**CSD 1133 – 2023S**

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**Assignment # 4 ------------------------------------------------------------------------------------------------**

**1. Average Age (Based on chapter 5- Repetition Structure)  
Problem: Design a Pseudocode and Flowchart to find the average age**

**of all the students in a class. Follow the guideline given below.**

***Guideline:***

**1. Use While Loop  
2. Initialize variables  
3. Get the age from the user  
4. If user enter 99 for age exit the loop  
5. Otherwise continue the while loop until user press 99 6. Calculate the average  
7. Display no of students, total age and the average age.**

**Pseudocode:**

// Declare global constant for maximum age

Constant Real MAX\_AGE = 99

// Main module, the entry point of the program

Module main()

// Declare local variables and initialize them

Declare Real total\_student\_count

Declare Real total\_age

Declare Real average\_age

Declare Real input\_age

// Initialize all local variables

Set total\_student\_count = 0

Set total\_age = 0

Set average\_age = 0

Set input\_age = 0

// While loop to run the execution until the user enters age which equals the maximum age

While input\_age != MAX\_AGE

// Call the module to get age input from the user

Call getAgeInput(input\_age)

// Call the module to update student and age count

Call updateCount(total\_student\_count, total\_age, input\_age)

End While

// Call the module to calculate the average

Call calculateAverage(average\_age, total\_age, total\_student\_count)

// Display the output

Display "The total number of student is:"+ total\_student\_count

Display "The total age is:"+ total\_age\_count

Display "The average age among student is:"+ average\_age

End Module

// Module getAgeInput, ask user input for the age of the student

Module getAgeInput(Real Ref input\_age)

Display "Enter the age of the current student: "

Input input\_age

End Module

// Module updateCount, increment total student count and total age count

Module updateCount(Real Ref total\_student\_count, Real Ref total\_age, Real input\_age)

Set total\_student\_count = total\_student\_count + 1

Set total\_age = total\_age + input\_age

End Module

// Module calculateAverage, calculate the average age

Module calculateAverage(Real Ref average\_age, Real total\_age, Real total\_student\_count)

Set average\_age = total\_age / total\_student\_count

End Module

A screenshot of a computer screen

Description automatically generated with low confidence**Flowchart:**

Figure 1: Main module

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Figure 3: Update student count module

Figure 2: Ask user input module.