Computer Science 121

Lab 2
100 Points

In this lab, you will learn how to declare variables and use them in programs. Variables allow us to store and manipulate data. Before we can use a variable, we first need to declare it, so the computer can allocate space for it. To declare a variable, we enter the type and the name. For example, if we want to declare an integer variable named x, we say

```
int x;
```

Once we have declared a variable, we can use it in our code. Using the above example, we can store the value 5 to x by entering

```
x = 5;
```

To display the value of a variable, we include the variable name in the println() method. Recall in class that you may need to concatenate the variable name with a string to display more useful messages to the user. For example, we can say

```
System.out.println("The value of x is " + x);
```

1 Math Expressions (50 Points, to be finished and demonstrated during the current lab)

Create a new Java program, and name the class Expressions. Each step in this section is 6 points, for this section you can get help from your instructor during the lab.

a. Declare the following variables of type int: *num1*, *num2, sum, diff, prod, quot*.

b. Store 125 into *num* and 25 into *num2*.

c. Assign *sum* to the sum of *num1* and *num2*.

d. Assign *diff* to the difference of *num1* and *num2*.

e. Assign *prod* to the product of *num1* and *num2*.

f. Assign *quot* to the quotient of *num1* and *num2*.

g. Output the values of *num1, num2, sum, diff, prod, and quot*.

The output of your program should be the following:

The value of num1 is 125
The value of num2 is 25
The sum of 125 and 25 is 150
The difference of 125 and 25 is 100
The product of 125 and 25 is 3125
The quotient of 125 and 25 is 5

Note that you are NOT allowed to directly print the number. You must use the variables themselves. If your program runs and prints correctly you will get 8 points.

2 Salary Equation (50 Points, to be finished before the next lab and demonstrated during the next lab if not finished and demonstrated during the current lab)

Create a new Java program, and name the class Salary. For this section you cannot get help from your instructor during the lab. You just need to demonstrate your code, compile and run it in front of the instructor. Each step in this section is 7 points.

a. Declare the following variables of type double: *rate, hoursWorked, wages*.

b. Declare a variable named name of type String.

c. Store 12.5 into rate and 45.5 into *hoursWorked*.

d. Store "Jenkins" into *name*.

e. Assign wages to the product of *rate* and *hoursWorked*.

f. Output the values *of name, rate, hoursWorked, and wages*. Include dollar signs where appropriate.

The output of your program should be the following:

Name: Jenkins
Pay Rate: $12.5
Hours Worked: 45.5
Salary: $568.75

Note that the value of Pay Rate doesn't have two decimal places, as you would normally see in currencies. This is fine. If your program runs and prints correctly you will get 8 points.

Submitting your Code

When you are done, you will need to submit your code for Question 2 on eCampus. When logging onto eCampus, be sure to select your corresponding lab session instead of T01. When you actually submit your code, be sure to submit the .java file, not the .java~ or .class files.

Grading Rubric

Question	Max Points	Points
1a	6	
1b	6	
1c	6	
1d	6	
1e	6	
1f	6	
1g	6	
1 execution	8	
2a	7	
2b	7	
2c	7	
2d	7	
2e	7	
2f	7	
2 execution	8	
Total	100	