# JAVA ASSIGNMENT - 6

## SESSION 2021-2022

LAB REPORT SUBMITTED

By:

Vivek Kumar Choudhary

(20204234)



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MOTILAL NEHRU NATIONAL INSTITUTE OF TECHNOLOGY ALLAHABAD

PRAYAGRAJ, INDIA- 211004

**1.** You are required to write a base class Student having details (name, registration number, father's name, address (current address, permanent

address), and contact details (phone number, email Id) . UGStudent, PGStudent, and PhDStudent extend the Student class they have details about the past qualifying degree and marks.  Make each attribute protected and provide suitable getter and setter to access attributes.

```java
class Student {

    private String name, fatherName, currentAddress, permanentAddress,
phoneNumber, emailID;

    private int regNo;


    public String getName() {

        return name;

    }


    public void setName(String name) {

        this.name = name;

    }


    public String getFatherName() {

        return fatherName;

    }
```

```java
    public void setFatherName(String fatherName) {

        this.fatherName = fatherName;

    }


    public String getCurrentAddress() {

        return currentAddress;

    }


    public void setCurrentAddress(String currentAddress) {

        this.currentAddress = currentAddress;

    }


    public String getPermanentAddress() {

        return permanentAddress;

    }


    public void setPermanentAddress(String permanentAddress) {

        this.permanentAddress = permanentAddress;

    }
```

```java
    public String getPhoneNumber() {

        return phoneNumber;

    }


    public void setPhoneNumber(String phoneNumber) {

        this.phoneNumber = phoneNumber;

    }


    public String getEmailID() {

        return emailID;

    }


    public void setEmailID(String emailID) {

        this.emailID = emailID;

    }


    public int getRegNo() {

        return regNo;

    }
```

```java
    public void setRegNo(int regNo) {

        this.regNo = regNo;

    }


    public Student() {

    }


    public Student(String name, String fatherName, String currentAddress,
String premanentAddress, String phoneNumber, String emailID, int regNo)
{

        this.name = name;

        this.fatherName = fatherName;

        this.currentAddress = currentAddress;

        this.permanentAddress = premanentAddress;

        this.phoneNumber = phoneNumber;

        this.emailID = emailID;

        this.regNo = regNo;

    }
}
```

```java
class UGStudent extends Student {

    String pastDegree;

    int marks;


    public UGStudent(String pastDegree, int marks) {

        this.pastDegree = pastDegree;

        this.marks = marks;

    }


    public String getPastDegree() {

        return pastDegree;

    }


    public void setPastDegree(String pastDegree) {

        this.pastDegree = pastDegree;

    }


    public int getMarks() {

        return marks;

    }
```

```java
    public void setMarks(int marks) {

        this.marks = marks;

    }


    public UGStudent() {

    }
}


class PGStudent extends Student {

    String pastDegree;

    int marks;


    public PGStudent(String pastDegree, int marks) {

        this.pastDegree = pastDegree;

        this.marks = marks;

    }


    public String getPastDegree() {

        return pastDegree;
```

```java
        }


    public void setPastDegree(String pastDegree) {

        this.pastDegree = pastDegree;

    }


    public int getMarks() {

        return marks;

    }


    public void setMarks(int marks) {

        this.marks = marks;

    }


    public PGStudent() {

    }
}


class PHDStudent extends Student {

    String pastDegree;
```

```java
    int marks;

    public PHDStudent(String pastDegree, int marks) {

        this.pastDegree = pastDegree;

        this.marks = marks;

    }

    public String getPastDegree() {

        return pastDegree;

    }

    public void setPastDegree(String pastDegree) {

        this.pastDegree = pastDegree;

    }

    public int getMarks() {

        return marks;

    }

    public void setMarks(int marks) {
```

```java
            this.marks = marks;

    }


    public PHDStudent() {

    }
}


public class ques1 {

    public static void main(String[] args) {

        UGStudent s1 = new UGStudent();

        s1.setName("Vivek Choudhary");
        s1.setRegNo(20204234);
        s1.setFatherName("Prem Narayan");
        s1.setCurrentAddress("Ujjain");
        s1.setPermanentAddress("Ujjain");
        s1.setEmailID("vivek@gmail.com");
        s1.setPhoneNumber("9516046427");
        s1.setPastDegree("12th");
        s1.setMarks(94);;

        System.out.println("Name : " + s1.getName());

        System.out.println("RegNo : " + s1.getRegNo());

        System.out.println("Father Name : " + s1.getFatherName());
```

```java
        System.out.println("Current Address : " + s1.getCurrentAddress());

        System.out.println("Permanent Address : " +
s1.getPermanentAddress());

        System.out.println("Email ID : " + s1.getEmailID());

        System.out.println("Phone Number : " + s1.getPhoneNumber());

        System.out.println("Past Degree : " + s1.getPastDegree());

        System.out.println("Marks : " + s1.getMarks());

        System.out.println();

        PGStudent s2 = new PGStudent();

        s2.setName("tarun ");

        s2.setRegNo(2001529);

        s2.setFatherName("umesh ");

        s2.setCurrentAddress("Ujjain");

        s2.setPermanentAddress("mp");

        s2.setEmailID("tarun125@gmail.com");

        s2.setPhoneNumber("95712342617");

        s2.setPastDegree("Btech");

        s2.setMarks(92);

        System.out.println("Name : " + s2.getName());

        System.out.println("RegNo : " + s2.getRegNo());
```

```java
        System.out.println("Father Name : " + s2.getFatherName());

        System.out.println("Current Address : " + s2.getCurrentAddress());

        System.out.println("Permanent Address : " +
s2.getPermanentAddress());

        System.out.println("Email ID : " + s2.getEmailID());

        System.out.println("Phone Number : " + s2.getPhoneNumber());

        System.out.println("Past Degree : " + s2.getPastDegree());

        System.out.println("Marks : " + s2.getMarks());

        System.out.println();

        PHDStudent s3 = new PHDStudent();

        s3.setName("rohit");

        s3.setRegNo(2003343);

        s3.setFatherName("shyam");

        s3.setCurrentAddress("MNNIT");

        s3.setPermanentAddress("jaipur");

        s3.setEmailID("roh@gmail.com");

        s3.setPhoneNumber("98765432562");

        s3.setPastDegree("btech");

        s3.setMarks(88);

        System.out.println("Name : " + s3.getName());
```

```java
        System.out.println("RegNo : " + s3.getRegNo());

        System.out.println("Father Name : " + s3.getFatherName());

        System.out.println("Current Address : " + s3.getCurrentAddress());

        System.out.println("Permanent Address : " +
s3.getPermanentAddress());

        System.out.println("Email ID : " + s3.getEmailID());

        System.out.println("Phone Number : " + s3.getPhoneNumber());

        System.out.println("Past Degree : " + s3.getPastDegree());

        System.out.println("Marks : " + s3.getMarks());

        System.out.println();

    }

}
```

**OUTPUT**

```
Name : Vivek Choudhary
RegNo : 20204234
Father Name : Prem Narayan
Current Address : Ujjain
Permanent Address : Ujjain
Email ID : vivek@gmail.com
Phone Number : 9516046427
Past Degree : 12th
Marks : 94


Name : tarun
RegNo : 2001529
Father Name : umesh
Current Address : Ujjain
Permanent Address : mp
Email ID : tarun125@gmail.com
Phone Number : 95712342617
Past Degree : Btech
Marks : 92


Name : rohit
RegNo : 2003343
Father Name : shyam
Current Address : MNNIT
Permanent Address : jaipur
Email ID : roh@gmail.com
Phone Number : 98765432562
Past Degree : btech
Marks : 88
```

2. Write another base classCoursewhich stores details about the courses registered byaStudent.Coursehas attributes such as code, name, and credit.UGCourseandPGCourseextends theCourseclass. The course code follows the following syntax PG-xxxx and UG-xxxx here x is a number which uniquely identifies a course. Make eachattribute protected and provide suitable getter and setter to access attributes.

```java
class Course {
    private String name;
    private int credits, code;

    public Course() {
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public int getCode() {
        return code;
    }

    public void setCode(int code) {
        this.code = code;
```

```java
        }

        public int getCredits() {
            return credits;
        }

        public void setCredits(int credits) {
            this.credits = credits;
        }

        public Course(String name, int code, int credits) {
            this.name = name;
            this.code = code;
            this.credits = credits;
        }
    }

    class UGCourse extends Course {
        public void displayCode() {
            System.out.println("Code : UG-" + getCode());
        }
    }

    class PGCourse extends Course {
        public void displayCode() {
            System.out.println("Code : PG-" + getCode());
        }
    }

    public class ques2 {
        public static void main(String[] args) {
            PGCourse c1 = new PGCourse();
            c1.setName("Course 1");
            c1.setCode(11300);
            c1.setCredits(4);
            System.out.println("Course Name : " + c1.getName());
            c1.displayCode();
            System.out.println("Course Credits : " + c1.getCredits());
```

```java
            System.out.println();
            UGCourse c2 = new UGCourse();
            c2.setName("Course 2");
            c2.setCode(12300);
            c2.setCredits(2);
            System.out.println("Course Name : " + c2.getName());
            c2.displayCode();
            System.out.println("Course Credits : " + c2.getCredits());
            System.out.println();
        }
}
```

OUTPUT

```
Course Name : Course 1

Code : PG-11300

Course Credits : 4


Course Name : Course 2

Code : UG-12300

Course Credits : 2
```

3. Write another base class Payment which stores the payment details of the registered Student. Payment has a single attribute payment ID which is unique for each payment.PaymentDD,PaymentUPI, and PaymentNB extends the Payment class, these classes stores details of payment using Demand Draft, UPI, and Net Banking. Add relevant attributes to these classes to store payment details. Make each attribute protected and provide suitable getter and setter to access attributes.

```java
class Payment {
    private String paymentID;

    public String getPaymentID() {
        return paymentID;
    }

    public void setPaymentID(String paymentID) {
        this.paymentID = paymentID;
    }

    public Payment() {
    }

    public Payment(String paymentID) {
        this.paymentID = paymentID;
    }
}

class PaymentDD extends Payment {
    private String bankName;

    public PaymentDD(String bankName) {
        this.bankName = bankName;
    }
```

```java
    public String getBankName() {
        return bankName;
    }

    public void setBankName(String bankName) {
        this.bankName = bankName;
    }

    public PaymentDD() {
    }
}

class PaymentUPI extends Payment {
    private String UPINumber;

    public String getUPINumber() {
        return UPINumber;
    }

    public void setUPINumber(String UPINumber) {
        this.UPINumber = UPINumber;
    }

    public PaymentUPI() {
    }

    public PaymentUPI(String UPINumber) {
        this.UPINumber = UPINumber;
    }
}

class PaymentNB extends Payment {
    private String bankName;

    public String getBankName() {
        return bankName;
    }

    public void setBankName(String bankName) {
```

```java
            this.bankName = bankName;
        }

        public PaymentNB() {
        }

        public PaymentNB(String bankName) {
            this.bankName = bankName;
        }
    }

    public class ques3 {
        public static void main(String[] args) {
            PaymentDD p1 = new PaymentDD();
            p1.setPaymentID("SBI20345643");
            p1.setBankName("SBI");
            System.out.println("Payment Id : " + p1.getPaymentID());
            System.out.println("Bank Name : " + p1.getBankName());
            System.out.println();
            PaymentNB p2 = new PaymentNB();
            p2.setPaymentID(pnb8428781");
            p2.setBankName("PNB");
            System.out.println("Payment Id : " + p2.getPaymentID());
            System.out.println("Bank Name : " + p2.getBankName());
            System.out.println();
            PaymentUPI p3 = new PaymentUPI();
            p3.setPaymentID("PAY203232");
            p3.setUPINumber("Paytm@79123123002");
            System.out.println("Payment Id : " + p3.getPaymentID());
            System.out.println("UPI : " + p3.getUPINumber());
            System.out.println();
        }
    }
```

OUTPUT

```
Payment Id : SBI20345643

Bank Name : SBI


Payment Id : pnb8428781

Bank Name : PNB


Payment Id : PAY203232

UPI : Paytm@79123123002
```

5. Write a class Employee having attributes: employee ID, name, department, dob, designation, year Of Joining, and phone Number. Add a function to print details of employee using employee ID. Two classes, i.e., Faculty and Office Staff, extends the Employee class. The Faculty has a list of subjects and labs taught by them. Office Staff has a list of skills which stores skill such as Typing, Technician, etc. Each of the above classes has appropriate getter setter for inserting skill in the list and printing the list of skill. Demonstrate above class using a Test class which creates 5 employees of different types and print their details.

```java
public class ques5 {
    public static class employee {
        protected int yearOfJoining, employeeID;
        protected String name, department, dob, designation, phoneNumber;

        public int getYearOfJoining() {
```

```java
        return yearOfJoining;
    }

    public void setYearOfJoining(int yearOfJoining) {
        this.yearOfJoining = yearOfJoining;
    }

    public int getEmployeeID() {
        return employeeID;
    }

    public void setEmployeeID(int employeeID) {
        this.employeeID = employeeID;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public String getDepartment() {
        return department;
    }

    public void setDepartment(String department) {
        this.department = department;
    }

    public String getDob() {
        return dob;
    }

    public void setDob(String dob) {
        this.dob = dob;
```

```java
        }

        public String getDesignation() {
            return designation;
        }

        public void setDesignation(String designation) {
            this.designation = designation;
        }

        public String getPhoneNumber() {
            return phoneNumber;
        }

        public void setPhoneNumber(String phoneNumber) {
            this.phoneNumber = phoneNumber;
        }
        public void print(int i){
            System.out.println("Printing the details of employee "+i);
            System.out.println("Employee id is "+getEmployeeID());
            System.out.println("Employee's name is "+getName());
            System.out.println("Employee's year of joining is
"+getYearOfJoining());
            System.out.println("Employee's DOB is "+getDob());
            System.out.println("Employee's designation is "+getDesignation());
            System.out.println("Employee's department is "+getDepartment());
            System.out.println("Employee's phone number is
"+getPhoneNumber());
            System.out.println();
        }
    }

    public static class faculty extends employee {
        protected String sub, lab;

        public String getSub() {
            return sub;
```

```java
        }

        public void setSub(String sub) {
            this.sub = sub;
        }

        public String getLab() {
            return lab;
        }

        public void setLab(String lab) {
            this.lab = lab;
        }
        public void print(){
            System.out.println("Theory taught by faculty is "+getSub());
            System.out.println("Lab taken by faculty is "+getLab());
        }
    }

    public static class office_staff extends employee {
        protected String skills;

        public String getSkills() {
            return skills;
        }

        public void setSkills(String skills) {
            this.skills = skills;
        }
        public void print(){
            System.out.println("skills are "+getSkills());
        }
    }

    public static void main(String[] args) {
        employee[] emp = new employee[5];
```

```
emp[0] = new employee();
emp[0].setEmployeeID(458);
emp[0].setYearOfJoining(2020);
emp[0].setName("shailendra");
emp[0].setDepartment("CSE");
emp[0].setDesignation("CEO");
emp[0].setDob("03/12/200");
emp[0].setPhoneNumber("6028745165");
emp[0].print(1);

emp[1] = new employee();
emp[1].setEmployeeID(158);
emp[1].setYearOfJoining(2002);
emp[1].setName("prem kishor");
emp[1].setDepartment("CSE");
emp[1].setDesignation("CEO");
emp[1].setDob("03/12/1982");
emp[1].setPhoneNumber("6258745155");
emp[1].print(2);

emp[2] = new employee();
emp[2].setEmployeeID(168);
emp[2].setYearOfJoining(2005);
emp[2].setName("vivek");
emp[2].setDepartment("CSE");
emp[2].setDesignation("chief sceretory");
emp[2].setDob("08/2/1998");
emp[2].setPhoneNumber("9902056895");
emp[2].print(3);

emp[3] = new employee();
emp[3].setEmployeeID(1800);
emp[3].setYearOfJoining(2012);
emp[3].setName("gaurav sarwan");
emp[3].setDepartment("IT");
emp[3].setDesignation("manager");
emp[3].setDob("08/12/1989");
```

```
        emp[3].setPhoneNumber("6258745155");
        emp[3].print(4);

        emp[4] = new employee();
        emp[4].setEmployeeID(1458);
        emp[4].setYearOfJoining(2002);
        emp[4].setName("prem ");
        emp[4].setDepartment("CSE");
        emp[4].setDesignation("president");
        emp[4].setDob("03/12/1982");
        emp[4].setPhoneNumber("6258500155");
        emp[4].print(5);


    }
}
```

```
Printing the details of employee 1
Employee id is 458
Employee's name is shailendra
Employee's year of joining is 2020
Employee's DOB is 03/12/200
Employee's designation is CEO
Employee's department is CSE
Employee's phone number is 6028745165

Printing the details of employee 2
Employee id is 158
Employee's name is prem kishor
Employee's year of joining is 2002
Employee's DOB is 03/12/1982
Employee's designation is CEO
Employee's department is CSE
Employee's phone number is 6258745155

Printing the details of employee 3
Employee id is 168
Employee's name is vivek
Employee's year of joining is 2005
Employee's DOB is 08/2/1998
Employee's designation is chief sceretory
Employee's department is CSE
Employee's phone number is 9902056895
```

```
Printing the details of employee 4
Employee id is 1800
Employee's name is gaurav sarwan
Employee's year of joining is 2012
Employee's DOB is 08/12/1989
Employee's designation is manager
Employee's department is IT
Employee's phone number is 6258745155

Printing the details of employee 5
Employee id is 1458
Employee's name is prem
Employee's year of joining is 2002
Employee's DOB is 03/12/1982
Employee's designation is president
Employee's department is CSE
Employee's phone number is 6258500155
```

QUESTION 6).

```
class Employee {
    private String employeeID, name, department, dob, designation,
phoneNumber;
    private int yearOfJoining;
    public Employee(String employeeID, String name, String department,
String dob, String designation,
            String phoneNumber, int yearOfJoining) {
        this.employeeID = employeeID;
```

```java
        this.name = name;
        this.department = department;
        this.dob = dob;
        this.designation = designation;
        this.phoneNumber = phoneNumber;
        this.yearOfJoining = yearOfJoining;
    }
    public Employee() {
    }
    public String getEmployeeID() {
        return employeeID;
    }
    public void setEmployeeID(String employeeID) {
        this.employeeID = employeeID;
    }
    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }
    public String getDepartment() {
        return department;
    }
    public void setDepartment(String department) {
        this.department = department;
    }
    public String getDob() {
        return dob;
    }
    public void setDob(String dob) {
        this.dob = dob;
    }
    public String getDesignation() {
        return designation;
    }
    public void setDesignation(String designation) {
```

```java
            this.designation = designation;
        }
        public String getPhoneNumber() {
            return phoneNumber;
        }
        public void setPhoneNumber(String phoneNumber) {
            this.phoneNumber = phoneNumber;
        }
        public int getYearOfJoining() {
            return yearOfJoining;
        }
        public void setYearOfJoining(int yearOfJoining) {
            this.yearOfJoining = yearOfJoining;
        }
    }
    class Faculty extends Employee {
        private String subjects[];
        public Faculty(String employeeID, String name, String department, String
    dob, String designation,
                    String phoneNumber, int yearOfJoining, String subjects[]) {
            super(employeeID, name, department, dob, designation,
    phoneNumber, yearOfJoining);
            this.subjects = subjects;
        }
        public String[] getSubjects() {
            return subjects;
        }
        public void setSubjects(String[] subjects) {
            this.subjects = subjects;
        }
    }
    class HOD extends Faculty {
        private String HODof;
        public HOD(String employeeID, String name, String department, String
    dob, String designation, String phoneNumber,
                int yearOfJoining, String[] subjects, String hODof) {
            super(employeeID, name, department, dob, designation,
```

```java
            phoneNumber, yearOfJoining, subjects);
        HODof = hODof;
    }
    public String getHODof() {
        return HODof;
    }
    public void setHODof(String hODof) {
        HODof = hODof;
    }
    public void printDetails() {
        System.out.println("Name : " + getName());
        System.out.println("Employee ID : " + getEmployeeID());
        System.out.println("Department : " + getDepartment());
        System.out.println("dob : " + getDob());
        System.out.println("Designation : " + getDesignation());
        System.out.println("Phone Number : " + getPhoneNumber());
        System.out.println("Year of Joining : " + getYearOfJoining());
        System.out.println("Subjects : ");
        for (String s : getSubjects()) {
            System.out.println(s);
        }
        System.out.println("HOD of " + HODof);
        System.out.println();
    }
}
class DUGC extends Faculty {
    private String Dugc;
    public DUGC(String employeeID, String name, String department, String
dob, String designation, String phoneNumber,
            int yearOfJoining, String[] subjects, String dugc) {
        super(employeeID, name, department, dob, designation,
phoneNumber, yearOfJoining, subjects);
        Dugc = dugc;
    }
    public String getDugc() {
        return Dugc;
    }
```

```java
    public void setDUGC(String dugc) {
        Dugc = dugc;
    }
    public void printDetails() {
        System.out.println("Name : " + getName());
        System.out.println("Employee ID : " + getEmployeeID());
        System.out.println("Department : " + getDepartment());
        System.out.println("dob : " + getDob());
        System.out.println("Designation : " + getDesignation());
        System.out.println("Phone Number : " + getPhoneNumber());
        System.out.println("Year of Joining : " + getYearOfJoining());
        System.out.println("Subjects : ");
        for (String s : getSubjects()) {
            System.out.println(s);
        }
        System.out.println("DUGC");
        System.out.println();
    }
}
class DMPC extends Faculty {
    private String Dmpc;
    public DMPC(String employeeID, String name, String department, String
dob, String designation, String phoneNumber,
            int yearOfJoining, String[] subjects, String dmpc) {
        super(employeeID, name, department, dob, designation,
phoneNumber, yearOfJoining, subjects);
        Dmpc = dmpc;
    }
    public String getDmpc() {
        return Dmpc;
    }
    public void setDmpc(String dmpc) {
        Dmpc = dmpc;
    }
    public void printDetails() {
        System.out.println("Name : " + getName());
        System.out.println("Employee ID : " + getEmployeeID());
```

```java
        System.out.println("Department : " + getDepartment());
        System.out.println("dob : " + getDob());
        System.out.println("Designation : " + getDesignation());
        System.out.println("Phone Number : " + getPhoneNumber());
        System.out.println("Year of Joining : " + getYearOfJoining());
        System.out.println("Subjects : ");
        for (String s : getSubjects()) {
            System.out.println(s);
        }
        System.out.println("DMPC");
        System.out.println();
    }
}
class DDPC extends Faculty {
    private String Ddpc;
    public DDPC(String employeeID, String name, String department, String
dob, String designation, String phoneNumber,
            int yearOfJoining, String[] subjects, String ddpc) {
        super(employeeID, name, department, dob, designation,
phoneNumber, yearOfJoining, subjects);
        Ddpc = ddpc;
    }
    public String getDdpc() {
        return Ddpc;
    }
    public void setDdpc(String ddpc) {
        Ddpc = ddpc;
    }
    public void printDetails() {
        System.out.println("Name : " + getName());
        System.out.println("Employee ID : " + getEmployeeID());
        System.out.println("Department : " + getDepartment());
        System.out.println("dob : " + getDob());
        System.out.println("Designation : " + getDesignation());
        System.out.println("Phone Number : " + getPhoneNumber());
        System.out.println("Year of Joining : " + getYearOfJoining());
        System.out.println("Subjects : ");
```

```java
      for (String s : getSubjects()) {
         System.out.println(s);
      }
      System.out.println("DDPS");
      System.out.println();
   }
}
class OfficeStaff extends Employee {
   private String skills[];
   public OfficeStaff(String employeeID, String name, String department,
String dob, String designation,
               String phoneNumber, int yearOfJoining, String skills[]) {
      super(employeeID, name, department, dob, designation,
phoneNumber, yearOfJoining);
      this.skills = skills;
   }
   public void printDetails() {
      System.out.println("Name : " + getName());
      System.out.println("Employee ID : " + getEmployeeID());
      System.out.println("Department : " + getDepartment());
      System.out.println("dob : " + getDob());
      System.out.println("Designation : " + getDesignation());
      System.out.println("Phone Number : " + getPhoneNumber());
      System.out.println("Year of Joining : " + getYearOfJoining());
      System.out.println("Skills : ");
      for (String s : skills) {
         System.out.println(s);
      }
      System.out.println();
   }
   public String[] getSkills() {
      return skills;
   }
   public void setSkills(String[] skills) {
      this.skills = skills;
   }
}
```

```java
class UnskilledStaff extends OfficeStaff {
   public UnskilledStaff(String employeeID, String name, String department,
String dob, String designation,
                String phoneNumber, int yearOfJoining, String[] skills) {
      super(employeeID, name, department, dob, designation,
phoneNumber, yearOfJoining, skills);
   }
   @Override
   public void setSkills(String[] skills) {
      super.setSkills(new String[] { "Null" });
   }
   @Override
   public String toString() {
      return ("Name : " + getName()) + "\n" + ("Employee ID : " +
getEmployeeID()) + "\n"
            + ("Department : " + getDepartment())
            + ("dob : " + getDob()) + "\n" + ("Designation : " +
getDesignation()) + "\n"
            + ("Phone Number : " + getPhoneNumber())
            + ("Year of Joining : " + getYearOfJoining()) + "\n" + ("Skills :
Null") + "\n";
   }
}
class SkilledStaff extends OfficeStaff {
   public SkilledStaff(String employeeID, String name, String department,
String dob, String designation,
                String phoneNumber, int yearOfJoining, String[] skills) {
      super(employeeID, name, department, dob, designation,
phoneNumber, yearOfJoining, skills);
   }
   @Override
   public String toString() {
      String SkillsList = "";
      for (String s : getSkills()) {
         SkillsList += s;
      }
      return ("Name : " + getName()) + "\n" + ("Employee ID : " +
```

```java
            getEmployeeID()) + "\n"
            + ("Department : " + getDepartment())
            + ("dob : " + getDob()) + "\n" + ("Designation : " +
getDesignation()) + "\n"
            + ("Phone Number : " + getPhoneNumber()) + "\n"
            + ("Year of Joining : " + getYearOfJoining()) + "\n" + ("Skills : " +
SkillsList) + "\n";
    }
}
public class ques6 {
    public static void main(String[] args) {
        HOD e1 = new HOD("203982", "Employee 1", "CSE", "29/7/1992",
"professor", "9802458963", 2000,
            new String[] { "DSA", "OOPS" }, "CSE");
        e1.printDetails();
        DMPC e2 = new DMPC("203983", "Employee 2", "CSE", "20/3/1990",
"Professor", "98702896266", 2010,
            new String[] { "CSW", "OOPS" }, "CSE");
        e2.printDetails();
        DUGC e3 = new DUGC("20398266883", "Employee 3", "IT",
"20/3/1990", "Teacher", "98761896266", 2020,
            new String[] { "English", "OOPS" }, "CSE");
        e3.printDetails();
        DDPC e4 = new DDPC("20398266883", "Employee 4", "IT",
"20/3/1990", "Teacher", "98761896266", 2009,
            new String[] { "Physics", "OOPS" }, "CSE");
        e4.printDetails();
        UnskilledStaff s1 = new UnskilledStaff("203982668376", "Employee
5", "Mechanical", "18/4/1991", "Lab Assistant",
            "97528452562", 1999, new String[] { "Management", "ADE" });
        System.out.println(s1);
        SkilledStaff s2 = new SkilledStaff("203982668376", "Employee 6",
"Mechanical", "18/4/1991", "Lab Assistant",
            "97528452562", 1999, new String[] { "Management", "ADE" });
        System.out.println(s2);
    }
}
```

```
Name : Employee 1
Employee ID : 203982
Department : CSE
dob : 29/7/1992
Designation : professor
Phone Number : 9802458963
Year of Joining : 2000
Subjects :
DSA
OOPS
HOD of CSE

Name : Employee 2
Employee ID : 203983
Department : CSE
dob : 20/3/1990
Designation : Professor
Phone Number : 98702896266
Year of Joining : 2010
Subjects :
CSW
OOPS
DMPC
```

```
Name : Employee 3
Employee ID : 20398266883
Department : IT
dob : 20/3/1990
Designation : Teacher
Phone Number : 98761896266
Year of Joining : 2020
Subjects :
English
OOPS
DUGC

Name : Employee 4
Employee ID : 20398266883
Department : IT
dob : 20/3/1990
Designation : Teacher
Phone Number : 98761896266
Year of Joining : 2009
Subjects :
Physics
OOPS
DDPS
```

```
Name : Employee 5
Employee ID : 203982668376
Department : Mechanicaldob : 18/4/1991
Designation : Lab Assistant
Phone Number : 97528452562Year of Joining : 1999
Skills : Null

Name : Employee 6
Employee ID : 203982668376
Department : Mechanicaldob : 18/4/1991
Designation : Lab Assistant
Phone Number : 97528452562
Year of Joining : 1999
Skills : ManagementADE
```

QUES7)

```java
import javax.sound.midi.Soundbank;
import java.util.Scanner;

public class ps_7 {
    public static class employee{
        protected String name,emp_id,hire_date;
Scanner s=new Scanner(System.in);
        public String getEmp_id() {
            return emp_id;
```

```java
    }


    public void setEmp_id() {


       this.emp_id = s.nextLine();

    }


    public String getHire_date() {


       return hire_date;

    }


    public void setHire_date() {

       this.hire_date = s.nextLine();

    }


    public employee(String name) {

       this.name = name;

       System.out.println("Enter the Employee's id of "+this.name+" ---
Employee number in the format XXX–L, where each X is a digit within the
range\n" +

             "0–9 and the L is a letter within the range A–M");

       setEmp_id();

       System.out.println("Enter the employee's hire date of ---
"+this.name);

       setHire_date();
```

```java
        }
    }


    public static class production_worker extends employee{
        int shift;
        double hourly_pay_rate;

        public int getShift() {
            return shift;
        }

        public void setShift() {
            this.shift = s.nextInt();
        }

        public double getHourly_pay_rate() {
            return hourly_pay_rate;
        }

        public void setHourly_pay_rate() {
            this.hourly_pay_rate = s.nextDouble();
        }

        public production_worker(String name) {
            super(name);
```

```java
        System.out.println("Enter the shift--- day shift is shift 1 and the night
shift is shift 2");

        setShift();

        System.out.println("Enter the hourly pay rate");

        setHourly_pay_rate();

    }

  }


  public static void main(String[] args) {



    production_worker emp=new production_worker("Prem");

    System.out.println("Employee's name is "+emp.name);

    System.out.println("Employee's ID is "+emp.getEmp_id());

    System.out.println("Employee's hire date is "+emp.getHire_date());

    System.out.println("Employee's shift is "+emp.getShift());

    System.out.println("Employee's hourly pay rate is
"+emp.getHourly_pay_rate());


  }
}
```

QUES 8)

```java
import java.util.Scanner;

public class ps_8 {
    Scanner s=new Scanner(System.in);
    public static class shift_supervisor extends ps_7.employee{

        public shift_supervisor(String name) {
            super(name);
            System.out.println("Enter the salary");
            setSalary();
            System.out.println("Enter the yearly bonus");
            setBonus();
        }
        double salary,bonus;

        public double getSalary() {
            return salary;
        }

        public void setSalary() {
            this.salary = s.nextDouble();
        }

        public double getBonus() {
            return bonus;
```

```java
        }

        public void setBonus() {
            this.bonus = s.nextDouble();
        }

        public double annual_salary(){
            return ((this.salary*12)+this.bonus);
        }
    }

    public static void main(String[] args) {
        shift_supervisor emp=new shift_supervisor("Prem Kishor");
        System.out.println("Prem's annual salary including bonus is "+emp.annual_salary());

    }
}
```

QUES9)

```java
public class ps_9 {
    public static class team_leader extends ps_7.production_worker{

        double monthly_bonus,hourly_pay,training_hour;
```

```java
    public double getMonthly_bonus() {
        return monthly_bonus;
    }


    public void setMonthly_bonus() {
        this.monthly_bonus = s.nextDouble();
    }


    public double getTraining_hour() {
        return training_hour;
    }


    public void setTraining_hour() {
        this.training_hour = s.nextDouble();
    }
    public team_leader(String name) {
        super(name);
        System.out.println("Enter the training hour per month");
        setTraining_hour();
        System.out.println("Enter the monthly bonus");
        setMonthly_bonus();
    }
    public double monthly_salary(){
        return
((this.training_hour*this.hourly_pay_rate)+this.monthly_bonus);
    }
```

```java
        }

    public static void main(String[] args) {
         team_leader emp=new team_leader("Prem");
        System.out.println("Prem's monthly salary is "+emp.monthly_salary());
    }
}
```