Lab Sheet 3 – Control Structures in Java

Try-outs

Try out the following sets of code-snippet. And observe the output/errors are generated.

a)

```
for(int i=0;i<15;i++);
System.out.print(i);
```

b)

```
int i;
for(i=0;i<15;i++);
System.out.print(i);
```

c)

```
int n=3;
 switch(n)
 {
 case 1:
     System.out.print("SUN");
 case 2:
     System.out.print("MON");
 case 3:
     System.out.print("TUE");
 case 4:
     System.out.print("WED");
 case 5:
     System.out.print("THUR");
 case 6:
     System.out.print("FRI");
 case 7:
     System.out.print("SAT");
 default:
     System.out.print("Error");
}
```

d)

```
int x = 25;//Try same for diiferent values of x
if (x > 10)
{
    if (x%2==0)
    System.out.println("i is greater than 10 and even number");
    else
    System.out.println("i is greater than 10 and odd number");
}
```

```
        else
        {
            System.out.println("i is less than 10");
        }
        System.out.println("After nested if statement");
    }
}
```

e)
```
int j = 1;
while (true)
     {
         System.out.println(j);
         j = j+2;
     }
```

f)
```
int j = 10;

        do
        {
            System.out.println(j);
            j = j+1;
        } while (j <= 10)
```

Main Questions

1. ***Calculate the sum of the digits of a 'n' digit number***".

2. Modify LS2.6 to display his/her grade based on the following rule for the final score calculated.
   a. Final score >= 90 – Grade O
   b. Final score >=80 and < 90 – Grade A+
   c. Final score >=70 and < 80 – Grade A
   d. Final score >=60 and < 70 – Grade B+
   e. Final score >=50 and < 60 – Grade B
   f. Final score >=45 and < 50 – Grade C
   g. Final score < 45 – Grade F

3. Write a program to reverse an 'n'-digit number. E.g.-Number : 132 Output : 231

4. Write a program to print all the even numbers between number1 and number2 in ascending order. (Read number1 and number2 as user input)

5. Write a program that reads a positive integer N from the user and displays the following patterns:
   a)
   1
   2 2
   3 3 3
   …
   NNN….N

   b)
   *
   **
   ***
   ….
   ****

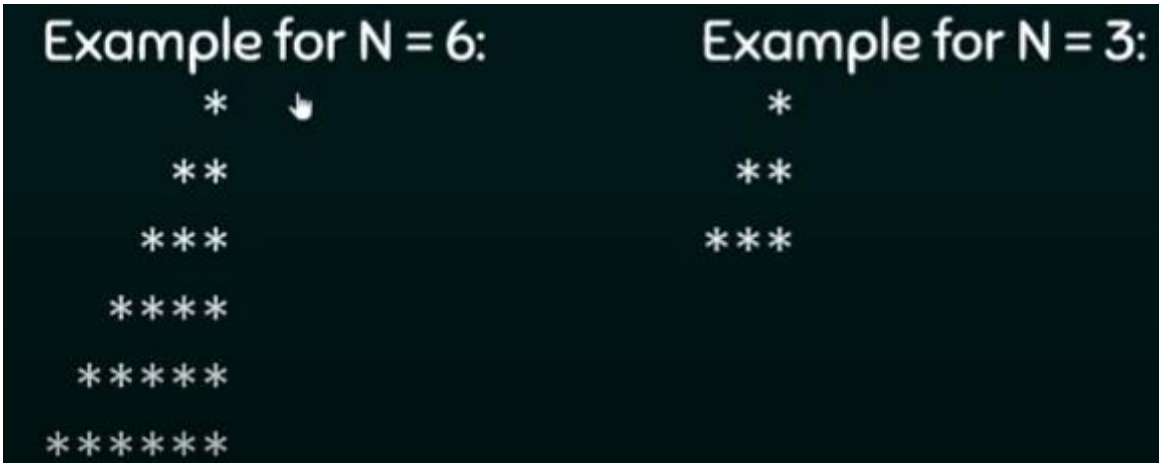
6. Write a program that displays the sum of the "strict divisors" of the given number. (Example : Input 6: Output: 6(1+2+3), Input:10 Output: 8(1+2+5)

7. Write a program to check whether the given number is Armstrong or not.

Advanced Question

1. Write a program that reads a sequence of integers from the user and stops by displaying 'DONE' when the sum of these values exceeds number1 (Read number1 also as user input).

2. Write a program to read a sequence of positive integers from the user. The program stops when the user enter a negative value and display the maximum and minimum among the entered numbers. (Example: Input: 6 12 4 98 -1 Output: Min 4 Max 98)
3. Write a program that reads a positive integer N from the user and display a pyramid of '*' as follows.



Practice from the online challenges

- https://www.hackerrank.com/challenges/java-loops-i/problem
- https://www.hackerrank.com/challenges/java-loops/problem
- https://www.codechef.com/problems/TALAZY
- https://www.codechef.com/problems/FLOW002