

IT5512- WEB TECHNOLOGY LAB-SESSION-1

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BASIC JAVA PROGRAMS

1) AIM:

To write a Basic Java code for the following Programs:

- 1 a) Write a java program to display Fibonacci series
- 1 b) Write a java program to check whether a number is Armstrong or not
- 1 c) Write a java program to check whether a number is palindrome or not.
- 1 d) Write a program to find a factorial of a number
- 1 e) Write a program to find sum of all integers greater than 100 and less than 200 that are divisible by 4.
- 1 f) Write a program to print even numbers between 1 to 20
- 1 g) Write a program to check whether a number is positive or negative
- 1 h) Write a program to display the student details.

PROCEDURE:

- ✓ Download the Java Development Kit (JDK version 8) from oracle
- ✓ Download and install IntelliJ IDEA IDE from JetBrains
- ✓ Once JDK is installed add the path variable in the system variable environment setting
- ✓ Create a project in IntelliJ and configure the SDK version, enter the project and package name and click on finish. IntelliJ will load and set up the required components
- ✓ Create a new file from File → new Class → Enter the name
- ✓ Code up the algorithm and run it using the Run button.
- ✓ The source code is compiled using JAVAC compiler which comes along JDK and the output is displayed on the terminal.
- ✓ Copy the source code and take screen shots of the output for each program and paste it in the document.

1) a.

AIM:

To Write a java program to display Fibonacci series

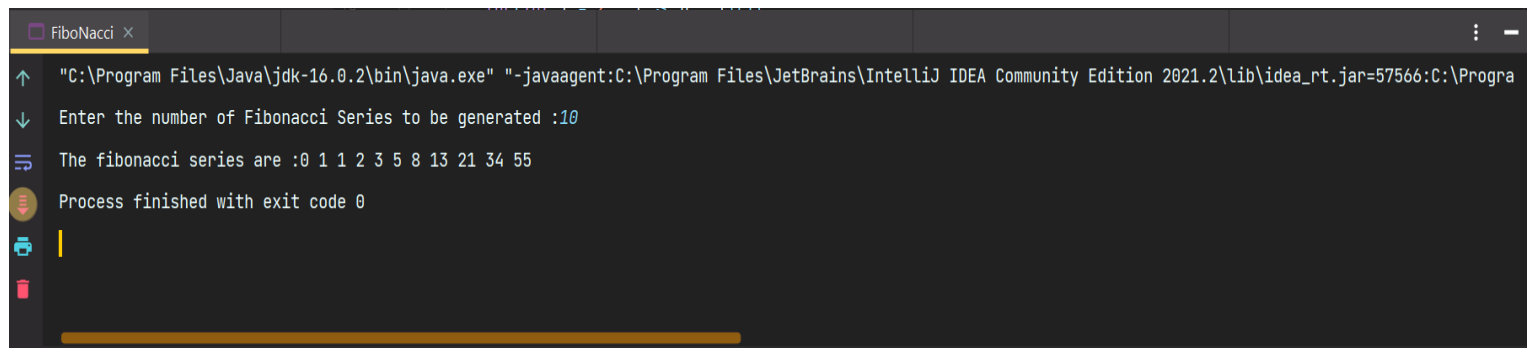
PROGRAM CODE:

```
package Java.Lab.lab1;

import java.util.Scanner;

public class FiboNacci {
    private static Scanner input = new Scanner(System.in);
    public static void main(String[] args) {
        int n;
        System.out.print("Enter the number of Fibonacci Series to be generated :");
        n = input.nextInt();
        int []fibo = new int[n+1];
        fibo[0] = 0;
        fibo[1] = 1;
        for(int i = 2 ; i <= n ; i++){
            fibo[i] = fibo[i-1] + fibo[i-2];
        }
        System.out.print("The fibonacci series are :");
        for(int i = 0 ; i < fibo.length ; i++){
            System.out.print(fibo[i] + " ");
        }
    }
}
```

OUTPUT:



The screenshot shows a terminal window titled 'FiboNacci' with the following output:

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2021.2\lib\idea_rt.jar=57566:C:\Progra
Enter the number of Fibonacci Series to be generated :10
The fibonacci series are :0 1 1 2 3 5 8 13 21 34 55
Process finished with exit code 0
```

RESULT:

Thus, the program has been executed successfully.

1) b.

AIM:

To Write a java program to check whether a number is Armstrong or not

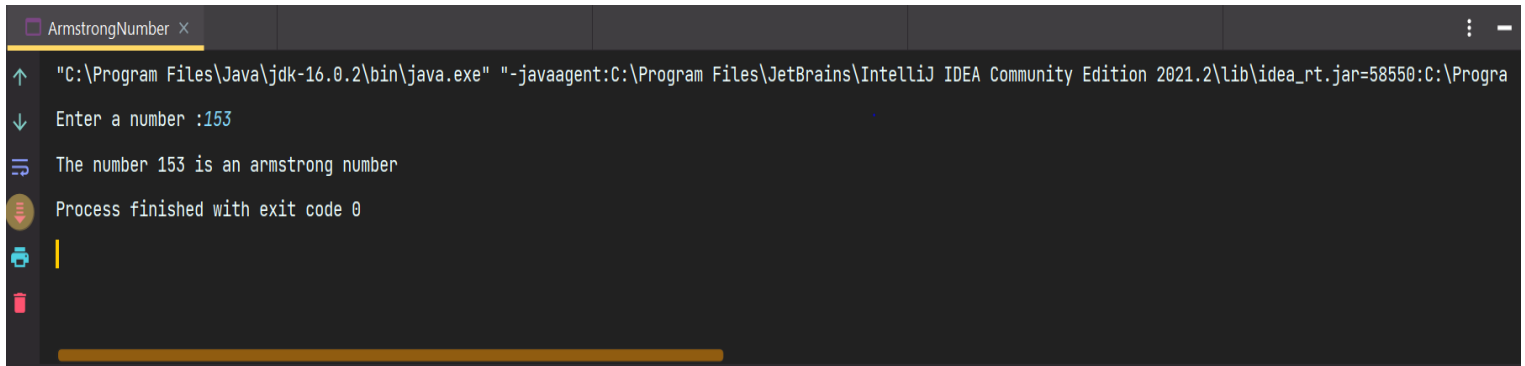
PROGRAM CODE

```
package Java.Lab.lab1;

import java.util.Scanner;

public class ArmstrongNumber {
    private static Scanner input = new Scanner(System.in);
    public static int numberOfDigits(int num){
        int ans = 0;
        while(num != 0){
            ans ++;
            num /= 10;
        }
        return ans;
    }
    public static void main(String[] args) {
        int n;
        System.out.print("Enter a number :");
        n = input.nextInt();
        int numberOfDigits = numberOfDigits(n);
        int ans = 0;
        int m = n;
        while(m != 0){
            ans += (int)Math.pow(m % 10,numberOfDigits);
            m /= 10;
        }
        if(ans == n)System.out.print("The number " + n + " is an armstrong number ");
        else System.out.print("The number " + n + " is not an armstrong number ");
    }
}
```

OUTPUT:



The screenshot shows a terminal window titled "ArmstrongNumber" with a dark background. The terminal output is as follows:

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2021.2\lib\idea_rt.jar=58550:C:\Progra
Enter a number :153
The number 153 is an armstrong number
Process finished with exit code 0
```

On the left side of the terminal, there is a vertical toolbar with icons for running (a green play button), debugging (a blue bug), and other IDE functions. A yellow cursor is visible on the line "The number 153 is an armstrong number".

RESULT:

Thus, the program has been executed successfully.

1) c.

AIM:

To Write a java program to check whether a number is palindrome or not

PROGRAM CODE:

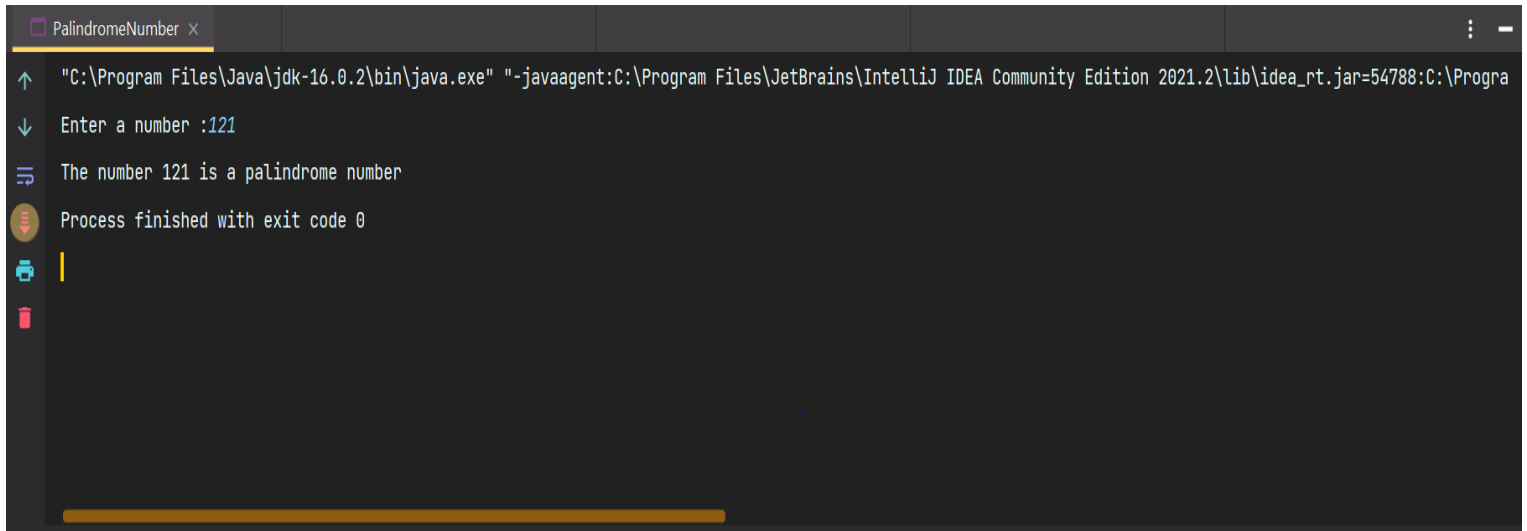
```
package Java.Lab.lab1;

import java.util.Scanner;

public class PalindromeNumber {
    private static Scanner input = new Scanner(System.in);
    public static void main(String[] args) {
        int n;
        System.out.print("Enter a number :");
        n = input.nextInt();
        int m = n;
        int ans = 0;
        while(n != 0){
            ans = ans * 10 + n % 10;
            n /= 10;
        }
        if(ans == m)System.out.print("The number " + m + " is a palindrome number ");
        else System.out.print("The number " + m + " is not a palindrome number ");

    }
}
```

OUTPUT:



The screenshot shows a terminal window titled "PalindromeNumber x" with the following content:

```
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2021.2\lib\idea_rt.jar=54788:C:\Progra
Enter a number :121
The number 121 is a palindrome number
Process finished with exit code 0
```

The terminal interface includes standard icons on the left for running, stepping, and other debugging actions, and a status bar at the bottom.

RESULT:

Thus, the program has been executed successfully.

1) d.

AIM:

To Write a java program to find a factorial of a number.

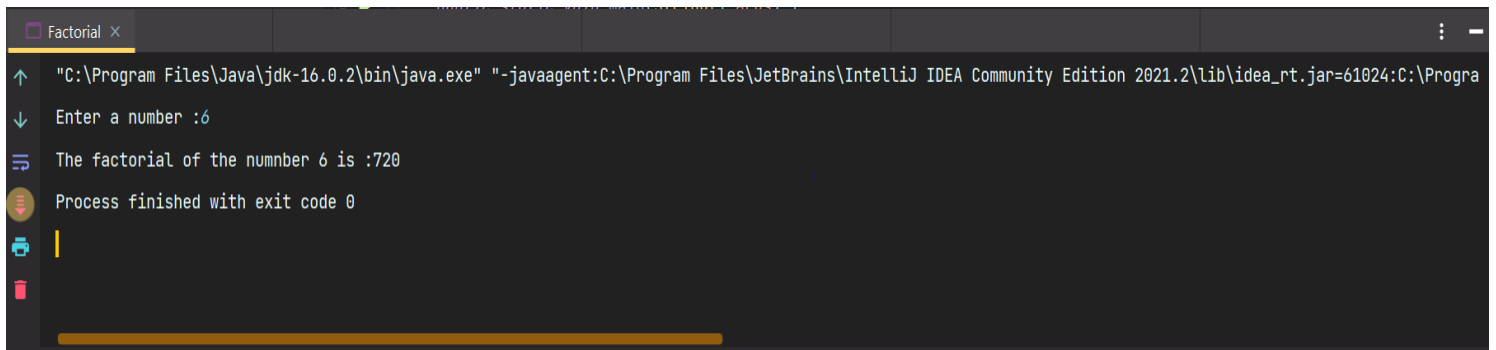
PROGRAM CODE:

```
package Java.Lab.lab1;

import java.util.Scanner;

public class Factorial {
    private static Scanner input = new Scanner(System.in);
    public static long getFactorial(int num){
        long ans = 1;
        for(int i =2 ; i <= num ; i++){
            ans *= i;
        }
        return ans;
    }
    public static void main(String[] args) {
        int n;
        System.out.print("Enter a number :");
        n = input.nextInt();
        System.out.print("The factorial of the numnber " + n +" is :" + getFactorial(n));
    }
}
```


OUTPUT:



```
Factorial x
↑ "C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2021.2\lib\idea_rt.jar=61024:C:\Progra
↓ Enter a number :6
↳ The factorial of the numnber 6 is :720
⏏ Process finished with exit code 0
🖨 |
🗑
```

RESULT:

Thus, the program has been executed successfully.

1) e.

AIM:

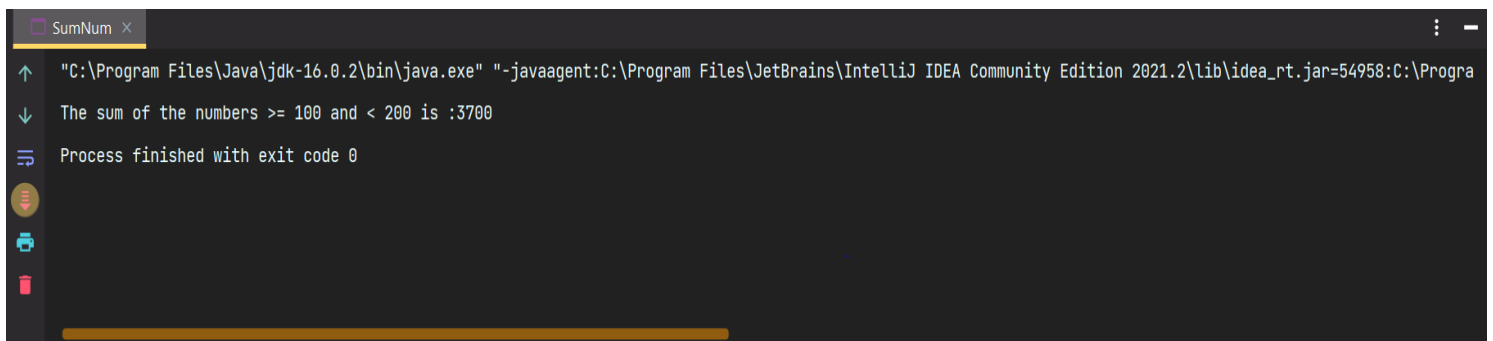
To write a program to find sum of all integers greater than 100 and less than 200 that are divisible by 4

PROGRAM CODE:

```
package Java.Lab.lab1;

public class SumNum {
    public static void main(String[] args) {
        int sum = 0;
        for(int i = 100 ; i < 200 ; i++){
            if(i % 4 == 0)sum += i;
        }
        System.out.print("The sum of the numbers >= 100 and < 200 is :"+ sum);
    }
}
```

OUTPUT:

A screenshot of a Java IDE terminal window. The window title is "SumNum x". The terminal shows the command to run the program: "C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2021.2\lib\idea_rt.jar=54958:C:\Progra". The output is "The sum of the numbers >= 100 and < 200 is :3700". Below the output, it says "Process finished with exit code 0". The terminal has a dark background with light-colored text. There are icons on the left side of the terminal window, including a magnifying glass, a printer, and a trash can.

RESULT:

Thus, the program has been executed successfully.

1) f.

AIM:

To Write a program to print even numbers between 1 to 200

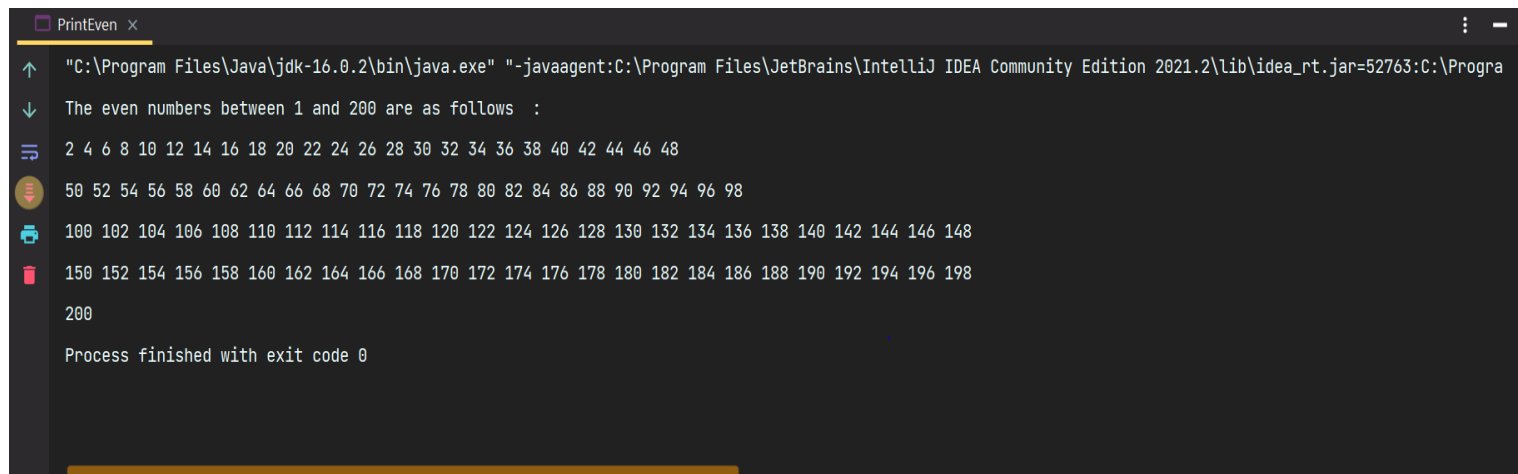
PROGRAM CODE:

```
package Java.Lab.lab1;

public class PrintEven {
    public static void main(String[] args) {
        System.out.println("The even numbers between 1 and 200 are as follows :");
        for(int i = 1 ; i <= 200 ; i++){
            if(i % 50 == 0)System.out.println();
            if(i % 2 == 0)System.out.print(i + " ");

        }
    }
}
```

OUTPUT:



```
PrintEven x
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2021.2\lib\idea_rt.jar=52763:C:\Progra
The even numbers between 1 and 200 are as follows :
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48
50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98
100 102 104 106 108 110 112 114 116 118 120 122 124 126 128 130 132 134 136 138 140 142 144 146 148
150 152 154 156 158 160 162 164 166 168 170 172 174 176 178 180 182 184 186 188 190 192 194 196 198
200
Process finished with exit code 0
```

RESULT:

Thus, the program has been executed successfully.

1) g.

AIM:

To Write a program to check whether a number is positive or negative

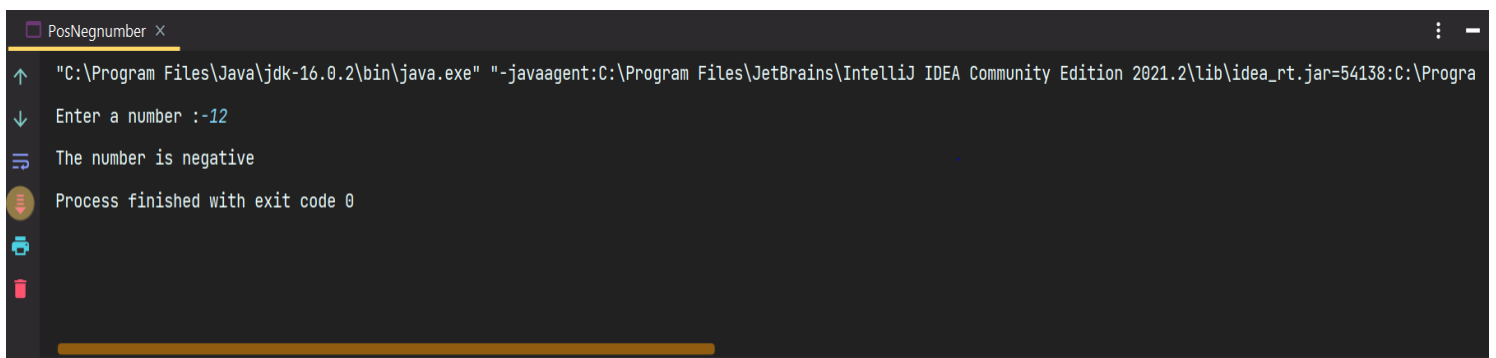
PROGRAM CODE:

```
package Java.Lab.lab1;

import java.util.Scanner;

public class PosNegnumber {
    private static Scanner input = new Scanner(System.in);
    public static void main(String[] args) {
        int n;
        n = input.nextInt();
        if(n >=0 )System.out.print("The number is positive");
        else System.out.print("The number is negative");
    }
}
```

OUTPUT:



```
PosNegnumber x
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2021.2\lib\idea_rt.jar=54138:C:\Progra
Enter a number :-12
The number is negative
Process finished with exit code 0
```

RESULT:

Thus, the program has been executed successfully.

1)h.

AIM:

To Write a program to display the student details.

PROGRAM CODE:

```
package Java.Lab.lab1;

import java.util.Scanner;

class StudentDetails{
    private final static Scanner input = new Scanner(System.in);
    private int age;
    private String name,phoneNumber,rollNumber;
    private int []marks;
    private int numberOfSubjects;
    private double cgpa;
    StudentDetails(int age, String name, String phoneNumber, String rollNumber,int
numberOfSubjects ) {
        this.age = age;
        this.name = name;
        this.phoneNumber = phoneNumber;
        this.rollNumber = rollNumber;
        this.numberOfSubjects = numberOfSubjects;
        marks = new int[numberOfSubjects];
        System.out.print("Enter subject marks :");
        for(int i = 0 ; i < numberOfSubjects ; i++){
            marks[i] = input.nextInt();
        }
        input.nextLine();
    }
    public int getAge() {
        return age;
    }
    public String getName() {
        return name;
    }
}
```

```

    }
    public String getPhoneNumber() {
        return phoneNumber;
    }
    public String getRollNumber() {
        return rollNumber;
    }
    public double getCgpa() {
        return cgpa;
    }
    void calculateCGPA(){
        double total = 0d;
        for(int i = 0 ; i < marks.length ; i++)total += marks[i];
        cgpa = total / (double)numberOfSubjects;
    }
}

public class Student {
    private final static Scanner input = new Scanner(System.in);
    public static void main(String[] args) {
        int n;
        int age;
        String name,phoneNumber,rollNumber;
        int numberOfSubjects;
        System.out.print("Enter the number of students :");
        n = input.nextInt();
        StudentDetails [] students = new StudentDetails[n];
        for(int i = 0 ; i < n ; i++){
            input.nextLine();
            System.out.print("Enter the name : ");
            name = input.nextLine();
            System.out.print("Enter the age :");
            age = input.nextInt();
            input.nextLine();
            System.out.print("Enter the phone Number :");
            phoneNumber = input.nextLine();
            System.out.print("Enter the roll number :");
            rollNumber = input.nextLine();
        }
    }
}

```

```

        System.out.print("Enter the number of subjects :");
        numberOfSubjects = input.nextInt();
        students[i]=new
StudentDetails(age,name,phoneNumber,rollNumber,numberOfSubjects);
        students[i].calculateCGPA();
    }
    for(int i = 0 ; i < n ; i++){
        System.out.println("The name is :" + students[i].getName());
        System.out.println("The age is :" + students[i].getAge());
        System.out.println("The roll number is :" + students[i].getRollNumber());
        System.out.println("The phone number is :" + students[i].getPhoneNumber());
        System.out.printf("The CGPA is : %.2f" + students[i].getCgpa());
    }
}
}

```

OUTPUT:

```

Student x
"C:\Program Files\Java\jdk-16.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2021.2\lib\idea_rt.jar=59003:C:\Progra
Enter the number of students :3
Enter the name : Pruthiev
Enter the age :20
Enter the phone Number :8825931575
Enter the roll number :2019506067
Enter the number of subjects :3
Enter subject marks :96 96 93
Enter the name : Bala
Enter the age :20
Enter the phone Number :9940011972
Enter the roll number :2019506017
Enter the number of subjects :3
Enter subject marks :97 96 95

```

```
Student x
Enter the name : Meyyappan
Enter the age :19
Enter the phone Number :9886701067
Enter the roll number :2019506050
Enter the number of subjects :3
Enter subject marks :98 97 92
```

```
Student x
The name is :Pruthiev
The age is :20
The roll number is :2019506067
The phone number is :8825931575
The CGPA is : 95.0
The name is :Bala
The age is :20
The roll number is :2019506017
The phone number is :9940011972
The CGPA is : 96.0
The name is :Meyyappan
The age is :19
The roll number is :2019506050
The phone number is :9886701067
The CGPA is : 95.66666666666667

Process finished with exit code 0
```

RESULT:

Thus, the program has been executed successfully.