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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: