**Name**

**Advanced Programming in Java**

**Lab Exercise 10/19/2023**

**Lesson 31 – The StringBuffer Class**

1. Write code to create a *StringBuffer* and store “Hello” in it. Then convert it to a *String* and print.

Use this code in the following problems: (Assume that any changes you make to *sb* in a

problem do not affect any future problems.)

StringBuffer sb = new StringBuffer( );

sb.append(“Humpty Dumpty sat on a wall.”);

2. What is the value of *str*?

String str = sb.substring(3, 8);

3. What is the value of *str*?

String str = sb.substring(3);

4. Write code to printout the contents of the buffer after the following code executes. What will be printed?

sb.append(‘K’);

5. What is the output?

StringBuffer sss = new StringBuffer( );

sss.append("Hello");

sb.append(sss);

String s = sb.toString( );

System.out.println(s);

6. What is the value of *len*?

int len = sb.length( );

7. What is the output?

System.out.println( sb.charAt(4) );

8. What is output?

sb.setCharAt(7,'C');

String s = sb.toString( );

System.out.println(s);

9. What is output?

sb.delete(7,9);

String s = sb.toString( );

System.out.println(s);

10. What is output?

sb.deleteCharAt(9);

String s = sb.toString( );

System.out.println(s);

11. What is output?

sb.insert(0, ‘B’);

String s = sb.toString( );

System.out.println(s);

12. What is output?

sb.insert(1, “xxx”);

String s = sb.toString( );

System.out.println(s);

**Project… Concatenations Gone Wild**

Supply code for the *cat* method in the class below. Use ordinary *String* concatenation to

implement this method, then rewrite *cat* using a *StringBuffer* object.

public class Tester

{

public static void main(String args[]) {

String t1 = cat(68, 108);

System.out.println(t1);

String t2 = cat(35, 59);

System.out.println(t2);

}

}

//Enter this method with a starting ASCII code(start) and an ending ASCII code(end).

//Return a String that is the concatenation of all the characters represented

//by the continuous range of ASCII codes, start through end.

private static String cat(int start, int end)

{

//enter code here

}

}

The output should appear as follows:

DEFGHIJKLMNOPQRSTUVWXYZ[\]^\_`abcdefghijkl

#$%&'()\*+,-./0123456789:;

**Project…Chaos**

“Chaos Theory” is a subfield of mathematics that relies heavily on the computer. A simple chaos experiment is:

Start with any real number x between 0 and 1. Generate a new number using the “logistic equation”:



Display the new x and repeat the process 50 times.

1. Create a Chaos application that prompts the user for a starting value (between 0 and 1) and then performs this experiment.
2. Modify the application so that the 2 in the logistic equation can be replaced by the user in the range of integers 2 to 4 inclusive, but the starting value for x is always 0.5.

**Project…Function Table**

Write and test a method that returns the value of f(x), where



Assume the method has a signature of:

public static double f(double x);

Your program should generate a table that display f(x) for all integer values of x from -10 to 10 inclusive.