Week 7 Lab Assignments

- **Self - Test: What is the output of a and b code blocks:**

  -
    ```
    i = 11;
    while(i <= 10)
    {
            System.out.print( i + " ");
            i = i + 5;
    }

    System.out.println();
    ```

    Does not output as 11 is larger that 10

  -
    ```
    i = 11;
    do
    {
            System.out.print( i + " ");
            i = i + 5;

    }while(i <= 10);

    System.out.println();
    ```

    outsputs 11 after the do System.out.prin(i+" ") and i = 11

- **Self-Test State what output, if any, results in each of the**

following statements:

- for(i =1; i <= 1; i++)

  ```
      System.out.print(“*”);
  System.out.println();
  ```

  outputs *

- for(i =2; i >= 1; i++)

  ```
      System.out.print(“*”);
  System.out.println();
  ```

  outputs infinate loop

- for(i =1; i <= 1; i--)

  ```
      System.out.print(“*”);
  System.out.println();
  ```

  outputs infinate loop

- for(i =12; i >= 9; i--)

  ```
      System.out.print(“*”);
  System.out.println();
  ```

  outputs ** (count 9, 10, 11, 12) count 9 as >=**

- for(i =0; i <= 5; i++)

  ```
      System.out.print(“*”);
  System.out.println();
  ```

  outputs **** (count 0, 1, 2, 3, 4, 5)**

- for(i =1; i <= 5; i++)

  ```
  {
      System.out.print(“*”);
      i = i + 1;
  ```

```
 }
System.out.println();
```

outputs * (counts half as prev for loop as i = i + 1 so as counting it adds 1 each loops cutting in half the amount of times it loops**

- **Self-Test: What is the exact output of the following program:**

```
public class Mystery
{
        public static void main(String[] args)
        {
                int counter;
                for(counter = 7; counter <= 16; counter++)
                        switch(counter % 10)
                        {
                                case 0: System.out.print(“,  “);
                                         break;
                                case 1: System.out.print(“OFTEN  “);
                                         break;
                                case 2:
                                case 8: System.out.print(“IS  “);
                                         break;
                                case 3: System.out.print(“NOT  “);
                                         break;
                                case 4:
                                case 9: System.out.print(“DONE  “);
                                         break;
                                case 5: System.out.print(“WELL  “);
```

```
                    break;
                case 6: System.out.print(" . ");
                    break;
                case 7: System.out.print("WHAT  ");
                    break;
                default: System.out.print("Bad number. ");
            }

            System.out.println();
        }
    }
```

outputs WHAT IS DONE , OFTEN IS NOT DONE WELL .

- **Self-Test:** Which of the following apply to **While loop only**? To the **Do...While loop only**? **To both**?

  - It is considered a conditional loop. **both**
  - The body of the loop executes at least once. **Do...While**
  - The logical expression controlling the loop is evaluated before the loop is entered. **While loop**
  - The body of the loop might not execute at all. **While loop**

- **Self-Test:** The do....while loop in the following program is intended to read some numbers until it reaches a sentinel (in this case, -1). It is supposed to add all of the numbers except for the sentinel. If the data looks like:

  12 5 30 48 -1

  The program fails to work as intended. Make any necessary corrections to the

  following code:

```
import java.util.*;

public class Strange
{
        static Scanner console = new Scanner(System.in);

        public static void main(String[] args)
        {
                int total = 0;
                int number;

                do
                {
                        number = console.nextInt();
                        total = total + number;
                }while(number != -1);

                System.out.println("The sum of the numbers entered is: " +
total);
        }
}
```

scanner should be created within main method

- **Self-Test:** Given the following program segment:

```
for(number = 1; number <= 10; number++)
        System.out.print(number + " ");
System.out.println();
```

Write a **while loop** and a **do...while loop** that have the same output.

```
while(number != 11){
   System.out.print(number + " ");
   number += 1;
}
System.out.println();

do{
   System.out.print(number + " ");
   number += 1;
}while(number != 11);
System.out.println();
```

- Write a Java program containing three methods, Main method, a Larger method to compare the entered values and return which value is larger and a third method CompareThree, which will compare three values and return the larger of the three. Make sure within the CompareThree method you are calling the larger method, do not repeat the code.

HINT: you can place a method call inside of another method call.

First pass two hard coded values in larger method and compare which one is larger, display the result. Then let the user enter in two values, pass in the user inputted values to larger method and compare which one is the larger, display the value. Then hard code three values, call the compareThree method, pass in the hard-coded values, compare which one is the larger value and display the result.

MUST create main() method, larger(with two parameters), and compareThree(with three parameters) – within the compareThree method, call larger() and compare the value, use the HINT given.
DO NOT rewrite the same code you have in larger in the compareThree() method.

IPO chart, algorithm, code and comments required for full credit.

Expected Results:

```
The larger of 5.6 and 10.8 is 10.8

Enter two numbers: 34 43
The larger of 34.0 and 43.0 is 43.0

The larger of 23.5, 34.6 and 12 is 34.6
```

- **Self - Test: Consider the following methods:**

```
public static int secret (int x)
{
        int i, j;
        i = 2 * x;

        if(i > 10)
                j = x/2;
        else
                j = x/3;

        return j – 1;
}

public static int another (int a, int b)
{
        int i, j;
        j = 0;

        for(i  = a; i <= b; i++)
                j = j + 1;

        return j;
}
```

What is the output of each of the following program segments?

- x =10;

  System.out.println(secret(x));

  4

- x =5; y =8;

  System.out.println(another(x, y));

  4

- x =10; k = secret(x);

  System.out.println(x + " " + k + " " + another(x, k));

  10 4 0

- x =5; y =8;

  System.out.println(another(y, x));

  0

- **In the program fragment shown below, identify the following items: method heading, method body, method definition, formal parameters, actual parameters, method call, and local variables.**

  View the attached .java file for this portion, using the line numbers to state each part of the method.

  SelfTestExMethodInfo