



CHRIST
(DEEMED TO BE UNIVERSITY)
DELHI - NCR, INDIA

Java Programming

MCA-272

ESE – 02

BY

HIMANSHU HEDA (24225013)

SUBMITTED TO

Dr. Manjula Shannhog

SCHOOL OF SCIENCES

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Program 1: --

```
// Base class for Core Subjects
class CoreSubjects {
    int marks1, marks2, marks3;
    int totalCoreMarks;
    double percentageCore;

    // Constructor to initialize core subject marks
    CoreSubjects(int marks1, int marks2, int marks3) {
        this.marks1 = marks1;
        this.marks2 = marks2;
        this.marks3 = marks3;

        // Calculate total and percentage
        totalCoreMarks = marks1 + marks2 + marks3;
        percentageCore = (totalCoreMarks / 3.0);
    }

    // Method to display core subject results
    void displayCoreResults() {
        System.out.println("Total Marks in Core Subjects: " + totalCoreMarks);
        System.out.println("Percentage in Core Subjects: " + percentageCore +
"%");
    }
}

// Derived class for Elective Subjects
class ElectiveSubjects extends CoreSubjects {
    int elective1, elective2;
    int totalElectiveMarks;
    double percentageElective;

    // Constructor to initialize elective subject marks
    ElectiveSubjects(int marks1, int marks2, int marks3, int elective1, int
elective2) {
        super(marks1, marks2, marks3);
        this.elective1 = elective1;
        this.elective2 = elective2;

        // Calculate total and percentage
        totalElectiveMarks = elective1 + elective2;
        percentageElective = (totalElectiveMarks / 2.0);
    }

    // Method to display elective subject results
    void displayElectiveResults() {
        System.out.println("Total Marks in Elective Subjects: " +
totalElectiveMarks);
    }
}
```

```

        System.out.println("Percentage in Elective Subjects: " +
percentageElective + "%");
    }

    // Method to display overall results
    void displayOverallResults() {
        int totalMarks = totalCoreMarks + totalElectiveMarks;
        double overallPercentage = (totalMarks / 5.0);
        System.out.println("Total Marks: " + totalMarks);
        System.out.println("Overall Percentage: " + overallPercentage + "%");
    }
}

// Main class to run the program
public class StudentMarks {
    public static void main(String[] args) {
        // Hardcoded marks for two students
        ElectiveSubjects student1 = new ElectiveSubjects(85, 90, 78, 88, 92);
        ElectiveSubjects student2 = new ElectiveSubjects(75, 80, 70, 82, 85);

        // Display results for student 1
        System.out.println("Results for Student 1:");
        student1.displayCoreResults();
        student1.displayElectiveResults();
        student1.displayOverallResults();

        // Display results for student 2
        System.out.println("\nResults for Student 2:");
        student2.displayCoreResults();
        student2.displayElectiveResults();
        student2.displayOverallResults();
    }
}

```

OUTPUT : --

```

PS D:\2MCA\JAVA\ESE2> & 'C:\Program Files\Eclipse Adopt
User\workspaceStorage\f88b067db6562b15398a96d3a406df26\
Results for Student 1:
Total Marks in Core Subjects: 253
Percentage in Core Subjects: 84.33333333333333%
Total Marks in Elective Subjects: 180
Percentage in Elective Subjects: 90.0%
Total Marks: 433
Overall Percentage: 86.6%

Results for Student 2:
Total Marks in Core Subjects: 225
Percentage in Core Subjects: 75.0%
Total Marks in Elective Subjects: 167
Percentage in Elective Subjects: 83.5%
Total Marks: 392
Overall Percentage: 78.4%
PS D:\2MCA\JAVA\ESE2>

```

2nd Program : --

```

// Base class
class Base {
    int x;
    int y;

    Base(int x, int y) {
        this.x = x;
        this.y = y;
    }
}

// Derived class 1
class Derived1 extends Base {
    int z;

    Derived1(int x, int y, int z) {
        super(x, y);
        this.z = z;
    }

    int add() {
        return x + y + z;
    }
}

```

```

// Derived class 2
class Derived2 extends Base {
    int t;

    Derived2(int x, int y, int t) {
        super(x, y);
        this.t = t;
    }

    int multiply() {
        return x * y * t;
    }
}

// Derived class 3 that inherits from Derived1
class Derived3 extends Derived1 {
    int d;

    Derived3(int x, int y, int z, int d) {
        super(x, y, z);
        this.d = d;
    }

    int calculate() {
        return d * (x + y + z);
    }
}

// Main class to demonstrate functionality
public class Main {
    public static void main(String[] args) {
        // Create an instance of Derived1
        Derived1 derived1 = new Derived1(1, 2, 3);
        System.out.println("Sum of x, y, z in Derived1: " + derived1.add());

        // Create an instance of Derived2
        Derived2 derived2 = new Derived2(1, 2, 3);
        System.out.println("Product of x, y, t in Derived2: " +
derived2.multiply());

        // Create an instance of Derived3
        Derived3 derived3 = new Derived3(1, 2, 3, 4);
        System.out.println("Result of d * (x + y + z) in Derived3: " +
derived3.calculate());
    }
}

```

Output : --

```
PS D:\2MCA\JAVA\ESE2> & 'C:\Program Files\Eclipse A  
User\workspaceStorage\f88b067db6562b15398a96d3a406df  
Sum of x, y, z in Derived1: 6  
Product of x, y, t in Derived2: 6  
Result of d * (x + y + z) in Derived3: 24  
PS D:\2MCA\JAVA\ESE2>
```