];
        Person per=null;
        Employee emp=null;
        Faculty fac=null;
        ResearchAssistant ra=null;

        Scanner in=new Scanner(System.in);

        System.out.println("Choice:\n\t1. Get Detail\n\t2. Set
Detail\n\t0. Exit\nEnter choice: ");
        choice=in.nextInt();
        while(choice!=0){
            if (choice==1){
                System.out.println("Choice of category:\n\t1.
Faculty\n\t2. Research assistant\n\t0. Exit\nEnter choice: ");
                choice=in.nextInt();
                if(choice==1){
                    if (fac==null){
                        System.out.println("NO record created!!");
                        break;
                    }
                    else{
                        per=fac;
                        emp=fac;
                    }

                }
                else if(choice==2){
                    if (ra==null){
                        System.out.println("NO record created!!");
                        break;
                    }
                    else{
                        per=ra;
                        emp=ra;
                    }
                }
                else{
                    System.out.println("Enter valid choice!!");
                    break;
                }

                System.out.println("\t\tDETAILS");
                System.out.println("Name        : "+per.getName());
                System.out.println("Address     :
"+per.getAddress());
                per=null;

                System.out.println("Empid       : "+emp.getEmpid());
                System.out.println("Department  : "+emp.getDept());
                System.out.println("Basic pay   : "+emp.getBasic());
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                emp=null;

                switch(choice){
                    case 1: System.out.println("Designation :
"+fac.getDesig());
                            System.out.println("Course      :
"+fac.getCourse());
                            break;
                    case 2: System.out.println("Project     :
"+ra.getProject());
                            System.out.println("Course      :
"+ra.getCourse());
                            break;
                    default: System.out.println("Enter valid
choice!!");
                }
            }

            else if (choice==2){
                System.out.println("Choice of category:\n\t1.
Faculty\n\t2. Research assistant\n\t0. Exit\nEnter choice: ");
                choice=in.nextInt();

                System.out.println("Enter name: ");
                in.nextLine();
                name=in.nextLine();
                System.out.println("Enter address: ");
                address=in.nextLine();

                per=new Person(name, address);

                System.out.println("Enter empid: ");
                empid=in.nextLine();
                System.out.println("Enter department: ");
                dept=in.nextLine();
                System.out.println("Enter basic pay: ");
                basic=in.nextInt();

                emp=new Employee(per.getName(), per.getAddress(),
empid, dept, basic);
                per=null;

                switch(choice){
                    case 1: System.out.println("Enter designation:
");
                            in.nextLine();
                            desig=in.nextLine();
                            System.out.println("Enter course: ");
                            course=in.nextLine();
                            fac=new Faculty(emp.getName(),
emp.getAddress(), emp.getEmpid(), emp.getDept(), emp.getBasic(),
desig, course);
                            emp=null;
                            System.out.println("Record created!");
                            break;
                    case 2: System.out.println("Enter project: ");
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                                in.nextLine();
                                project=in.nextLine();
                                System.out.println("Enter course: ");
                                course=in.nextLine();
                                ra=new ResearchAssistant(emp.getName(),
emp.getAddress(), emp.getEmpid(), emp.getDept(), emp.getBasic(),
project, course);
                                break;
                        default: System.out.println("Enter valid
choice!!");
                    }
                }
                else{
                    System.out.println("Enter valid choice!!");
                }
                System.out.println("Choice:\n\t1. Get Detail\n\t2. Set
Detail\n\t0. Exit\nEnter choice: ");
                choice=in.nextInt();

            }

        }

}
```