



CT874/CT5177 - Programming-1
Fall 2024 – Assignment 04

1. (10 Marks) Analyze the following code and write a pseudocode then do the following:
 - a. Convert the while loop to sentinel-controlled loop
 - b. Convert the while loop to a for loop.

```
1. // Fig. 4.12: Analysis.java
2. // Analysis of examination results using nested control statements.
3. import java.util.Scanner; // class uses class Scanner
4.
5. public class Analysis {
6.     public static void main(String[] args) {
7.         // create Scanner to obtain input from command window
8.         Scanner input = new Scanner(System.in);
9.
10.        // initializing variables in declarations
11.        int passes = 0;
12.        int failures = 0;
13.        int studentCounter = 1;
14.
15.        // process 10 students using counter-controlled loop
16.        while (studentCounter <= 10) {
17.            // prompt user for input and obtain value from user
18.            System.out.print("Enter result (1 = pass, 2 = fail): ");
19.            int result = input.nextInt();
20.
21.            // if...else is nested in the while statement
22.            if (result == 1) {
23.                passes = passes + 1;
24.            }
25.            else {
26.                failures = failures + 1;
27.            }
28.
29.            // increment studentCounter so loop eventually terminates
30.            studentCounter = studentCounter + 1;
31.        }
32.
33.        // termination phase; prepare and display results
34.        System.out.printf("Passed: %d\nFailed: %d\n", passes, failures);
35.
36.        // determine whether more than 8 students passed
37.        if (passes > 8) {
38.            System.out.println("Bonus to instructor!");
39.        }
40.    }
41. }
42.
43. /*****
44.  * (C) Copyright 1992-2018 by Deitel & Associates, Inc. and
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46.  * *****/
```



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2. (Find the largest number – 25 Marks) The process of finding the largest value is used frequently in computer applications. For example, a program that determines the winner of a sales contest would input the number of units sold by each salesperson. The salesperson who sells the most units wins the contest. Write a pseudocode program, then a Java application (**1: While loop, 2: for loop**) that inputs a series of 10 integers and determines and prints the largest integer. Your program should use at least the following three variables:
- Counter: a counter to count to 10 (i.e. to keep track of how many numbers have been input and to determine when all 10 numbers have been processed).
 - Number: the integer most recently input by the user.
 - Largest: The largest number found so far