Lab Workbook 1

Software Development HDSWD
Object Oriented Programming Basics Part 1

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DESCRIPTION

Lab Workbook 1 covers the topics covered in the Object Oriented Programming Basics Part 1 Lucture: Java Anatomy, Variables, Constants, DataTypes, Operators and Expressions.

Student Name:	
Student Number:	
Date:	

Problem 1: What are the data types of the following variables. Fill in the blanks.

_____ a = 10;
_____ b = 7.5;
_____ c = 1.2;
_____ d = 2;
_____ e = 2.7182818284;
_____ f = 100000989009;
_____ g = 9999;
_____ h = true;
_____ i = 'l';
_____ j = false;
_____ k = 'a';

Notes:

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Problem 2: Create a java application that converts a temperature from Celsius to Fahrenheit, printing the conversion to the standard output. The conversion for a temperature from Celsius to Fahrenheit is represented by the following formula:

Fahrenheit value = 1.8 * <value of Celsius> +32

(A) Problem solution and process, Fill in the blanks:

Input (Celsius temp)	Processing	Output
30	1.8 * 30 +32	86
100		
0		

(B) List the variable names and their data type below. Explain what they will be used for:

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(C) Code the solution to the problem using your rough work as a guide. Call the class Problem2C.

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Problem 3: Create a program that prints the multiplication, division, addition and subtraction of two integer variables to the standard output.

(A) Problem solution and process, Fill in the blanks:

Input (Integers)	Processing	Output
a = 5, b = 10	c = a * b	50
a = 5, b = 10	c = a / b	0.5

(B) List the variable names and their data type below. Remember you will need a variable to store the result of the arithmetic operation so there will be more than just two. Explain what they will be used for:

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(C) Code the solution to the problem using your rough work as a guide. Call the class Problem3C.

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Problem 4: Develop programs to perform arithmetic operations and print the results. Use what you have learnt from the previous problems.

(A) What is the value in i after executing the following program segments? Create a class called Problem4A to perform these operations.

1.
   - int i = 12;
   - int j = 5;
   - i = i / j; **i = _____**
2.
   - int i = 12;
   - int j = 5;
   - i = i % j; **i = _____**
3.
   - int i = 10;
   - int j = 5;
   - i = i / j; **i = _____**

(B) The answers to statement 1 and 3 in part (A) are the same. Explain why?

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(C) What is the value of i after executing the following code segments? The variables are i = 21, j = 42 and k = 11;. Create a class called Problem4C to perform these operations.

1. i = 4 * (j + 16) % k; **i = _____**
2. i = i - j + k * 7; **i = _____**
3. i = (i - j + k) * 7; **i = _____**

Notes:

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