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2MCA B
Java CIA Component 2

Code:

```java
import java.util.Scanner;

abstract class Person {
    protected String name;
    protected int age;
    protected double height;
    protected String gender;

    public Person(String name, int age, double height, String gender) {
        this.name = name;
        this.age = age;
        this.height = height;
        this.gender = gender;
    }

    public void get() {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Name: ");
        name = scanner.next();
        System.out.print("Age: ");
        age = scanner.nextInt();
        System.out.print("Height: ");
        height = scanner.nextDouble();
        System.out.print("Gender: ");
        gender = scanner.next();
    }

    public abstract void show();

}

class Student extends Person {
    protected static int currStudentId = 101;
    protected int studentId;
    protected String institutionName;
    protected String phNo;

    public Student(String name, int age, double height, String gender, String
institutionName, String phNo) {
        super(name, age, height, gender);
        this.studentId = currStudentId;
```

```java
            currStudentId++;
            this.institutionName = institutionName;
            this.phNo = phNo;
        }

        @Override
        public void get() {
            super.get();
            Scanner scanner = new Scanner(System.in);
            System.out.print("Institution Name: ");
            institutionName = scanner.next();
            System.out.print("Phone Number: ");
            phNo = scanner.next();
        }

        @Override
        public void show() {
            System.out.println("Name: " + name);
            System.out.println("Age: " + age);
            System.out.println("Height: " + height);
            System.out.println("Gender: " + gender);
            System.out.println("Student ID: " + studentId);
            System.out.println("Institution Name: " + institutionName);
            System.out.println("Phone Number: " + phNo);
        }
}

final class GraduateStudent extends Student {
    protected String programName;
    protected int noOfSubjects;
    protected String classTeacher;
    protected double marks;
    protected double attendance;

    public GraduateStudent() {
        super("", 0, 0, "", "", "");
        this.programName = "";
        this.noOfSubjects = 0;
        this.classTeacher = "";
        this.marks = 0;
        this.attendance = 0;
        this.get();
    }

    public GraduateStudent(String name, int age, double height, String gender,
String institutionName, String phNo, String programName, int noOfSubjects,
String classTeacher, double marks, double attendance) {
        super(name, age, height, gender, institutionName, phNo);
```

```java
            this.programName = programName;
            this.noOfSubjects = noOfSubjects;
            this.classTeacher = classTeacher;
            this.marks = marks;
            this.attendance = attendance;
        }

        @Override
        public void get() {
            super.get();
            Scanner scanner = new Scanner(System.in);
            System.out.print("Program Name: ");
            programName = scanner.next();
            System.out.print("Number of Subjects: ");
            noOfSubjects = scanner.nextInt();
            System.out.print("Class Teacher Name: ");
            classTeacher = scanner.next();
            System.out.print("Marks: ");
            marks = scanner.nextDouble();
            System.out.print("Attendance: ");
            attendance = scanner.nextDouble();
        }

        @Override
        final public void show() {
            super.show();
            System.out.println("Program Name: " + programName);
            System.out.println("Number of Subjects: " + noOfSubjects);
            System.out.println("Class Teacher Name: " + classTeacher);
            System.out.println("Marks: " + marks);
            System.out.println("Attendance: " + attendance);
        }

        final public static void showStudentID() {
            System.out.println("Current Student ID: " + currStudentId);
        }
    }
}

class Java_LabTest_203 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        Student[] students = new Student[7];
        students[0] = new GraduateStudent("Adhish", 22, 186.0, "Male",
"Christ", "9999999999", "MCA", 5, "Teacher1", 68, 85);
        students[1] = new GraduateStudent("Bhomit", 21, 169.0, "Male", "VIT",
"8888888888", "MBA", 6, "Teacher2", 75, 56);
        students[2] = new GraduateStudent("Shreya", 22, 159.0, "Female",
"PES", "7777777777", "MCA", 7, "Teacher3", 80, 65);
```

```java
        students[3] = new GraduateStudent("Yash", 23, 180.0, "Male", "Christ",
"666666666", "MBA", 7, "Teacher4", 60, 90);
        students[4] = new GraduateStudent("Ashna", 20, 150.0, "Female", "VIT",
"5555555555", "MCA", 8, "Teacher5", 89, 90);
        students[5] = new GraduateStudent();
        students[6] = new GraduateStudent();

        int choice = 0;
        while(choice != 5) {
            System.out.println("=============================================
==");
            System.out.println("Menu:");
            System.out.println("1. Display All Students");
            System.out.println("2. Display male students who have above 60% of
marks in the program MCA.");
            System.out.println("3. Display female students who have above 75%
of attendance in the program MCA.");
            System.out.println("4. Display the current Student ID.");
            System.out.println("5. Exit.");
            System.out.print("Enter Choice: ");
            choice = scanner.nextInt();
            System.out.println("--------------------------------------\n");

            switch (choice) {
                case 1: for (Student student : students) {
                            student.show();
                            System.out.println("--------------------------
\n");
                        }
                    break;

                case 2: for (Student student : students) {
                            if (student.gender.equals("Male") &&
((GraduateStudent) student).marks > 60 && ((GraduateStudent)
student).programName.equals("MCA")) {
                                student.show();
                                System.out.println("-------------------------
\n");
                            }
                        }
                    break;

                case 3: for (Student student : students) {
                            if (student.gender.equals("Female") &&
((GraduateStudent) student).attendance > 75 && ((GraduateStudent)
student).programName.equals("MCA")) {
                                student.show();
```

```java
                                    System.out.println("-------------------------
\n");
                    }
                }
            break;

        case 4: GraduateStudent.showStudentID();
            break;

        case 5: System.out.println("Exiting...");
            break;

        default: System.out.println("Invalid Choice. Enter Again");
            break;
        }
    }

    }
}
```

Output:

```
adhis@AdhishBahl MINGW64 ~/Desktop/Christ/Java/Lab/CIA1 (master)
$ javac Java_LabTest_203.java

adhis@AdhishBahl MINGW64 ~/Desktop/Christ/Java/Lab/CIA1 (master)
$ java Java_LabTest_203
Name: Anushka
Age: 23
Height: 160
Gender: Female
Institution Name: VIT
Phone Number: 4444444444
Program Name: MCA
Number of Subjects: 6
Class Teacher Name: teacher5
Marks: 85
Attendance: 99
Name: Keshar
Age: 22
Height: 150
Gender: Female
Institution Name: Christ
Phone Number: 3333333333
Program Name: MBA
Number of Subjects: 6
Class Teacher Name: teacher3
Marks: 85
Attendance: 95
=================================================
Menu:
1. Display All Students
2. Display male students who have above 60% of marks in the program MCA.
3. Display female students who have above 75% of attendance in the program MCA.
4. Display the current Student ID.
5. Exit.
Enter Choice: 1
-------------------------------------

Name: Adhish
Age: 22
Height: 186.0
Gender: Male
Student ID: 101
Institution Name: Christ
Phone Number: 9999999999
```

```
Student ID: 101
Institution Name: Christ
Phone Number: 9999999999
Program Name: MCA
Number of Subjects: 5
Class Teacher Name: Teacher1
Marks: 68.0
Attendance: 85.0
------------------------

Name: Bhomit
Age: 21
Height: 169.0
Gender: Male
Student ID: 102
Institution Name: VIT
Phone Number: 8888888888
Program Name: MBA
Number of Subjects: 6
Class Teacher Name: Teacher2
Marks: 75.0
Attendance: 56.0
------------------------

Name: Shreya
Age: 22
Height: 159.0
Gender: Female
Student ID: 103
Institution Name: PES
Phone Number: 777777777
Program Name: MCA
Number of Subjects: 7
Class Teacher Name: Teacher3
Marks: 80.0
Attendance: 65.0
------------------------

Name: Yash
Age: 23
Height: 180.0
Gender: Male
Student ID: 104
Institution Name: Christ
Phone Number: 666666666
```

```
Student ID: 104
Institution Name: Christ
Phone Number: 666666666
Program Name: MBA
Number of Subjects: 7
Class Teacher Name: Teacher4
Marks: 60.0
Attendance: 90.0
-------------------------

Name: Ashna
Age: 20
Height: 150.0
Gender: Female
Student ID: 105
Institution Name: VIT
Phone Number: 5555555555
Program Name: MCA
Number of Subjects: 8
Class Teacher Name: Teacher5
Marks: 89.0
Attendance: 90.0
-------------------------

Name: Anushka
Age: 23
Height: 160.0
Gender: Female
Student ID: 106
Institution Name: VIT
Phone Number: 4444444444
Program Name: MCA
Number of Subjects: 6
Class Teacher Name: teacher5
Marks: 85.0
Attendance: 99.0
-------------------------

Name: Keshar
Age: 22
Height: 150.0
Gender: Female
Student ID: 107
Institution Name: Christ
Phone Number: 3333333333
```

```
Institution Name: Christ
Phone Number: 3333333333
Program Name: MBA
Number of Subjects: 6
Class Teacher Name: teacher3
Marks: 85.0
Attendance: 95.0
-------------------------

=============================================
Menu:
1. Display All Students
2. Display male students who have above 60% of marks in the program MCA.
3. Display female students who have above 75% of attendance in the program MCA.
4. Display the current Student ID.
5. Exit.
Enter Choice: 2
--------------------------------------

Name: Adhish
Age: 22
Height: 186.0
Gender: Male
Student ID: 101
Institution Name: Christ
Phone Number: 9999999999
Program Name: MCA
Number of Subjects: 5
Class Teacher Name: Teacher1
Marks: 68.0
Attendance: 85.0
-------------------------

=============================================
Menu:
1. Display All Students
2. Display male students who have above 60% of marks in the program MCA.
3. Display female students who have above 75% of attendance in the program MCA.
4. Display the current Student ID.
5. Exit.
Enter Choice: 3
--------------------------------------

Name: Ashna
Age: 20
```

```
Name: Ashna
Age: 20
Height: 150.0
Gender: Female
Student ID: 105
Institution Name: VIT
Phone Number: 5555555555
Program Name: MCA
Number of Subjects: 8
Class Teacher Name: Teacher5
Marks: 89.0
Attendance: 90.0
------------------------

Name: Anushka
Age: 23
Height: 160.0
Gender: Female
Student ID: 106
Institution Name: VIT
Phone Number: 4444444444
Program Name: MCA
Number of Subjects: 6
Class Teacher Name: teacher5
Marks: 85.0
Attendance: 99.0
------------------------

=================================================
Menu:
1. Display All Students
2. Display male students who have above 60% of marks in the program MCA.
3. Display female students who have above 75% of attendance in the program MCA.
4. Display the current Student ID.
5. Exit.
Enter Choice: 4
--------------------------------------

Current Student ID: 108
=================================================
Menu:
1. Display All Students
2. Display male students who have above 60% of marks in the program MCA.
3. Display female students who have above 75% of attendance in the program MCA.
```