Southern Luzon State University
College of Engineering
Computer Engineering Department

CPE13 Object Oriented Programming

Activity 2: Control and Iterative Statements

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Section: BSCpE 3GF Score:_______________

1.1 Introduction

Control Statements alter the flow of the program. Instead of the usual execution of a program starting from top to bottom, it makes the program skip some codes. Iterative statements are control statements that save several lines of code and put them into a loop.

1.2 Objective

- To use Java programming language to create a program that exhibits control and iterative statements
- To conceptualize the process and manipulate the program
- To distinguish different control and iterative statements

1.3 Problem

Debug the program which prints the Floyd Triangle and finds its sum, product, and average.

The flow of the program:

1. Ask the user for the number of rows of the triangle to be printed.
2. Print the triangle and its corresponding sum, product, and average.

Output of the Program: (Rows = 7) Screenshot only

```
Number of rows:

1

2       3

4       5       6


Sum: 21

Product: 720

Average: 3
```

1.4 Follow up Questions:

1. How do you debug the program?

I debug the program by identifying first all the variables used and their function. Next, I check all the characters if it is in the right position. Last is to understand the condition included in the program

2. Do you easily determine the function of each line? Why or why not?

I can easily determine the function of each line because of the syntax. What it is and where it uses for. Also, I just followed the flow of each statement.

3. Which is more advisable to do to have an effective program, debugging another's program or Creating your own program? Why?

For me, it depends on the project or problem that I am going to solve and, on the syntax used in the program. In debugging, I already have the pattern and I just only need to understand the code and fix what is the error. Not like in creating a new program I will need first to create a design for the system, and then find a solution to the problem and check if it is working in all possible outcomes. There is something that needs to consider when creating own program. But the advantage is that I already know every code and whatever is an error in my code I can easily debug it.

4. How do you debug the code?

I debug the code by identifying the syntax how it works and what is the function of every variable included in a statement. Using the IDE of Eclipse I can easily identify where is the error in the code because the compiler itself highlighted the error. It also suggests what should the possible correction of that error. I try also to change some values to see some possible output of the program so that I understand the code.

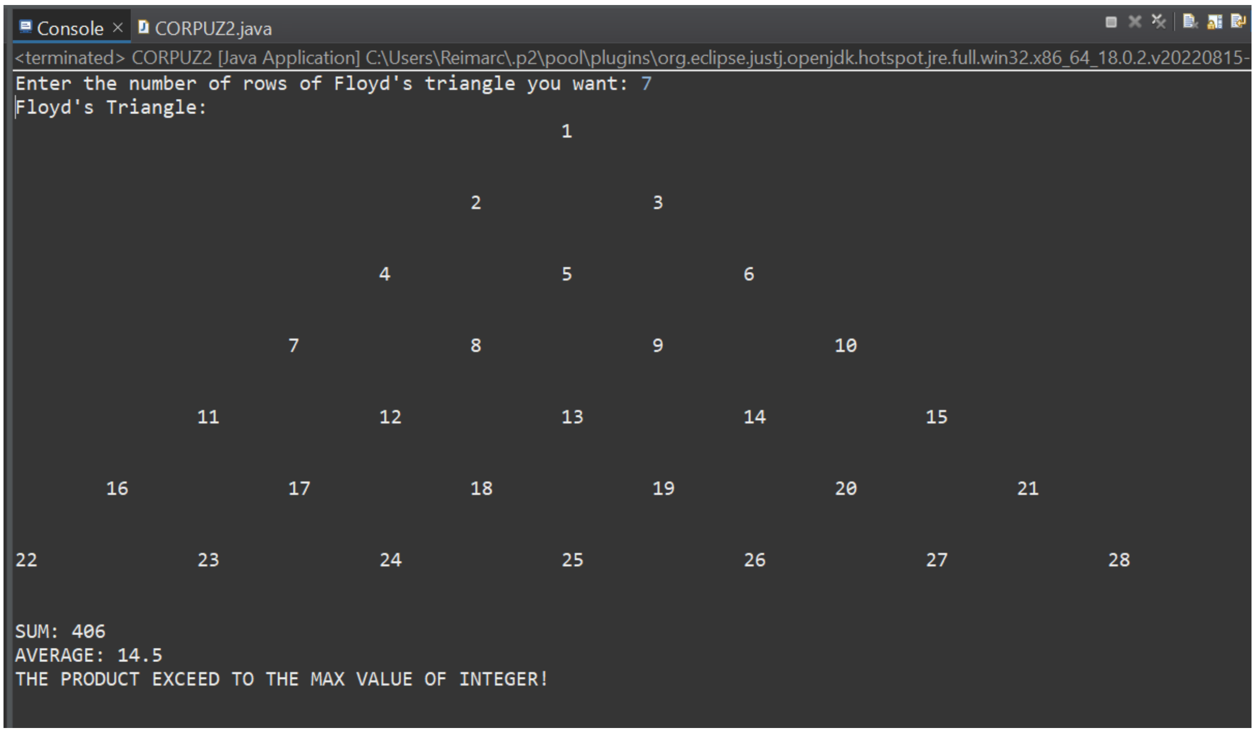
1.5 Conclusion

After debugging the program since you sir added some problems in the code like we need to make Floyd's triangle into a pyramid and get the sum, product, and average of increment numbers, and I added some codes to do what is assigned to the code. I concluded that creating or debugging a code depends on who made it. Because sir while I am debugging the code, I think that there is no specific solution for what is asked in the problem. Like on getting the product, I take 10 hours to find a solution, then I realize "+=" is the only missing part of what I am looking for. I tried many possible solutions but that's only what I need. So, I concluded that it is easy to locate the code if it is your own work, but it is also good for debugging when it comes to creating a system.

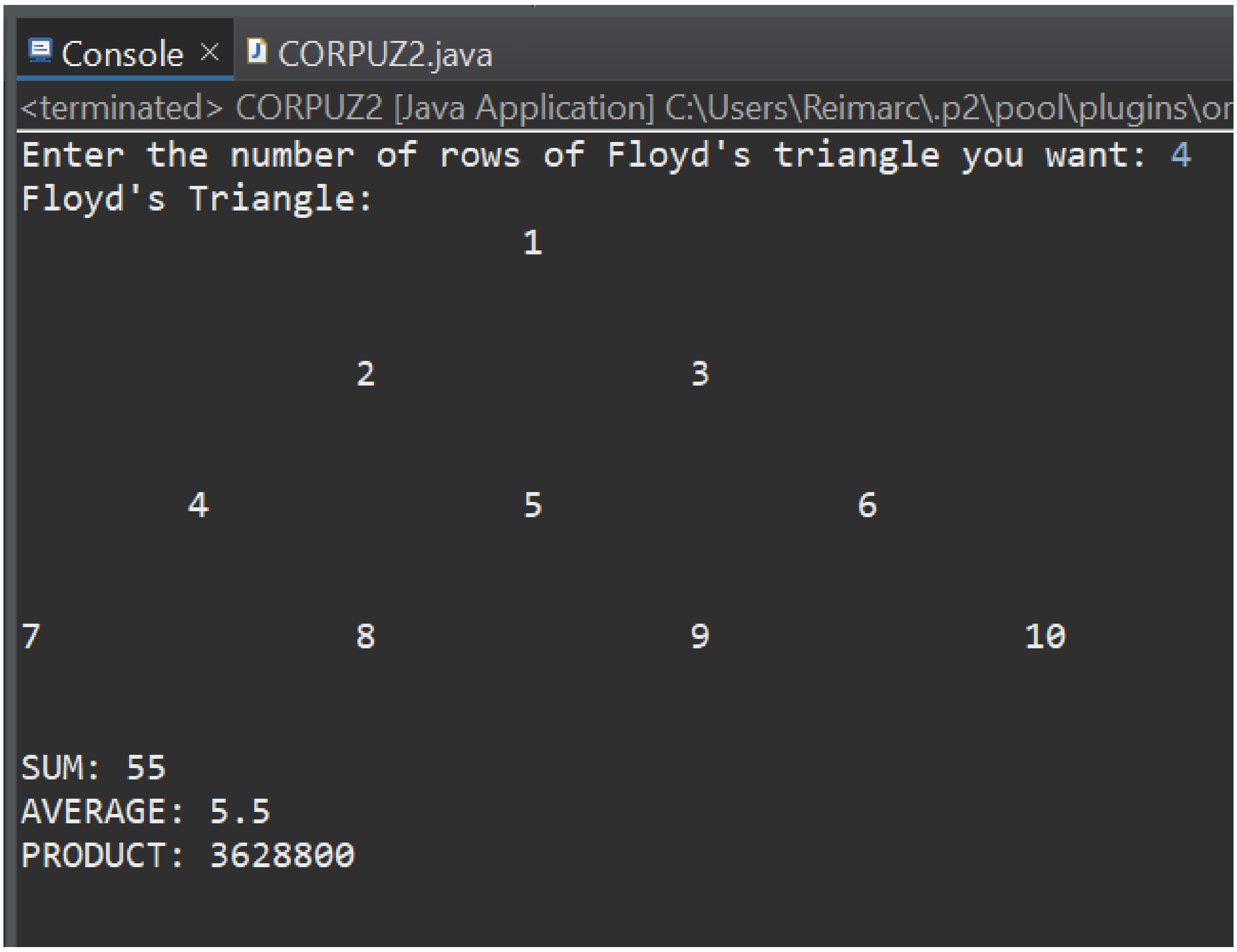
Code of the Program:

```
import java.util.Scanner;

class FTSAP{

        public static void main(String args[]){

        int input,row,Nprint;
        int output = 1, Sum, Product;
        double Average;

        Scanner input = new Scanner(System.in);

        System.out.print(“Enter the number of
rows of Floyd’s triangle you want”);
        input = in.nextInt();

        System. out.println(“Floyd’s Triangle: -“);

        for(row = 1; row <= input ; row ++){

        for(Nprint = 1; Nprint <= row; Nprint++){

        System.out.print(output+” “);
        output++;

        }

        System.out.println();
        }
    }
}
```

The output of the Program: (Rows = 7) Screenshot only



```
<terminated> CORPUZ2 [Java Application] C:\Users\Reimarc\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_18.0.2.v20220815-
Enter the number of rows of Floyd's triangle you want: 7
Floyd's Triangle:
                                                1


                                        2               3


                                4               5               6


                        7               8               9               10


                11              12              13              14              15


        16              17              18              19              20              21


22              23              24              25              26              27              28


SUM: 406
AVERAGE: 14.5
THE PRODUCT EXCEED TO THE MAX VALUE OF INTEGER!
```



```
<terminated> CORPUZ2 [Java Application] C:\Users\Reimarc\.p2\pool\plugins\or
Enter the number of rows of Floyd's triangle you want: 4
Floyd's Triangle:
                        1


                2               3


        4               5               6


7               8               9               10


SUM: 55
AVERAGE: 5.5
PRODUCT: 3628800
```

Debugged Codes:

```
import java.util.Scanner;
public class CORPUZ2 {

       public static void main(String args[]){

             Scanner input = new Scanner(System.in);

             int var_input, row, Nprint;
        int output = 1;
             int Sum = 0, Product = 1;
             double Average = 0;


             System.out.print("Enter the number of rows of Floyd's triangle you want: 
");

             var_input = input.nextInt();

             System.out.println("Floyd's Triangle: ");

             for (row = 0; row < var_input; row++)
             {
                    for (int space = var_input - row; space > 1; space--)
                    {
                          System.out.print("\t");
                    }
                    for (Nprint = 0; Nprint <= row; Nprint++)
                    {
                          System.out.print(output + "\t\t");
                          Product *= output;
                          output++;

                          Sum += output;
                          Average += output;
                    }
                    System.out.println();
                    System.out.println();
                    System.out.println();
             }

             output--;
             System.out.print("SUM: " + (Sum - output));
             System.out.println("\nAVERAGE: " + ((Average-output)/output));

             if (Product <= 2147483647&&Product >= 1)
             {
                    System.out.print("PRODUCT: " + Product);
             }
             else
             {
                    System.out.print("THE PRODUCT EXCEED TO THE MAX VALUE OF 
INTEGER!");
             }

             System.out.println();
             }

}
```