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WIX1002 Fundamentals of Programming
Tutorial 3 Flow of Control (Selection)

1. Write statements for each of the following
    a. Determine whether 3x8=27.

```
System.out.println(3*8==27? "True": "False");
```

    b. Determine whether an input integer is an odd number or even number.

```
Scanner scanner = new Scanner(System.in);

System.out.print("Please enter an integer: "); // Prompt
int number = scanner.nextInt();

if (number % 2 == 0){
   System.out.println("It is an even number.");
}else{
   System.out.println("It is an odd number.");
}

scanner.close();
```

    c. Determine whether a character is a capital letter.

```
Scanner scanner = new Scanner(System.in);

System.out.print("Please enter a character: ");
char letter = scanner.next().charAt(0);

if (Character.isUpperCase(letter)){
   System.out.println(letter + " is a capital letter");
}else{
   System.out.println(letter + " is not a capital letter");
}

scanner.close();
```

d. Display two strings in alphabetical order ignoring their case.

```
Scanner scanner = new Scanner(System.in);

System.out.print("Please enter the first sentence: ");
String s1 = scanner.nextLine();

System.out.print("Please enter the second sentence: ");
String s2 = scanner.nextLine();

if (s1.compareToIgnoreCase(s2) < 0){
   System.out.println(s1 + " " + s2);
}else{
   System.out.println(s2 + " " + s1);
}

scanner.close();
```

e. A switch statement that display Sunday, Monday, .., Saturday if the input is 0, 1, …, 6.

```
Scanner scanner = new Scanner(System.in);

System.out.print("Please enter a number from 1 to 6: ");
int number = scanner.nextInt();

switch(number){
   case 0:
      System.out.println("Sunday");
      break;
   case 1:
      System.out.println("Monday");
      break;
   case 2:
      System.out.println("Tuesday");
      break;
   case 3:
      System.out.println("Wednesday");
      break;
   case 4:
      System.out.println("Thursday");
      break;
   case 5:
      System.out.println("Friday");
      break;
   case 6:
      System.out.println("Saturday");
      break;
```

```
        default:
            System.out.println("This program accepts the numbers from 1 to 6 only!");
    }

    scanner.close();
```

2. Correct the error for the following statements.

    a.

```
if (num1 = num2)
    System.out.println("Number 1 is equal to number 2.");
```

```
if (num1 == num2)
System.out.println("Number 1 is equal to number 2.");
```

    b.

```
if (x > y > z)
    System.out.println("x is the largest number");
```

```
if ( (x > y) && (x > z) )
System.out.println("x is the largest number");
```

    c.

```
String s1, s2;
if (s1==s2)
    System.out.println("They are equal strings.");
else (s1!=s2)
    System.out.println("They are not equal strings.");
```

```
String s1, s2;
if (s1.compareTo(s2) == 0)
System.out.println("They are equal strings.");
else
System.out.println("They are not equal strings.");
```

    d.

```
if x>0 or y>0;
    System.out.println("Either x or y is positive");
```

```
if ((x>0) || (y>0))
System.out.println("Either x or y is positive");
```

3. Write the output for the following statements when x=9 and y=10

a.

```
if (x < 10)
if (y > 10)
System.out.println("*****");
else
System.out.println("#####");
System.out.println("$$$$$");
```

Output:
#####
$$$$$

b.

```
if (x < 10) {
if (y < 10)
System.out.println("*****");
else{
System.out.println("#####");
System.out.println("$$$$$");
}}
```

Output:
#####
$$$$$

c.

```
if (x < 10) {
if (y < 10)
System.out.println("*****");
System.out.println("#####");
}
else {
System.out.println("$$$$$");
}
```

Output:
#####

d.

```
if (x > 10) {
if (y > 10) {
System.out.println("*****");
System.out.println("#####"); }
else
System.out.println("$$$$$");
}
```

Output:

No output because the condition x > 10 is not satisfied.

4. Write the java statements that used the if statement to find the biggest number among three given integers.

```
import java.util.Scanner;
public class T3Q4 {
   public static void main(String[] args) {

      Scanner scanner = new Scanner(System.in);

      System.out.print("Please enter the first number: ");
      int number1 = scanner.nextInt();

      System.out.print("Please enter the second number: ");
      int number2 = scanner.nextInt();

      System.out.print("Please enter the third number: ");
      int number3 = scanner.nextInt();

      if ((number1 >= number2) && (number1 >= number3)) {
         System.out.println("The biggest number among three given integers is: " +
number1);
      }else if ((number2 >= number1) && (number2 >= number3)){
         System.out.println("The biggest number among three given integers is: " +
number2);
      }else{
         System.out.println("The biggest number among three given integers is: " +
number3);
      }

      scanner.close();
   }

}
```

5. Write the java statements that determine whether the Leap year. A Leap year is divisible by 4 but not by 100. However, a Leap year is also divisible by 400.

```
import java.util.Scanner;
public class T3Q5 {
   public static void main(String[] args) {

      Scanner scanner = new Scanner(System.in);

      System.out.print("Please enter a year: ");
      int year = scanner.nextInt();

      if(((year % 4 == 0) && (year % 100 != 0)) || (year % 400 == 0)){
         System.out.println(year + " is  a Leap year");
      }else{
         System.out.println(year + " is not a Leap year");
      }

      scanner.close();
   }

}
```