Tutorial 06

Conditional statement: if-then, if-else, switch

Exercise 1:

What is the output of each of the following code fragments? (given the declaration int a=1, b=2, c=3;):

A.
```
if (6 < 2 * 5)
```

B.
```
if ('a' > 'b' || 66 > (int)('A'))
```

C.
```
if (a < c)
```

D.
```
if(a<b)
```

E.
```
if(a>b)
```

F.
```
int x = 100; int y = 200;
```

G.
```
if (a < c)
```

H.
```
if(a<b){
```

I.
```
if(a>b)
```

J.
```
if(++a > b++ || a-- > 0)
```

Exercise 2:

A. Write the java statement that assigns 1 to x if y is greater than 0

B. Suppose that score is a variable of type double. Write the java statement that increases the score by 5 marks if score is between 80 and 90

C. Rewrite in Java the following statement without using the NOT (!) operator:
```
item = !( (i<10) | | (v>=50) )
```

D. Write a java statement that prints true if x is an odd number and positive

E. Write a java statement that prints true if both x and y are positive numbers

F. Write a java statement that prints true if x and y have the same sign (-/+)

Exercise 3

Two programs are equivalent if given the same input they produce the same output.

Which of the following programs are equivalent? Why?

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!");
  }
}
```

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!");
  }
}
```

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!”);
    }
}
```

Exercise 4

Convert the following switch statement into if-else statements then into if-then statements:

```
String dayString1, dayString2, dayString3;
int day = KB.nextInt();
switch (day) {
  case 1: dayString1 = "Saturday";
  case 2: dayString2 = "Sunday";
          break;
  case 3: dayString3 = "Monday";
          break;
  case 4: dayString1 = "Tuesday";
  case 5: dayString2 = "Wednesday";
          break;
  default: dayString3 = "Invalid day";
           break;
}
```