Tutorial 2

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

2. 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! }
```

3. A school has following rules for grading system:
   a. Below 25 - F
   b. 25 to 45 - E
   c. 45 to 50 - D
   d. 50 to 60 - C
   e. 60 to 80 - B
   f. Above 80 - A
   Ask the user to enter marks and print the corresponding grade.

4.

```
if
x = 2
y = 5
z = 0
```

   then find values of the following expressions:

```
a. x == 2
b. x != 5
c. x != 5 && y >= 5
d. z != 0 || x == 2
e. !(y < 10)
```

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

6. Rewrite in Java the following statement without using the NOT (!) operator:

```
item = !( (i<10) | | (v>=50) )
```

7. 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!");
 }
}
```

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

```
//program 1
public static void main(String [] args)
    {
        int x= 0;
        int y= 0;
        for (int i = 0; i < 5; i++)
        {
            if (( ++x > 2 ) && (++y > 2))
            {
                x++;
            }
        }
        System.out.println(x + " " + y);
    }
```

```
//program 2
public static void main(String [] args)
```

```
{
    int x= 0;
    int y= 0;
    for (int i = 0; i < 5; i++)
    {
        if (( ++x > 2 ) || (++y > 2))
        {
            x++;
        }
    }
 System.out.println("x= "+x+" y="+y);
```

9. Predict the output

```
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);
```

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