PRACTICAL 3

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Aim: Write a program to implement Inheritance, method overriding and runtime polymorphism.
Consider the following scenario:- A college stores the student information as Name, Gender, Department Name, CGPA.
College also stores the placement details as industry name, annual package and joining letter number.
If the student is going for higher studies then the details are stored as
Degree Name, College Name, Admission Letter Number, Competitive exam details (Name, Score).
If student is going for Entrepreneurship then information stored is Company Name, Sector, Number of employees working in the company and annual turnover.

Create an efficient way to store and display details of all students in an array. (Hint: Use Dynamic Method Dispatch for creating Student array)

Code:

Student.java

```java
public class Student {
  protected String name,gender,dept;
  protected double cgpa;

  Student(String name1, String gender1, String dept1, double cgpa1){
    name = name1;
    gender = gender1;
    dept = dept1;
    cgpa = cgpa1;
  }

  void display(){
    System.out.println("\n----------------\nName:"+name+"\nGender: "+gender+"\nDept. : "+dept+"\nCGPA : "+cgpa+"\n");
  }
}
```

HigherStudies.java

```java
public class HigherStudies extends Student {
  String degname,collname,exname;
  double addmno,exscore;

  HigherStudies(String name1, String gender1, String dept1, double
cgpa1,String degname1,String collname1,String exname1,double admno1,double
exscore1) {
    super(name1, gender1, dept1, cgpa1);
    degname = degname1;
    collname = collname1;
    exname = exname1;
    addmno = admno1;
    exscore = exscore1;
  }

  void display(){
    super.display();
    System.out.println("\n---------------\nDegree name: "+degname+"\nCollege
Name: "+collname+"\nAdmission no: "+addmno+"\nExam name: "+exname+"\nExam
Score: "+exscore);
  }

}
```

Placement.java

```java
public class Placement extends Student {
  protected String indname;
  protected double annp;
  protected int jlno;

  Placement(String name1, String gender1, String dept1, double cgpa1,String
indname1,double annp1,int jlno1){
    super(name1, gender1, dept1, cgpa1);
    indname = indname1;
    annp = annp1;
    jlno = jlno1;
  }

  void display(){
    super.display();
    System.out.println("-----------\nIndustry Name: "+indname+"\nAnnual
Package: "+annp+"\nJoining letter number : "+jlno);
  }
}
```

Enterprenuership.java

```java
public class Enterprenuership extends Student {
  String compname,sector;
  double noemp,annturn;

  Enterprenuership(String name1, String gender1, String dept1, double
cgpa1,String compname1,String sector1,double noemp1,double annturn1) {
    super(name1, gender1, dept1, cgpa1);
    compname = compname1;
    sector = sector1;
    noemp = noemp1;
    annturn = annturn1;
  }


  void display(){
    super.display();
    System.out.println("\n------------\nCompany Name: "+compname+"\nSector :
"+sector+"\nNo of employees: "+noemp+"\nAnnual Turnover: "+annturn);
  }

}
```

Main.java

```java
public class Main {
  public static void main(String[] args) {
    Student s[] = new Student[5];
    s[0] = new HigherStudies("Shreyash", "Male", "CSE",9.72, "Btech", "RCOEM",
"JEE", 1201, 100);
    s[1] = new Enterprenuership("Sahil", "Male", "CSE", 9.6, "Infosys",
"Buisiness", 1000, 100000);
    s[2] = new Placement( "sujyot", "Male", "CSE", 9.7,"Tech", 100000, 12365);

    s[0].display();
    System.out.println("-------------------- Higher Studies ----------------
----");
    s[1].display();
    System.out.println("-------------------- Enterprenuership ---------------
------");
    s[2].display();
    System.out.println("-------------------- Placement ----------------------
");

  }
}
```

OUTPUT:

```
PS C:\Users\smitk\Desktop\JAVA prac\prac3> cd "c:\Users\smitk\Desktop\JAVA prac\prac3\" ;
if ($?) { javac Main.java } ; if ($?) { java Main }

----------------
Name:Shreyash
Gender: Male
Dept. : CSE
CGPA : 9.72


--------------
Degree name: Btech
College Name: RCOEM
Admission no: 1201.0
Exam name: JEE
Exam Score: 100.0
-------------------- Higher Studies --------------------

----------------
Name:Sahil
Gender: Male
Dept. : CSE
CGPA : 9.6


------------
Company Name: Infosys
Sector : Buisiness
No of employees: 1000.0
Annual Turnover: 100000.0
-------------------- Enterprenuership --------------------

----------------
Name:sujyot
Gender: Male
Dept. : CSE
CGPA : 9.7

-----------
Industry Name: Tech
Annual Package: 100000.0
Joining letter number : 12365
------------------- Placement -------------------
```