Lab Session #9

Part 1: Theory

1. For the following snippets of code, write down if the statement is valid or if it requires casting to compile with no errors and what the value of the variable will be. If casting is needed, rewrite the statement using the cast operator  
     
   Suppose further that you have the following variables declared and assigned values.  
     
   double x;  
   int y;  
   1. long z = x;
   2. long z = y;
   3. double c = x/y;
   4. int c = x/y;
   5. double b = 5/4;
   6. double b = (double) 5/4;
   7. int b = (int) 3\*2.5;
   8. int b = 3\*(int) 2.5;
   9. double a = (double)((int)3.0/(int)4.0);
   10. int a = Math.pow(3,2);
   11. int a = Math.pow(3.5,2);
   12. int a = (int) Math.sqrt(4);
2. In the code below, what variables are *in scope* at the part of code labelled SPOT A, B, C, and D? (Answer for each labelled spot separately)

public class Methods {

public static void main(String[] args) {

// SPOT A

int x = 0;

int y = 2;

/// SPOT B

foo(x);

int r = 3;

// SPOT D

}

public static void foo(int p) {

int z = 3;

// SPOT C

}

}

1. In the above code, would we be allowed to declare a variable called *x* at SPOT C ? Why or why not?

1. In the above code, what is *String[] args*?
2. Consider the following code: What will print? After you have come up with an answer, check your answer by putting it into the computer and running the program. Make sure you understand *why* the results are what they are.  
     
   public class Methods {

public static void main(String[] args) {

int x = 0;

System.out.println(x);

confusing(x);

System.out.println(x);

}

public static void confusing(int y) {

System.out.println(y);

y = y + 1;

System.out.println(y);

}

}

1. Consider the following code: What will print? After you have come up with an answer, check your answer by putting it into the computer and running the program. Make sure you understand *why* the results are what they are.  
     
   public class Methods {

public static void main(String[] args) {

int x = 0;

System.out.println(x);

confusing(x);

System.out.println(x);

}

public static void confusing(int x) {

System.out.println(x);

x = x + 1;

System.out.println(x);

}

}

1. Consider the following code: What will print? After you have come up with an answer, check your answer by putting it into the computer and running the program. Make sure you understand *why* the results are what they are.  
     
   public class Methods {

public static void main(String[] args) {

int x = 0;

int y = 1;

confusing(y,x);

}

public static void confusing(int x, int y) {

System.out.println(x);

System.out.println(y);

}

}

**Part 2: Application**

2. Write a java program that prints the following diamond pattern 3 times. You must use a method called printDiamond to do so.

\*  
\*\*  
\*\*\*  
\*\*\*\*  
\*\*\*\*\*

3. Write a java program that contains a method printThreeNewLines. This method only prints three blank lines. In your main method, use the printThreeNewLines method to print the following lines

Dear maintainer:

Once you are done trying to 'optimize' this program, and have realized what a terrible mistake that was, please increment the following counter as a warning to the next guy:

total\_hours\_wasted\_here = 39