

## Tutorial 2

### 4COSC010C Software Development II

#### Exercise 1: Variables and operators.

Write a program in Java that reads 2 numbers (double) and prints the sum of the 2 numbers.

Notes:

- To read an input you will have to import Scanner first: `import java.util.Scanner`
- Use `input.nextDouble()` to read the input from the user (the two numbers)
- Remember that variables have a data type.

#### Exercise 2: Age.

Write a program in Java that asks the user to input a number. If the number entered is equal or larger than 18, the program should display "Over 18". If the number entered is lower than 18, the program should display "Under 18". If the number entered is lower than 0, the program should display an error message "The age entered is incorrect.". Try different inputs such as: -1, 0, 10, 18, 20.

#### Exercise 3: Temperature Check

Write a program to read in a temperature value, and if the temperature is above a certain value display 'Hot', otherwise display 'Cold'.

#### Exercise 4: Grading System

A school has following rules for grading system:

- Below 25 - F
- 25 to 45 - E
- 45 to 50 - D
- 50 to 60 - C
- 60 to 80 - B
- Above 80 - A

Ask the user to enter marks and print the corresponding grade.

### Exercise 05 : Day Counter

Use switch-case construct to calculate number of days in a month when you give month as the input. You are only allowed to call the switch only once for the whole calculation.

### Exercise 06 : Case Check

Write a program to check whether an entered character is lowercase ( a to z ) or uppercase ( A to Z ).

### Exercise 07: Output Prediction

1. Two programs are equivalent if given the same input they produce the same output. Which of the following programs are equivalent? Why?

```
// Program A
import
java.util.Scanner;
class TestPositive {
    public static void main(String [] args) {
        Scanner S = new Scanner(System.in);
        System.out.print("Enter a value: ");
        int x = S.nextInt();
        if (x > 0) {
            System.out.println("The value is positive:");
        }
        else
        {
            if (x < 0)
            {
                System.out.println("The value is negative:");
            }
            else
            {
                System.out.println("The value is zero:");
            }
        }
        System.out.println("Good Bye!");
    }
}
```

```
// Program B import
java.util.Scanner;
class TestPositive {
    public static void main(String [] args) {
        Scanner S = new Scanner(System.in);
        System.out.print("Enter a value: ");
        int x = S.nextInt();
        if (x > 0) {
            System.out.println("The value is positive:");
        }
        if (x < 0) {
            System.out.println("The value is negative:");
        }
        else {
            System.out.println("The value is zero:");
        }
        System.out.println("Good Bye!");
    }
}

// Program C import
java.util.Scanner;
class TestPositive {
    public static void main(String [] args) {
        Scanner S = new Scanner(System.in);
        System.out.print("Enter a value: ");
        int x = S.nextInt();
        if (x > 0) {
            System.out.println("The value is positive:");
        }
        if (x < 0) {
            System.out.println("The value is negative:");
        }
        if (x ==0) {
            System.out.println("The value is zero:");
        }
        System.out.println("Good Bye!");
    }
}
```

2. Guess the output. Explain the flow of the program.

```
int i = 1; i += ++i +  
i++ + ++i; int j = 1;  
j += ++j + j++ + ++j;  
int k = 1; k += k++ +  
k++ + ++k; int m = 1;  
  
System.out.println("i = " + i);  
System.out.println("j = " + j);  
System.out.println("k = " + k);
```

3. Which is right?

```
if ((age < 17 || > 150)) { //don't drive! }  
  
if ((age < 17 ) || (age > 150))  
  
{ //don't drive! }  
  
if ((age < 17 ) && (age > 150))  
  
{ //don't drive! }
```

### HackerRank: Interview questions.

Register in HackerRank (see lecture notes from week 1) and solve the following exercises:

- Java Stdin and Stdout II
- Java Loops 1&2
- Java Datatypes
- Java int to String