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
```

Flowchart:

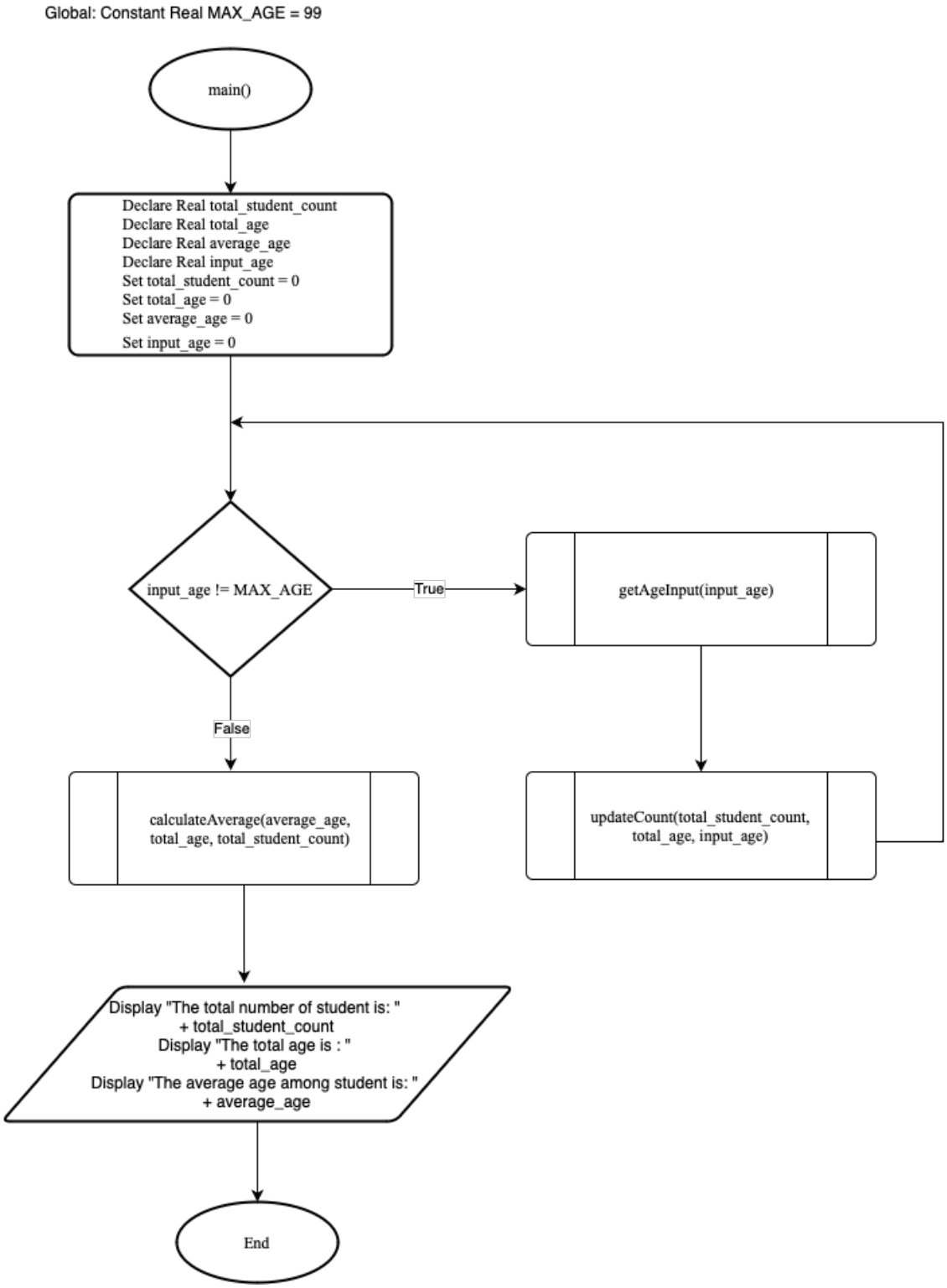

Figure 1: Main module

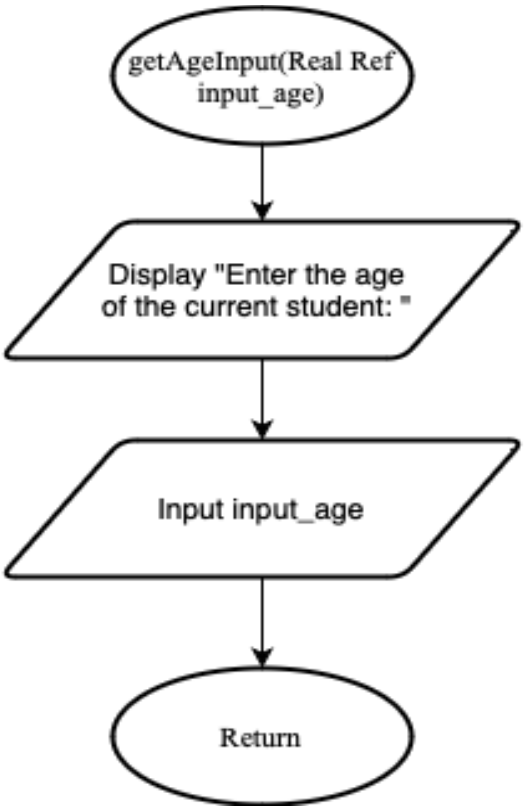

Figure 2: Ask user input module.

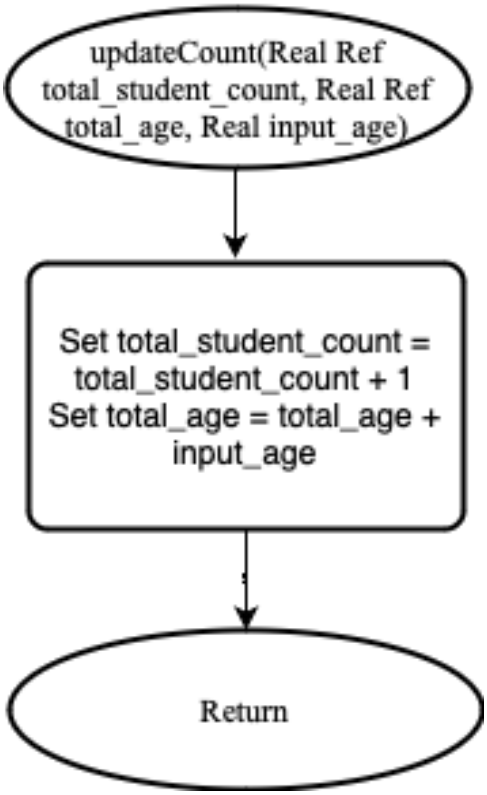

Figure 3: Update student count module