**Name**

**Advanced Programming in Java**

**Lab Exercise 9/14/2023**

Reference: Lesson 12 in Blue Pelican Java

1. Show the basic skeleton of a *while* loop.

2. Show the basic skeleton of a *do-while* loop.

3. Implement the following for-loop as a *while* loop.

int m;

for (m = 97; m <= 195; m++)

{

k = k \* k + 3 \* m;

p = p + m +1;

}

4. Implement the following *for* loop as a *do-while* loop.

for (int v = 2; v <= 195; v\*=3)

{

k = k \* k + 3 \* v;

q = Math.sqrt(q + v +1);

}

5. What is the loop control expression in the code segment below?

while (!done)

{

if (i < 1)

{

done = true;

}

i--;

}

6. What is the error in the code segment below?

do;

{

if (i < 1)

{

done = true;

}

i--;

}while (!done);

7. How many times will the loop below iterate?

int j = 0;

while(j < 50)

{

System.out.println(“Hello World!”);

}

8. How many times will the loop below iterate?

int j = 25;

while (j <= 100 | | j >= 25)

{

System.out.println(“Temp variable =” + j);

j++;

}

9. Identify the error(s) in the code below:

j = 155

while (!done)

{

if (j <= 25)

done = true;

j = j – 5;

};

10. What will be the output of the following code:

int i = 0, j = 0;

while(i <= 3)

{

for(j = 0; j <=2; j++)

{

System.out.print(i + “,” + j + “ ”);

}

i++;

}

11. What command would you use if something unusual happens in one of your loops and you wish to exit prematurely (even before the control expression says you can)?

12. What loop structure would you use if you want to guarantee that a test condition of the control expression be tested **before** the block of code inside the loop could execute?

13. What is printed when the following code runs?

double m = 92.801;

int j = 0;

do

{

j = j + 2;

if (j > -100)

continue;

m+=3;

}while(j < 6);

System.out.println(m);

**Exercise 1**

Write a program that will prompt the user to enter an integer. The program should square the number and then print the squared number. Repeat this process until 0 is entered as input. Use a while-loop to do this.

**Exercise 2**

Repeat exercise 2 using a do – while loop.

**Exercise 3**

Write a program that adds up integers that the user enters. First the programs asks how many numbers will be added up. Then the program prompts the user for each number. Finally it prints the sum.

How many integers will be added:

5

Enter an integer:

3

Enter an integer:

4

Enter an integer:

-4

Enter an integer:

-3

Enter an integer:

7

The sum is 7

Be careful not to add the number of integers (in the example, 5) into the sum.

**Exercise 4**

Write a program that computes the following sum:

sum = 1.0/1 + 1.0/2 + 1.0/3 + 1.0/4 + 1.0/5 + .... + 1.0/N

N is an integer limit that the user enters.

Enter N

4

Sum is: 2.08333333333

**When you have completed these 4 programs, submit your source code as well as this sheet with questions answered.**