Group A

1. What is the String class in Java? Is String a data type?

Answer: In Java, a string is actually an object with methods that can manipulate strings in different ways. String is used to store texts and the characters will be surrounded by double quotes. All string literals in Java programs, such as "abc" are implemented as instances of this class. The String class represents character strings. Strings are constant; their values cannot be changed after they are created. So, string is data type in java.

2. How can you make a String upper case or lower case in Java?

Answer: The toUpperCase() method converts a string to upper case letters and the toLowerCase() method converts a string to lower case letters.

3. Can you use String in switch case in Java? Explain it briefly.

Answer: Yes, we can use a switch statement with Strings in Java. It is recommended to use String values in a switch statement if the data you are dealing with is also Strings. It provides an easy way to dispatch execution to different parts of code based on the value of the expression.

4. Explain different types of conditional statement in java.

Answer: Java has the following conditional statements:

- Use if to specify a block of code to be executed, if a specified condition is true.
- Use else to specify a block of code to be executed, if the same condition is false.
- Use else if to specify a new condition to test, if the first condition is false.

5. What is the value of the variable num after the following isexecuted?

- int k = 5;
- int num = 0;
- int num1 = num + k * 2;
- int num2 = num + k * 2;

Answer: The value of the variable num after the following is 0.

Are the values num1 and num2 equal after the last statement?

Answer: Yes, the values num1 and num2 are equal after the last statement.

6. How do you split a string in Java?

Answer: The string split() method breaks a given string around matches of the given regular expression. After splitting against the given regular expression, this method returns a string array.

7. How do you check if two Strings are equal in Java?

Answer: The equals() method compares two strings, and returns true if the strings are equal, and false if not.

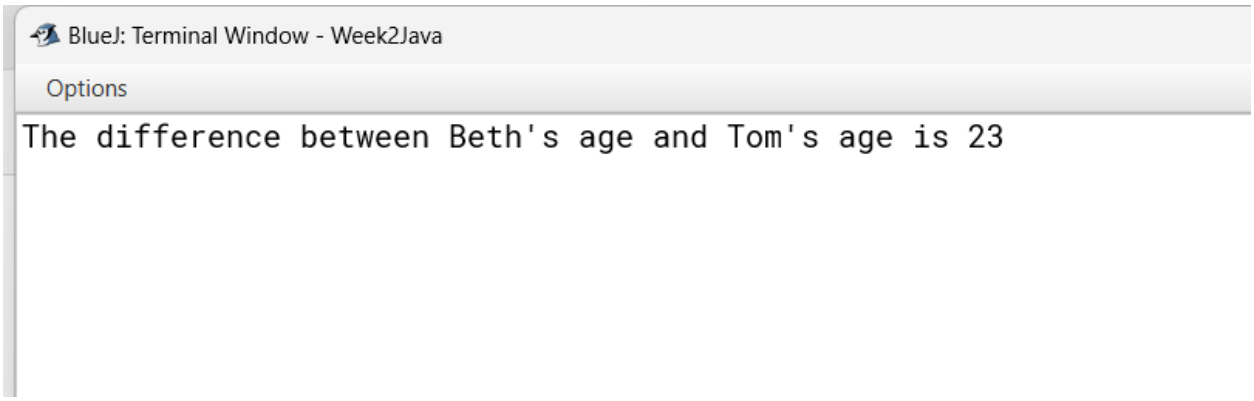
Group B

1. Find the difference between Beth's age (57) and Tom's age (34).

Answer:

```
public class Question1{
    public static void main(String[] args){
   int Beth = 57, Tom =34, Difference = 0;
   Difference = Beth - Tom;
   System.out.println("The difference between Beth's age and Tom's age is " + Difference);

}
}
```

Result:

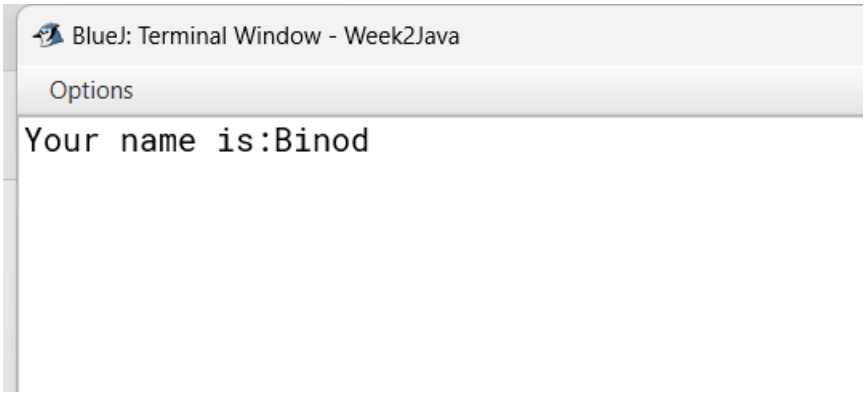


2. Develop a system to store your name as variable.

   Answer:

```
import java.util.Scanner;
public class NameAsVariable
{
    public static void main(String[] args){
    String name = "Binod";
System.out.println("Your name is:" + name);

}
}
```

   Result:



3. Create the above java program in the java environment and thenmodify the program to use the following statements. Note down the response to each. Do they differ from what you would expect?

- boolean result = true && true;
- boolean result = true && false || true;
- boolean result = false && false || true;
- boolean result = false && 0;
- boolean result = !(false) && true;
- boolean result = !(true && !(false &&
- false));
- boolean result = (10 > 14) and (4 == 5);
- boolean result = true && 5;
- boolean result = (3 * 4) != (14 - 2) && ('C' >= 'D');boolean result = (12 * 2) == (3 * 8);
- boolean result = (14 * 2) != (3 * 8);

Answer:

-

```
public class Main
{
    public static void main(String[] args) {
        int beth_age=57;
        int tom_age=34;
        int difference_in_age= beth_age- tom_age;
        System.out.println("the difference in age is"+" "+difference_in_age);
    }
}
```

-

```java
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        if (true && true){
            System.out.println("it is true");
        }
        else{
            System.out.println("it is false");
        }

    }
}
```

❖

```java
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        if (true && false || true){
            System.out.println("it is true");
        }
        else{
            System.out.println("it is false");
        }

    }
}
```

❖

```java
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        if (false && false || true){
            System.out.println("it is true");
        }
        else{
            System.out.println("it is false");
        }

    }
}
```

❖

```java
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        if ((10 > 14) & (4 == 5)){
            System.out.println("it is true");
        }
        else{
            System.out.println("it is false");
        }

    }
}
```

❖

```java
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        if  ((12 * 2) == (3 * 8)){
            System.out.println("it is true");
        }
        else{
            System.out.println("it is false");
        }

    }
}
```

❖

```java
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        if  ((14 * 2) != (3 * 8)){
            System.out.println("it is true");
        }
        else{
            System.out.println("it is false");
        }

    }
}
```

❖

```java
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        if (!(true && !(false && false))){
            System.out.println("it is true");
        }
        else{
            System.out.println("it is false");
        }

    }
}
```

4. Find the difference between 7 factorial and 5 factorial

Answer:

❖

```java
import java.util.Scanner;

public class Main
{
    public static void main(String[] args) {
        int Sevenfactorial=1*2*3*4*5*6*7;
        int sixfactorial=1*2*3*4*5*6;
        int diff=Sevenfactorial- sixfactorial;
        System.out.println("the difference is" +" "+diff);

    }
}
```

5. Complete the following questions by taking user input.

o Write a Java program that prompts a user for their last name and stores it in a variable named last_name.

o Give an instruction that prompts a user for their age and stores it as an integer in a variable named age.

o Give an instruction that prompts a user for their temperature and stores it as a float in a variable named current_temperature.

Answer:

```
import java.util.Scanner;

public class Main
{
    public static void main(String[] args) {
    Scanner sc= new Scanner(System.in);
    System.out.print("input enter the last name:");
    String name=sc.nextLine();
    String last_name=name;



        System.out.println("the last name is" +" "+last_name);

    }
}
```

❖

```
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);

        System.out.println("enter the temaperature");
        float temaperature= sc.nextFloat();
        System.out.println("the temaperature "+temaperature+"is stored");
    }
}
```

6. Give a call to printf that is provided one string that displays the following address on three separate lines:

o John Doe

o 123 Dudley Street

o 123 Dudley Street

Answer:

```java
public class Main
{
    public static void main(String[] args) {
        System.out.printf("John %s%n", "Doe");
        System.out.printf("123 %s%n", "Dudley Street");
        System.out.printf("123 %s%n", "Dudley Street");
    }
}
```

7. Write a java program in which:

a) The user enters either 'A', 'B', or 'C'. If 'A' is entered, the program should display the word 'Apple'; if 'B' is entered, it displays 'Banana'; and if 'C' is entered, it displays 'Coconut'. Use nested if statements for this.

b) Repeat question **(a)** using an (if statement with "else if" pairs) instead.

c) A student enters the number of college credits earned. If the number of credits is greater than or equal to 90, 'Senior Status' is displayed; if greater than or equal to 60, 'Junior Status' is displayed; if greater than or equal to 30, 'Sophomore Status' is displayed; else, 'Freshman Status' is displayed.

Answer:

❖

```java
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter either a or b or c");
        String aplha= sc.nextLine();

        if (aplha.equals("a")){
            System.out.println("apple");
        }else if (aplha.equals("b")){
            System.out.println("banana");
        }else if (aplha.equals("c")){
            System.out.println("coconut");
        }else{
            System.out.println("nothing to print");
        }
    }
}
```

❖

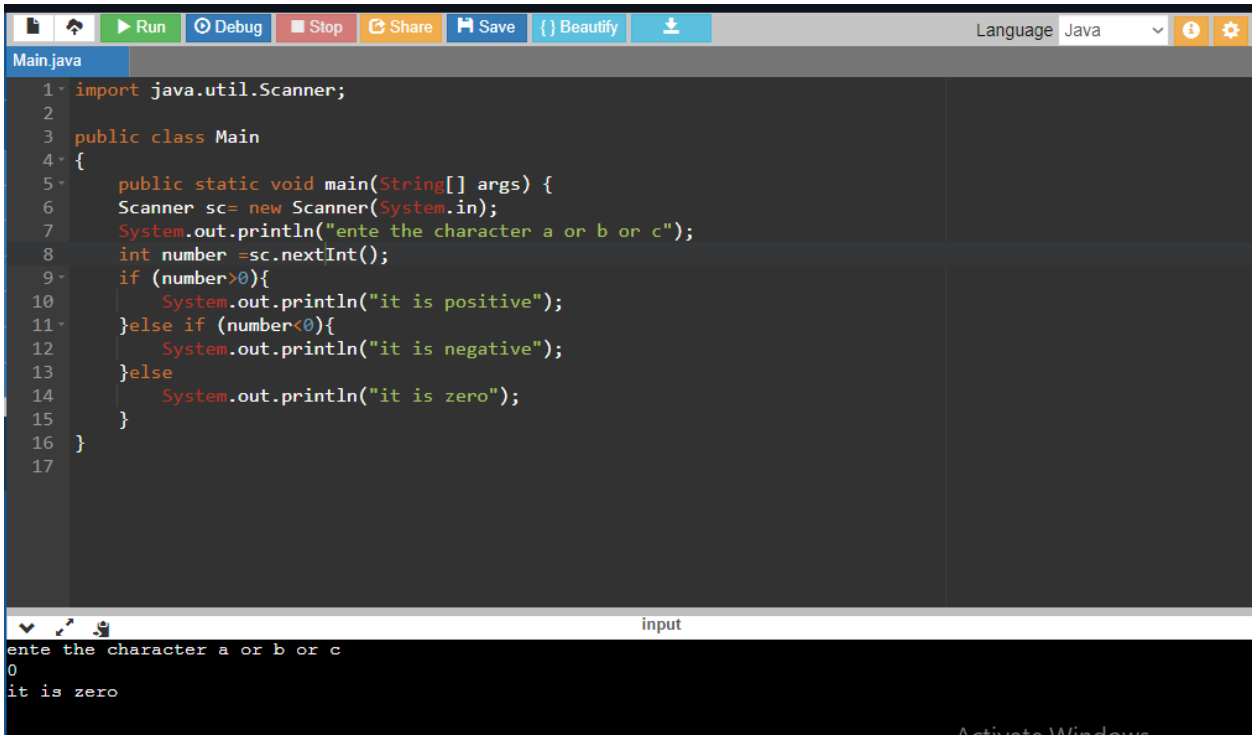
```java
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter either a or b or c");
        String aplha= sc.nextLine();

        if (aplha.equals("a")){
            System.out.println("apple");
        }else if (aplha.equals("b")){
            System.out.println("banana");
        }else if (aplha.equals("c")){
            System.out.println("coconut");
        }else{
            System.out.println("nothing to print");
        }
    }
}
```

❖

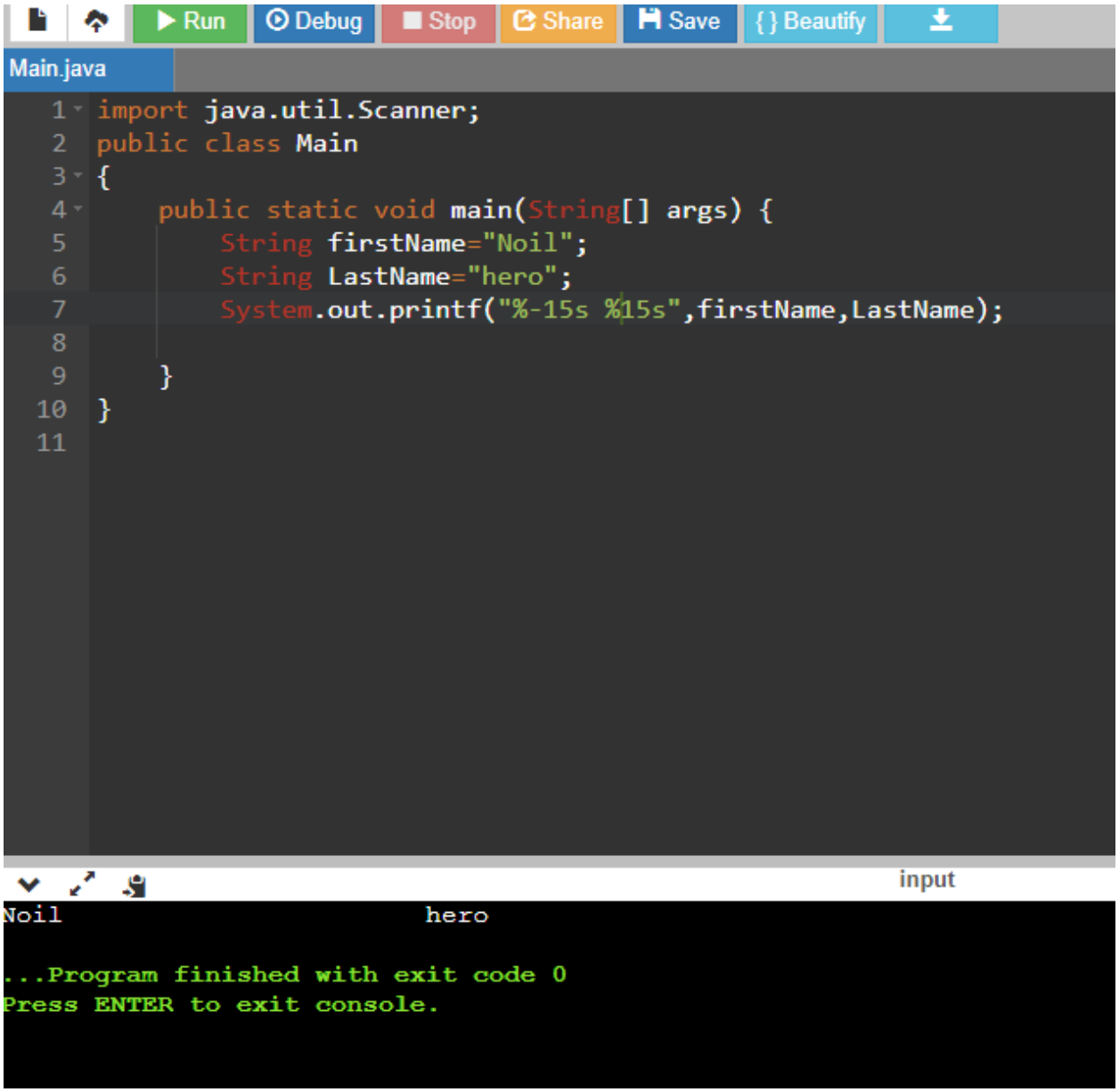
```java
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the college credit earned");
        int a= sc.nextInt();

        if (a>=90){
            System.out.println("Senior status");
        }else if(a>=60){
            System.out.println("Junior status");
        }else if(a>=30){
            System.out.println("Sophomore status");
        }else{
            System.out.println("Freshman status");
        }
    }
}
```

Group C

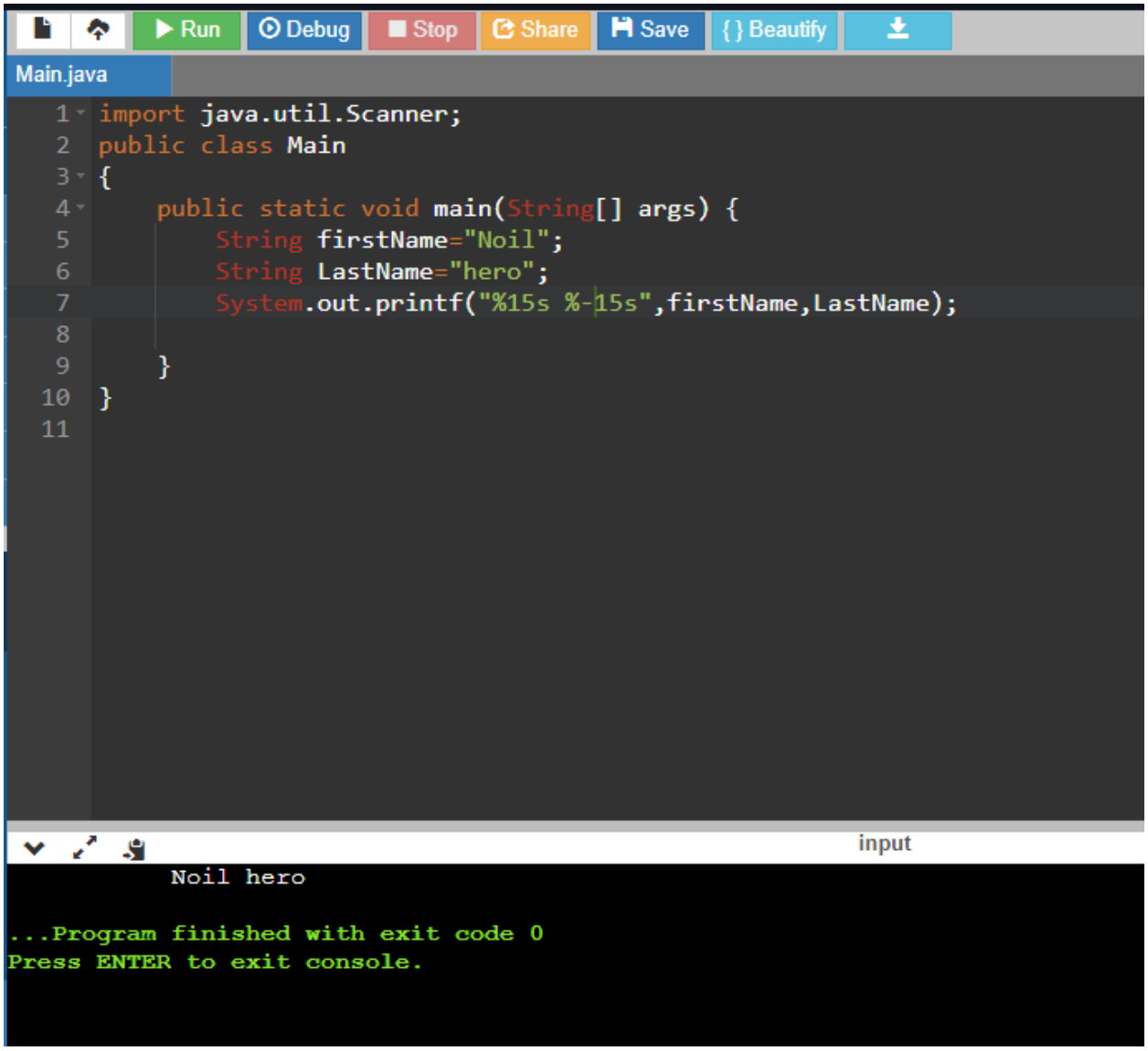
1. Create a Java software that will ask the user for a number and then display whether it is positive or negative.



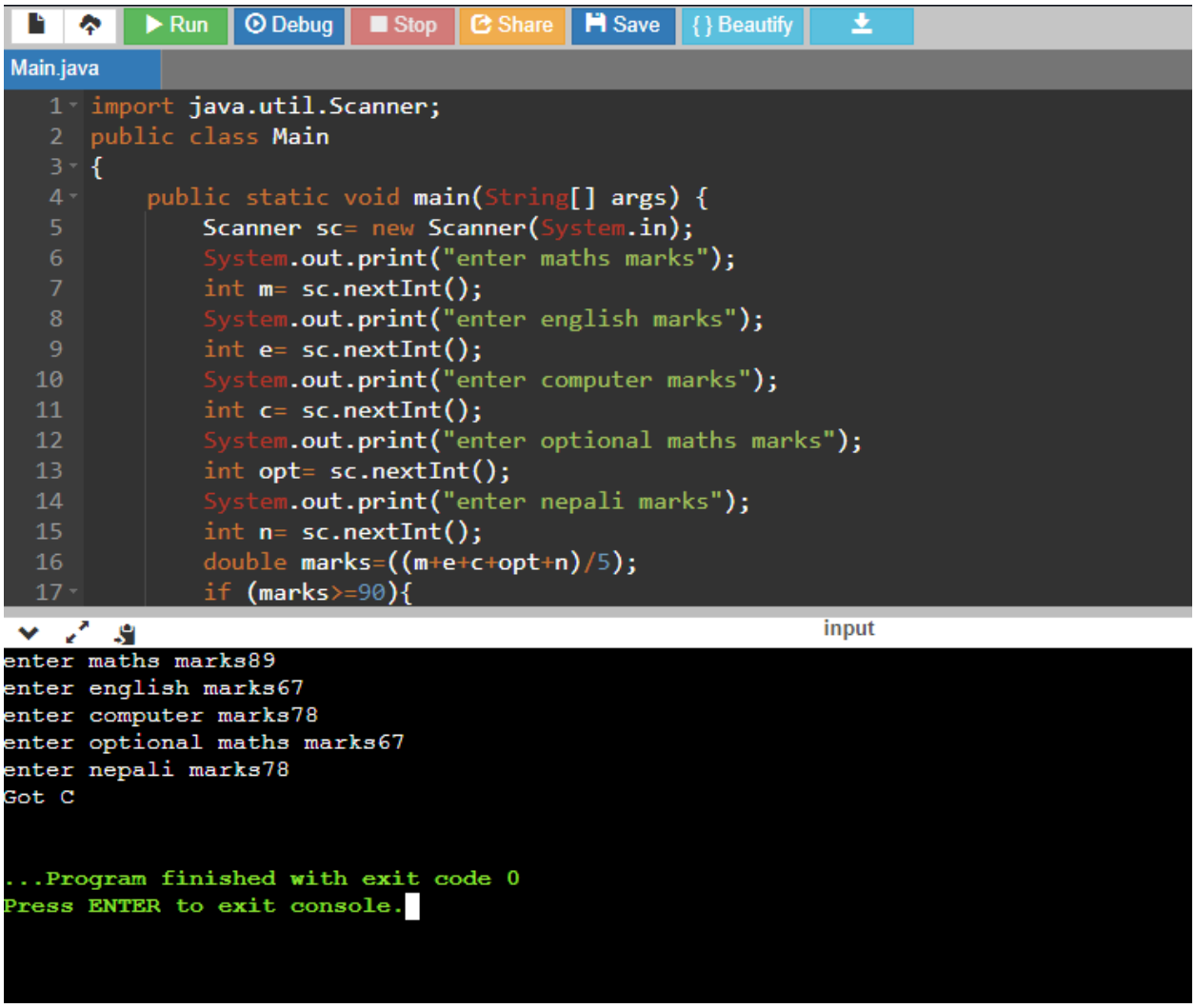
2. Your name left justified 15 spaces. [Formatted Output]



3. Your name right justified 15 spaces. [Formatted Output]



4. There were bunch of students who were curious about their total marks, percentage and grade using the marks from five subjects as input. Develop a system to help them find their grades.


Run
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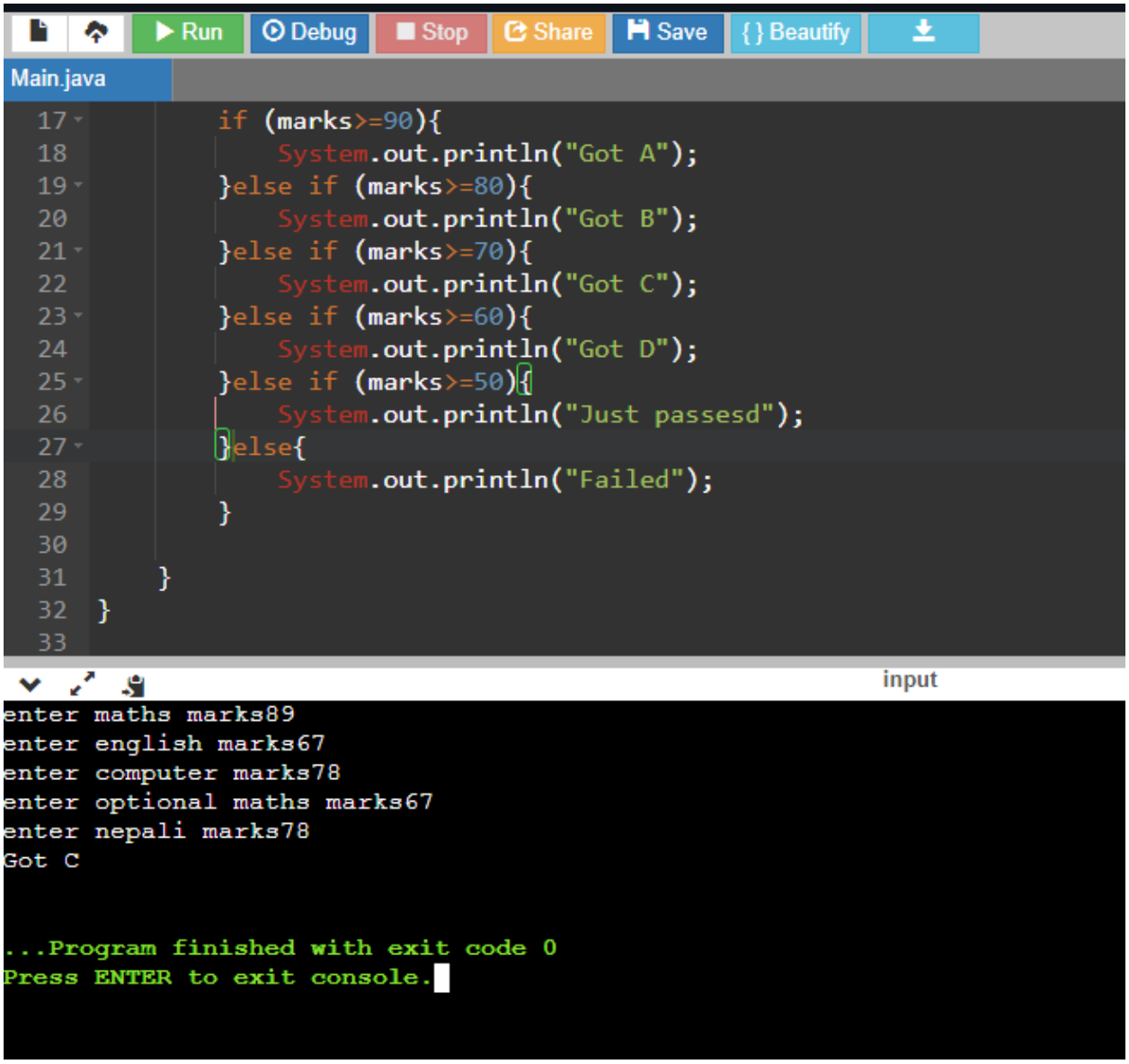
Main.java
1 import java.util.Scanner;
2 public class Main
3 {
4 public static void main(String[] args) {
5 Scanner sc= new Scanner(System.in);
6 System.out.print("enter maths marks");
7 int m= sc.nextInt();
8 System.out.print("enter english marks");
9 int e= sc.nextInt();
10 System.out.print("enter computer marks");
11 int c= sc.nextInt();
12 System.out.print("enter optional maths marks");
13 int opt= sc.nextInt();
14 System.out.print("enter nepali marks");
15 int n= sc.nextInt();
16 double marks=((m+e+c+opt+n)/5);
17 if (marks>=90){
input
enter maths marks89
enter english marks67
enter computer marks78
enter optional maths marks67
enter nepali marks78
Got C
...Program finished with exit code 0
Press ENTER to exit console.



5. Write a Java program that allows the user to enter two integer values and displays the results with the following arithmetic operators applied to them. For example, if the user enters the values 7 and 5, the output would be:

o Addition: 7 + 5 = 12

o Subtraction: 7 – 5 = 2

o Multiplication: 7 * 5 = 35

o Division: 7 / 5 = 1.40

o Modulus: 7 % 5 = 2

o Exponentiation: 7 ** 5 = 16,807

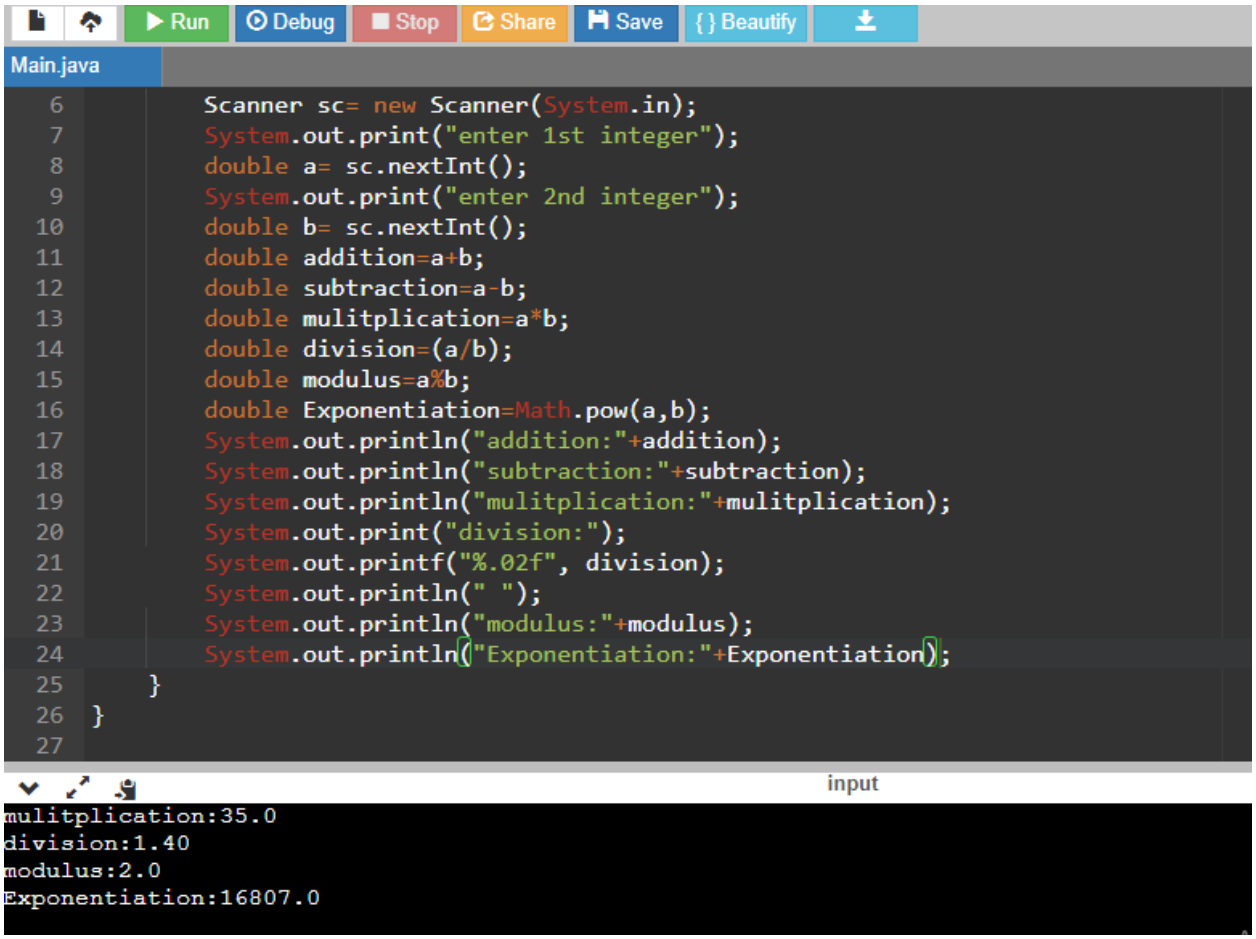
[All floating-point results should be displayed with two decimal places of accuracy and with commas where appropriate.]

Main.java

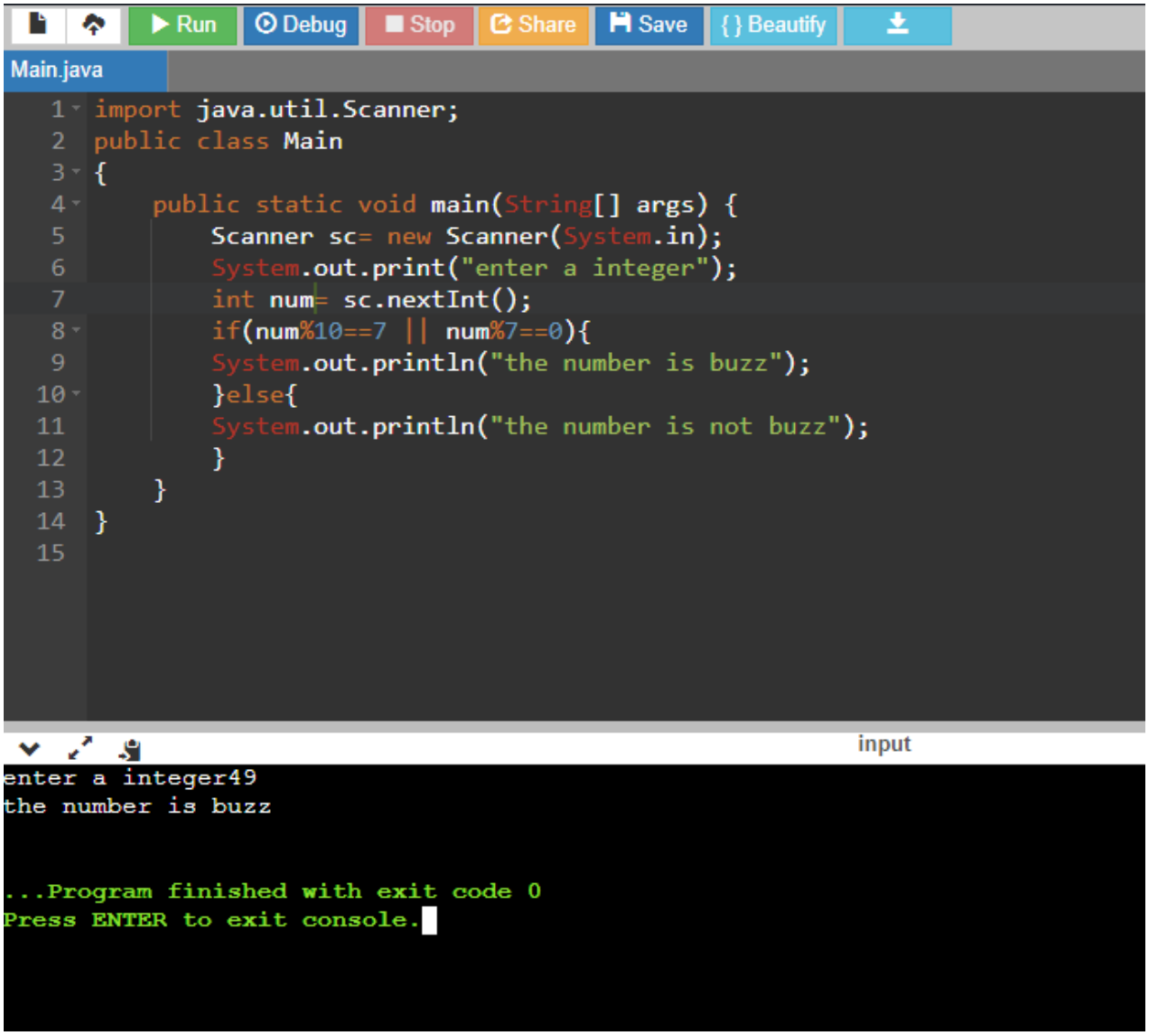
```
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.print("enter 1st integer");
        double a= sc.nextInt();
        System.out.print("enter 2nd integer");
        double b= sc.nextInt();
        double addition=a+b;
        double subtraction=a-b;
        double mulitplication=a*b;
        double division=(a/b);
        double modulus=a%b;
        double Exponentiation=Math.pow(a,b);
        System.out.println("addition:"+addition);
        System.out.println("subtraction:"+subtraction);
        System.out.println("mulitplication:"+mulitplication);
        System.out.print("division:");
        System.out.printf("%.02f", division);
        System.out.println(" ");
```

input

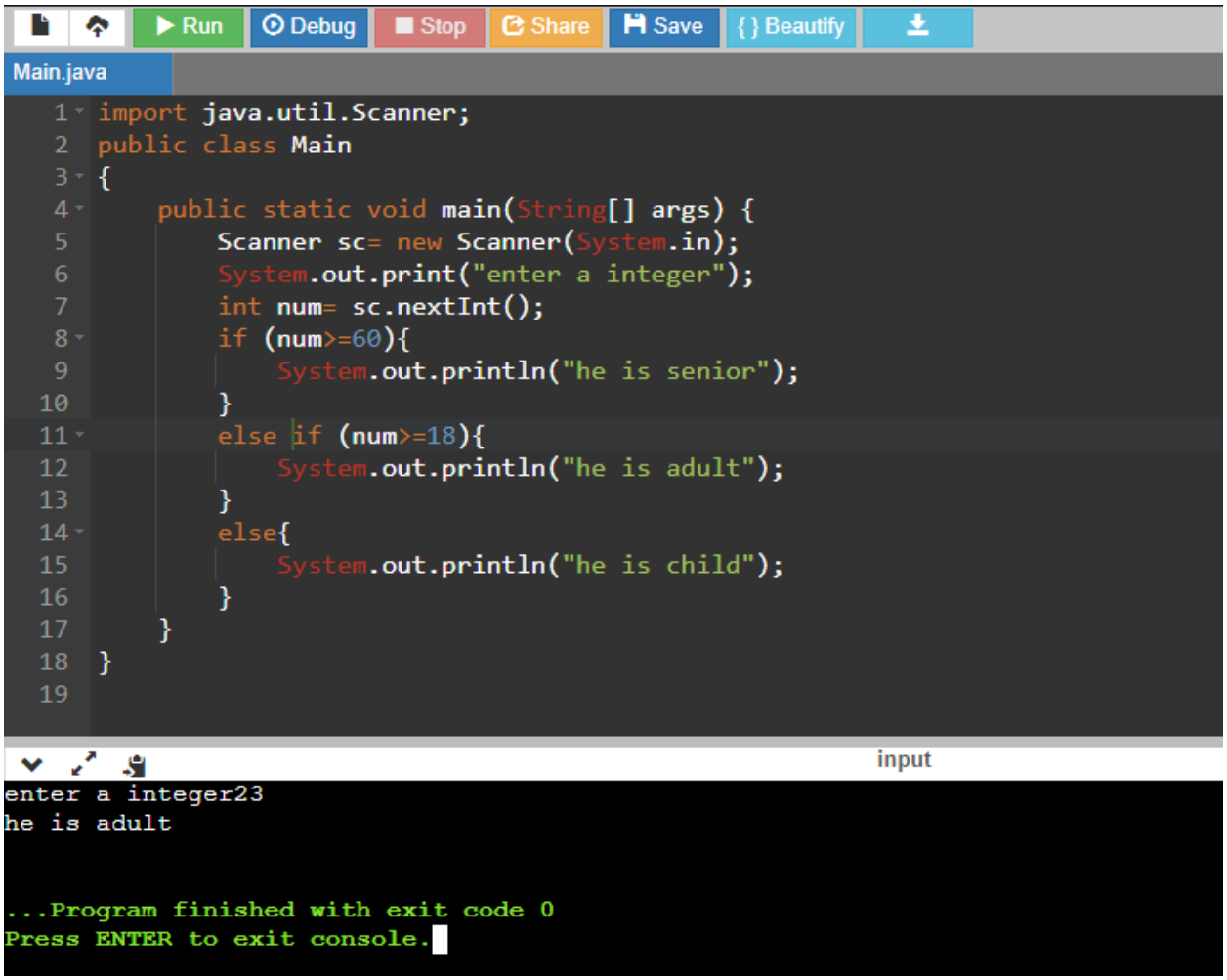
```
addition:12.0
subtraction:2.0
mulitplication:35.0
division:1.40
modulus:2.0
Exponentiation:16807.0
```



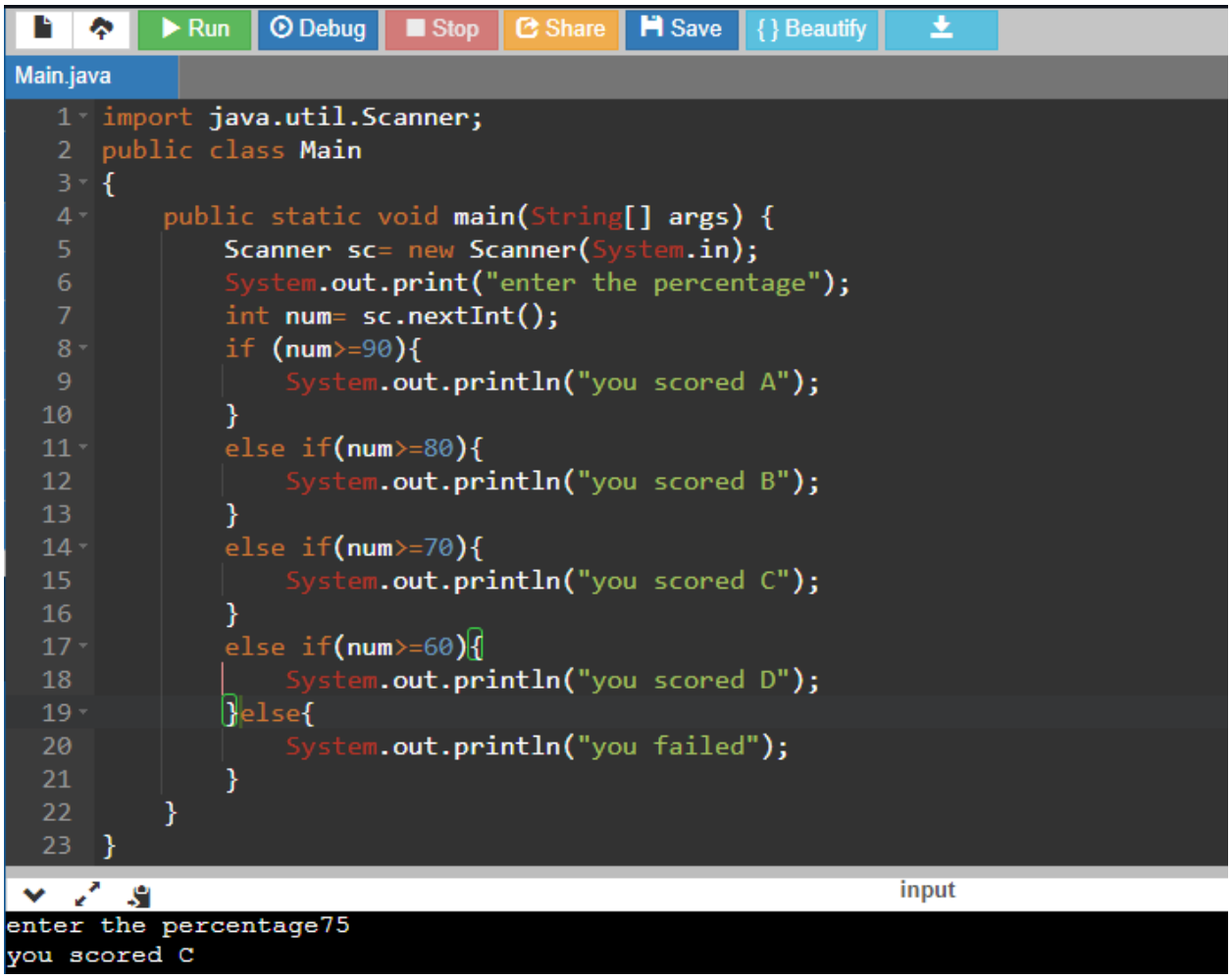
6. Let's create a java program to input a number and check whether it is a Buzz number or not. A number is said to be a buzz number when it ends with 7 or is divisible by 7.



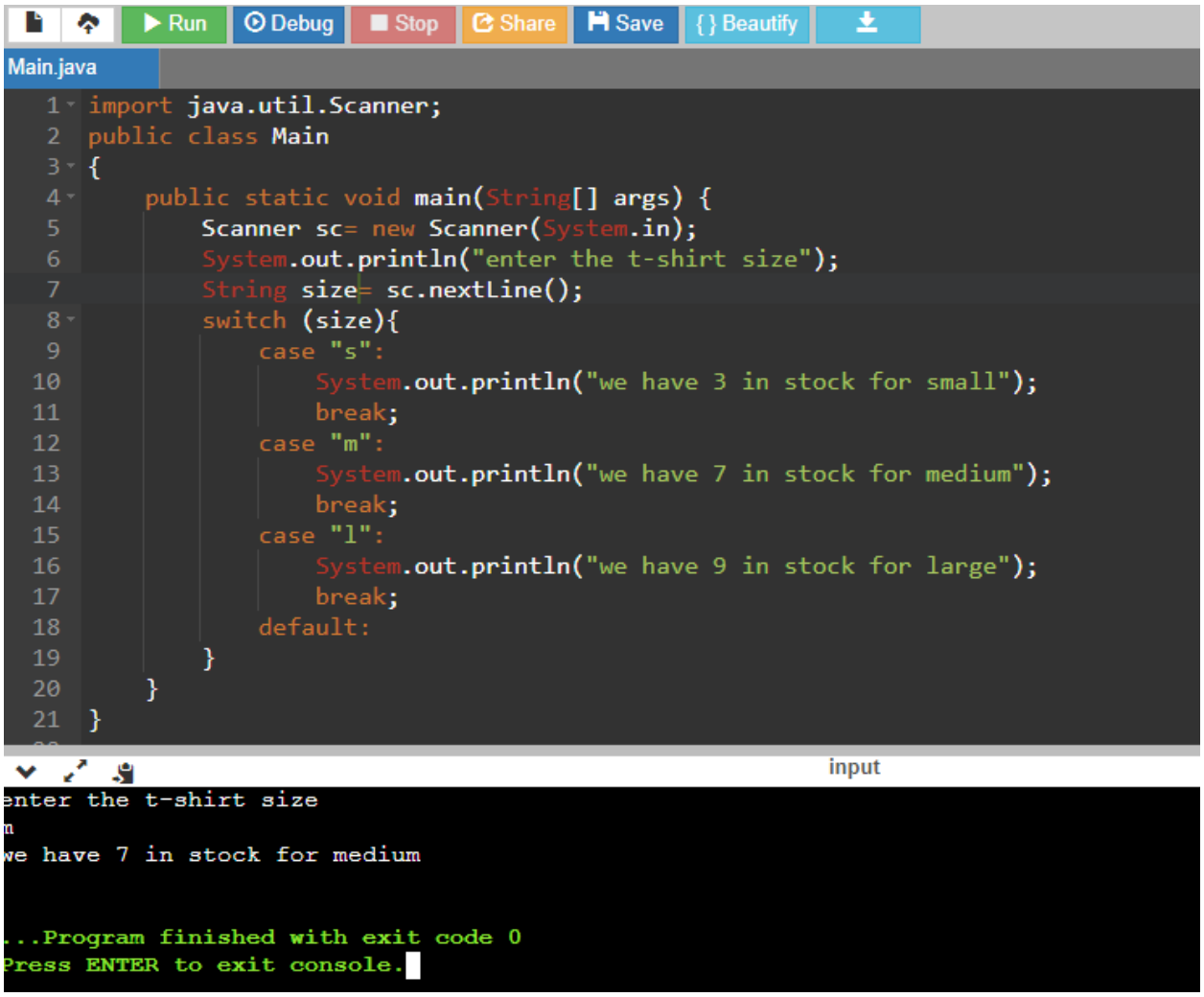
7. Let's take an example program where we will take the age of user as input and find whether he is a child, adult, or senior on the basis of age. Using Java if-else-if ladder statements.



8. Bruno Mars just appeared his examination and got 75%. He goes to his tutor and asks his grade. Now being a tutor you need to develop a program which tells his grade.



9. If a customer wants to take a t-shirt from your shop and he wants to buy a t-shirt and feeds in his/her size. Then print the availability as per their preference. [Using Switch Case Statement].



Group D

1. Let's create a printing application program where we will take the number of copies to be printed as input from the user and then prints the price per copy and the total price for the printing copies.

The chart price to print the number of copies is given below:

- 0 – 99 : $0.30 per copy
- 100 – 499 : $0.28 per copy
- 500 – 799 : $0.27 per copy
- 800 – 1000 : $0.26 per copy
- over 1000 : $0.25 per copy

Run | Debug | Stop | Share | Save | { } Beautify

Main.java

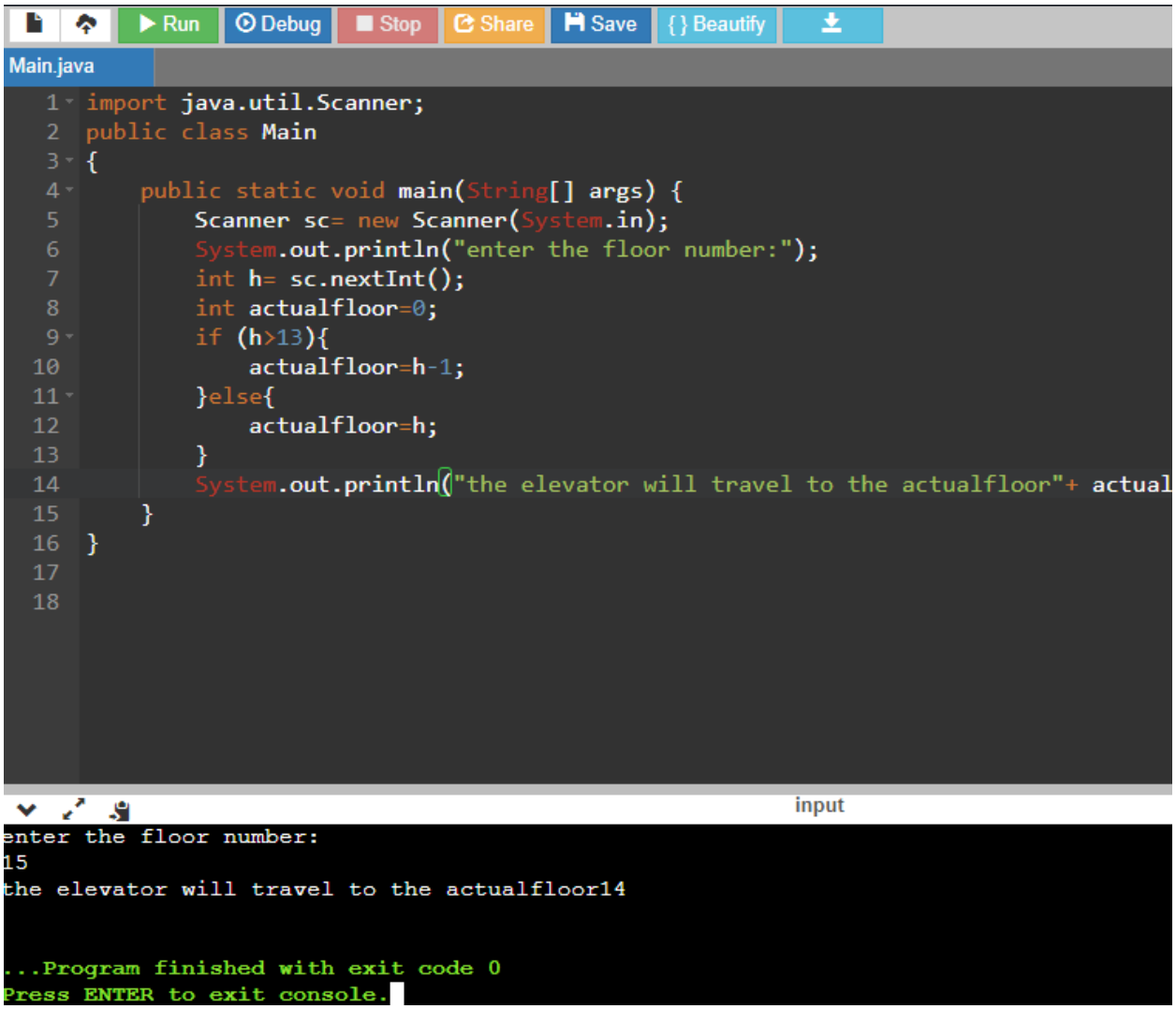
```java
import java.util.Scanner;
public class Main
{
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the number of copies to be printed");
        int h= sc.nextInt();
        if (h>=1000){
            System.out.println("the price per copy is $0.25");
            System.out.println("the total cost will be"+" "+(0.25*h));
        }
        if (h>=1000){
            System.out.println("the price per copy is $0.25");
            System.out.println("the total cost will be"+" "+(0.25*h));
        }
        else if (h>=800){
            System.out.println("the price per copy is $0.26");
            System.out.println("the total cost will be"+" "+(0.26*h));
        }
        else if (h>=500){
            System.out.println("the price per copy is $0.27");
            System.out.println("the total cost will be"+" "+(0.27*h));
        }
        else if (h>=100){
```

input

```
425
the price per copy is $0.28
the total cost will be 119.00000000000001


...Program finished with exit code 0
Press ENTER to exit console.
```

2. Follow the simulation of Floor example from lecture slide and develop a system where you need to ask user the floor number. Also determine whether the floor is actual floor or not.



3. [Scenario] You're waiting at a station and the announcer has just broadcast that your train is going to be 13445 seconds late. You need to work out in understandable terms what that means. You assume this is going to be quite a long time so you whip out your laptop to write a program to convert the seconds into hours, minutes and seconds, aiming to maximize readability by giving priority to the largest units, i.e. the resulting seconds and minute's values must not be greater than 60.

You will need four variables to hold: the total number of seconds; the number of hours; the number of minutes; and the number of remaining seconds. The example output should look something like

this:

13442 Seconds is: 3 Hours, 44 Minutes and 5 Seconds.