**Computer Science 2**   **Lab # 02**



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**CS2 Section # 03**

**Due:** Problem A by the **end of the lab** and Problems B by the end of **Saturday** of the same week.

**Project A: AvgWithLoop**

**Problem Description:**

﻿5-1) (Count positive and negative numbers and compute the average of numbers) Write a [program](https://pearson.turingscraft.com/codelab/jsp/core_dhtml.jsp?) that reads an unspecified number of [integers](https://pearson.turingscraft.com/codelab/jsp/core_dhtml.jsp?), determines how many positive and negative [values](https://pearson.turingscraft.com/codelab/jsp/core_dhtml.jsp?) have been read, and computes the total and average of the input [values](https://pearson.turingscraft.com/codelab/jsp/core_dhtml.jsp?) (not counting zeros). Your [program](https://pearson.turingscraft.com/codelab/jsp/core_dhtml.jsp?) ends with the input 0. Display the average as a floating-point number.

**Analysis:**

(Describe the problem including input and output in your own words. Type your answer in the following with **BLUE font color**)

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| **Create a loop that counts the number of positive numbers and the amount of negative numbers, then compute the average of numbers.** |

**Design:**

(Describe the major steps for solving the problem. Type your answer in the following with **BLUE font color**)

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| **1) create a scanner for user input**  **2)create variables for user input, positive numbers, negative numbers, the total, the average and also a counter to keep track of what number the program is at.**  **3)use a while loop to go through the input numbers**  **4) use an if and else loop to determine if the number is positive, positive increases; if negative, negative increases.**  **5) counter variable has to increase by one in the while loop to move onto the next number**  **6) Print the amount positives, negatives, the total and the average.**  **…** |

**Coding:** (Copy and Paste Source Code here. Type your answer in the following with **BLUE font color**)

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| **import java.util.Scanner;**  **public class AvgWithLoop{**  **public static void main(String[] args){**  **Scanner input = new Scanner(System.in);**  **System.out.print("Enter an integer, the input ends if it is 0:");**  **int x = input.nextInt();**    **int positive = 0;**  **int negative = 0;**  **double total = 0;**  **double average = 0;**  **int counter = 0;**    **while(x != 0){**  **total += x;**  **if(x > 0){**  **positive++;**  **} else {**  **negative++;**  **}**  **counter++;**  **x = input.nextInt();**  **}**    **System.out.println("The number of positives is " + positive);**  **System.out.println("The number of negatives is " + negative);**  **System.out.println("The total is " + total);**  **System.out.printf("The average is %.2f%n", total/counter);**  **}**  **}** |

**Testing:** (Describe how you test this program. Type your answer in the following with **BLUE font color**)

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| **Test 1:**  **Enter an integer, the input ends if it is 0: 1 2 -1 3 0**  **The number of positives is 3**  **The number of negatives is 1**  **The total is 5.0**  **The average is 1.25** |