Algorithm Pseudocode for the Assignment 2

**F4: Print the top 10 students with the highest total marks and top 10 students with the lowest total marks (algorithm 1).**

For the identification of the top 10 students in the highest total marks, and the lowest total marks the bubble sort technique is used.

Top 10 Students – Highest Total Marks (Pseudocode)

1. Get the ArrayList with the student details and total marks.

2. Get the Length of the ArrayList with the Student details.

3. Outer For Loop (Start: 0 and End: ArrayList.Length – 1)

4. Inner For Loop (Start: 0 and End: ArrayList.Length – 1 – Outer For Loop Index)

5. Check the value in the ArrayList in the location of Inner For Loop Index and next ArrayList is greater than the former.

6. If greater, then Swap the Location of the ArrayList value.

7. If equal or smaller, then don’t do anything.

8. Continue the Inner Loop

9. Continue the Outer Lop.

10. Stop the Program.

Bottom 10 Students – Lowest Total Marks (Pseudocode)

1. Get the ArrayList with the student details and total marks.

2. Get the Length of the ArrayList with the Student details.

3. Outer For Loop (Start: 0 and End: ArrayList.Length – 1)

4. Inner For Loop (Start: 0 and End: ArrayList.Length – 1 – Outer For Loop Index)

5. Check the value in the ArrayList in the location of Inner For Loop Index and next ArrayList is lesser than the former.

6. If lesser, then Swap the Location of the ArrayList value.

7. If equal or greater, then don’t do anything.

8. Continue the Inner Loop

9. Continue the Outer Lop.

10. Stop the Program.

**F5: Create a simple menu system to allow users to select and execute each function (algorithm 2).**

The purpose of the simple menu system is to allow the users to interact with the Software by allowing them to input their preference, and allow a continuous interaction with the system.

Here, an indefinite loop is required to continuously receive the user inputs and then execute the required methods in the class based on the user input.

The Pseudocode to perform the simple menu system is discussed below,

1. Display the Intro Information to the User: The purpose of the Software

2. Create Indefinite While Loop.

3. Display the List of the Option available in the Menu System. (1-5 integer input and its description).

4. Get the User Input and Store in the Variable.

5. Switch Command to call different method based on the User Input

6. Stop the Software, if the User Inputs Exit Option.

7. Display the Exit Information!