**Name**

**Advanced Programming in Java**

**Lab Exercise 9/8/2023**

Read Lesson 8 in Blue Pelican.

In problems1 – 5 assume the following:

int z = 23, x = -109;

double c = 2345.19, v = 157.03;

boolean a = false, s = true;

1. boolean gus = (x > 0) && (c = = v);

System.out.println(!gus);

2. System.out.println(a | | s);

3. System.out.println( ( (-1 \* x) > 0) && !a );

4. boolean r = z = =x;

System.out.println( r | | false );

5. System.out.println( z!=x );

6. Fill in the following charts.

**a b (!a && b) a b (a | | !b)**

false false false false

false true false true

true false true false

true true true true

7. Assume *b*, *p*, and *q* are *boolean*s. Write code that will assign to *b*the result of **ANDing**

*p*and *q*.

8. Assign to the *boolean* variable *w* the result of **OR-ing**the following two things:

A test to see if *x* is positive: A test to see if *y* equals *z*:

9. What are the two possible values of a *boolean* variable?

10. Write a test that will return a true if *a* is not equal to *b*. Assume *a* and *b* are integers.

Store the result in *boolean kDog*.

11. Write the answer to #10 another way.

12. What is the Java operator for boolean **AND-ing**?

13. What is the Java operator for boolean **OR-ing**?

14. System.out.println( (true && false) | | ( (true && true) | | false ) );

15. System.out.println(true && true || false);

16. System.out.println(true || true && false);

17. System.out.println(false || true && false);

18. System.out.println(false && true || false);

**Programming Assignments**

**Applets without HTML**

In this exercise you will learn how to write an applet that runs “standalone”.

Type in the following and execute this standalone “Hello World” applet.

import java.applet.Applet;

import java.awt.\*;

import java.awt.event.\*;

public class HelloSA extends Applet

{

public void paint(Graphics screen)

{

screen.drawString("Hello World,50,25);

}//end paint()

//Provide a main method that can be used to run the

// applet in a standalone mode.

public static void main(String[] args)

{

//Create a Frame for the applet to run in

Frame myFrame = new Frame("Applet in Standalone Mode");

myFrame.setSize(300,100);

//Instantiate a HelloSA applet object.

Applet myApplet = new HelloSA();

//Add the applet object to the Frame object

myFrame.add(myApplet);

//Make the whole thing visible

myFrame.setVisible(true);

//This code will terminate the program when the

// user clicks the close button on the Frame

myFrame.addWindowListener(new WindowAdapter()

{

public void windowClosing(WindowEvent e)

{

System.exit(0);

}

});

}//end of main

} //End HelloSA class.

1. Once your program is running, modify it to allow the user to specify what is “painted” to the window.

2. Write a standalone applet that asks the user to input the radius of a circle as a floating point number and draws (using the drawstring method in paint) the circle’s diameter, circumference, and area. Use the predefined constant Math.PI for the value of π. Use the following formulas (r is the radius).



Convert the string user input to a floating point number using Double.parseDouble() method. The class Math is defined in the java.lang package so you do not need to import it.

3. The Graphics class contains a drawOval method that takes the same four arguments as the drawRect method. Write a Java standalone applet that draws an oval and a rectangle using the same four arguments. You will see the oval touches the rectangle at the center of each side. Your figure should look like this:

Submit a copy of this document with answers as well as your source code.