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...ssignments\131_Assignment_7\Question_1\Question_1.cpp 1
1 // Question_1.cpp : This file contains the 'main' function. Program execution begins and ends there.
2 //
3 //
4 // /
5 //-----
6 //Name Sai Chaitanya Kilambi
7 //Course CPSC 131 Data Structures, Fall, 2022
8 //Assignment No.7 question:1
9 //Due date 10/18/2022
10 // Purpose:
11 // This prints the elements in a linked list, calculates the average and also outputs the number of elements above the average
12 //-----
13 // list of libraries
14 //
15 //importing the required libraries
16
17 #include <iostream>
18
19 using namespace std;
20
21 //defining the node
22 struct node
23 {
24     int age;
25     node* next;
26 };
27
28 int main()
29 {
30     int Age[5] = { 19, 21, 17, 22, 33 };
31
32     //creating the linked list
33     node* linked_list = nullptr;
34
35     //going over the linked list
36     for (int i = 0; i < 5; i++)
37     {
38         node* temp = linked_list;
39
40         // insert age
41         linked_list = new node;
42         linked_list->age = Age[i];
43
44         // adjust pointers

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46     linked_list->next = temp;
47
48 }
49
50 //displaying the linked list
51 cout << "All node: ";
52 node* temp = linked_list;
53
54 while (temp != nullptr)
55 {
56     cout << temp->age << "->";
57     temp = temp->next;
58 }
59
60 cout << "null\n";
61
62 //calculating the average of the elements in the linked list
63 float avg = 0;
64 int n = 0;
65 temp = linked_list;
66
67 while (temp != nullptr)
68 {
69     avg += temp->age;
70     temp = temp->next;
71     n++;
72 }
73 avg /= n;
74 cout << "Age average: " << avg << endl;
75
76 //finding the elements that are above the average
77
78 int above = 0;
79 temp = linked_list;
80
81 while (temp != nullptr)
82 {
83     if (temp->age >= avg) {
84         above++;
85     }
86     temp = temp->next;
87 }
88
89 //output
90 cout << "Only " << above << " person(s) is above average" << endl;
91
92 return 0;
93 }
94
```