

COMP 248 - Tutorial #2

Java Fundamentals

Question 1: What is the **type** of the values 0, 0.0, '0' and "0"?

Question 2: Which of the following are **legal identifiers**?

```
Greetings  
g  
void  
1001dalmatians  
Hello, world  
&ltgreeting>
```

Question 3: Given the following **declarations**, what is result is stored in each of the listed assignment statements?

```
int iResult, num1 = 25, num2 = 40, num3 = 17, num4 = 5;  
double fResult, val1 = 17.0, val2 = 12.78;  
iResult = num1 / num4;  
fResult = num1 / num4;  
iResult = num3 / num4;  
fResult = num3 / num4;  
fResult = val1 / num4;  
fResult = val1 / val2;  
iResult = num1 / num2;  
iResult = num3 % num4;  
iResult = num2 % num3;  
iResult = num3 % num2;  
iResult = num2 % num4;
```

Question 4: Strings

A- What is the output of:

```
String s1, s2, s3;  
s1 = "Quest for the holy Grail";  
s2 = s1.toLowerCase();  
s3 = s1 + " " + s2;  
System.out.println(s3.replace('h', 'z'));
```

B- What is the **length** of the string "mississippi"? What is the **index** of the last character?

C- Assume the String variable s contains the value "Agent".

What is the effect of the assignment `s = s + s.length()` ?

What about `s+= s.length()` ;

D- Assume the following declaration: `String name = "Your Name Here";`

What is the value of each of the following expressions?

```
name.substring(9) ;  
name.substring(1,6);  
name.substring(1, name.length()-1);  
name.length();  
name.indexOf('r');  
name.indexOf('n');
```

Question 5: Console Input/Output

A- What is the output of:

```
System.out.println("result: 3+4");  
System.out.println("result: " + 3+4);  
System.out.println("result: " + 3+"4");  
System.out.println("result: " + (3+4));
```

B- Write a statement to display on the console the message:

```
"The file is in c:\Temp\theFile.txt"
```

C- Suppose that the variable `in` is a Scanner object that reads from `System.in`, and your program calls: `String name = in.next();`

What is the value of `name` if the user enters `John Q. Public`?

Question 6: Try to predict the output of the following program. Then run it to make sure your answers are right.

```
/**
 * Question.java
 */
public class Question
{
    public static final String sentence = "I hate programming.";
    public static void main (String[] args)
    {
        int position = sentence.indexOf("hate");
        String firstPart = sentence.substring(0, position);
        String afterHate = sentence.substring(position + 4);
        String newString = firstPart + "love" + afterHate;
        System.out.println("The line of text to be changed is:
        "); System.out.println(sentence);
        System.out.println("I have rephrased the line to read:");
        System.out.println(newString);
    } // end of main ()
} // Question
```

Question 7: The following Java program contains several syntax errors. Identify and correct them. Then try to compile the program to make sure your answers are right.

```
/* Purpose: This program calculates the final price of a
purchase including a 15% sales tax */
import java.util.Scanner;
public class Price
{
    public static void main (String[] args)
    {
        Scanner keyboard = new Scanner(System.in);
        constant double TAX_RATE = 0.15;
        int quantity;
        double subtotal, tax, totalCost, unitPrice;
        System.out.print ("Enter the quantity: ");
        quantity = keyboard.nextInt();
        System.out.print ("Enter the unit price: ");
        unitPrice = keyboard.nextDouble();
        subtotal = quantity * unit_Price;
        tax = subtotal + TAX_RATE;
        totalCost = subtotal + tax;
        // Print output */
        System.out.println ("Subtotal: " + subtotal);
        System.out.println ("Tax: " + tax);
        System.out.println ("Total: " + totalCost;
    )
}
```