CSC 1051 - Lab 4

Objectives:
Practice using algorithms and programs with while loops.

Assignment:
1. What gets printed? Please show output as it will appear or indicate “NO OUTPUT” or show some of the output followed by “INFINITE LOOP.”

```java
int a = 0;
while (a<10)
    System.out.println(a);
a++;
```

```java
int a = 0;
while (a<10)
{
    System.out.println(a);
a++;
}
```

```java
int a = 0;
while (a<10)
{
    a++;
    System.out.println(a);
}
```
int a = 1;
while (a<=10)
{
    System.out.println(a);
a++;
}

int a = 10;
while (a<10)
{
    System.out.println(a);
a++;
}

int a = 10;
while (a>0)
{
    System.out.println(a);
a--;
}

int a = 10;
while (a>0)
{
    System.out.println(a);
a = a - 2;
}

int a = 10;
while (a!=0)
{
    System.out.println(a);
a = a - 2;
}
int a = 10;
while (a!=0)
{
    System.out.println(a);
    a = a - 3;
}

double a = 1;
while (a!=0)
{
    System.out.println(a);
    a = a - 0.2;
}

int a = 1;
while (a <= 10)
{
    if ((a%2)==0)
        System.out.println(a);
    a++
}

int a = 1;
while (a <= 10)
{
    System.out.println(2*a);
    a++
}
int a = 1, b;

while (a <= 4)
{
    b = 1;
    while (b <= 3)
    {
        System.out.println(a + " " + b);
        b++;
    }
    a++;
}

int a = 1, b;

while (a <= 4)
{
    b = a;
    while (b <= 3)
    {
        System.out.println(a + " " + b);
        b++;
    }
    a++;
}

int a = 1, b;

while (a <= 4)
{
    b = a;
    while (b <= 3)
    {
        System.out.println(" " + b);
        b++;
    }
    a++;
    System.out.println();
}

2. Create an application to test the above loop constructs. You can collaborate on this with a classmate. Be sure that at least one of you has checked each one of the answers above (initial each answer after it is checked). Try to also answer any “what if” questions that occur to you as you go through this exercise (for example, other ways to write these loops).
3. (a) Write an algorithm for computing the wages of 10 employees, based on the hours worked. Assume you would like to model the calculation of wages on the program Wages.java that we studied in class. (http://www.csc.villanova.edu/~map/1051/Chap05/Wages.java) So, the purpose of this algorithm is to repeat that calculation 10 times, using a loop.

(b) Implement your algorithm. Demonstrate your work: ____________________________________________

4. Write an algorithm for finding the maximum of a list of 10 numbers, input through the keyboard.

(b) Implement your algorithm. Demonstrate your work: ____________________________________________

5. (Optional) Rewrite the algorithm so that it also finds the minimum, the sum, and the average of the numbers.