Name: Sahil Hedau

Sec: A (A3)

Roll No.: 56

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**OOPs Practical 3**

**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:**

**main.java**

public class main{

    public static void main(String[] args) {

        student[] s = new student[5];

        // Student ---> Placement

        System.out.println("\n>>> Student going for placement");

        s[0] = new placement("sahil", "male", "CSE", 9.28, "IT", 1000000, 4956); // TypeCGPA

        s[0].display();

        // Student ---> Higher Studies

        System.out.println(">>> Student going for Higher Studies");

        s[1] =  new higherStudies("samrat", "male", "CSE", 8.9, "Mtech", "IIT Bomaby", 5710, 98.4);

        s[1].display();

        // Student ---> Enterpreneurship

        System.out.println(">>> Student going for Enterpreneurship");

        s[2] = new enterpreneurship("smit", "male", "CSE", 9.9, "TechCompany", "IT", 95, 1000000);

        s[2].display();

    }

}

**student.java**

public class student {

    String name;

    String gender;

    String DepartmentName;

    Double CGPA;

    student(String name, String gender, String DepartmentName, Double CGPA){

        this.name = name;

        this.gender = gender;

        this. DepartmentName = DepartmentName;

        this.CGPA = CGPA;

    }

    void display(){

        System.out.println("Name: "+name);

        System.out.println("Gender: "+gender);

        System.out.println("Department Name: "+DepartmentName);

        System.out.println("CGPA: "+CGPA);

    }

}

**placement.java**

public class placement extends student {

    String industryName;

    int annualPackage;

    int joiningLetterNumber;

    placement(String name, String gender, String DepartmentName, Double CGPA, String industryName, int annualPackage, int joiningLetterNumber){

        super(name, gender, DepartmentName, CGPA);

        this.industryName = industryName;

        this.annualPackage = annualPackage;

        this. joiningLetterNumber = joiningLetterNumber;

    }

    void display(){

        super.display();

        System.out.println("Industry Name: "+ industryName);

        System.out.println("Annual Package: "+ annualPackage);

        System.out.println("Joining Letter Number: "+ joiningLetterNumber);

        System.out.println("");

    }

}

**higherStudies.java**

public class higherStudies extends student {

    String degreeName;

    String Collegename;

    int admissionLetterNumber;

    double CE\_score;

    higherStudies(String name, String gender, String DepartmentName, Double CGPA, String degreeName, String Collegename, int admissionLetterNumber, double CE\_score){

        super(name, gender, DepartmentName, CGPA);

        this.degreeName = degreeName;

        this.Collegename = Collegename;

        this.admissionLetterNumber = admissionLetterNumber;

        this.CE\_score = CE\_score;

    }

    void display(){

        super.display();

        System.out.println("Degree Name: "+ degreeName);

        System.out.println("College Name: "+ Collegename);

        System.out.println("Admission Letter Number: "+ admissionLetterNumber);

        System.out.println("CE Score: "+ CE\_score);

        System.out.println("");

    }

}

**enterpreneurship.java**

public class enterpreneurship extends student {

    String companyName;

    String sector;

    int num\_of\_employee;

    int annualTurnover;

    enterpreneurship(String name, String gender, String DepartmentName, Double CGPA, String companyName, String sector, int num\_of\_employee, int annualTurnover){

        super(name, gender, DepartmentName, CGPA);

        this.companyName = companyName;

        this.sector = sector;

        this.num\_of\_employee = num\_of\_employee;

        this.annualTurnover = annualTurnover;

    }

    void display(){

        super.display();

        System.out.println("Company Name: "+ companyName);

        System.out.println("Sector: "+ sector);

        System.out.println("Number of employees working in the company: "+ num\_of\_employee);

        System.out.println("Annual Turnover: "+ annualTurnover);

        System.out.println("");

    }

}

**Terminal Output:**

