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1  /*
2     Zach Hofmeister      3-11-19
3     Lab 6 - Traverse the List
4     Demonstrates understanding of pointers and linked lists. Prints out a list's ↗
        values, and sums the list.
5  */
6  #include "pch.h"
7  #include <iostream>
8
9  using namespace std;
10
11 struct ListNode { //Node for the linked list
12     double value1, value2;
13     ListNode *next;
14 };
15
16 int main() {
17     //Initialize the links
18     ListNode *head = nullptr;
19     head = new ListNode{1, 2, nullptr};
20
21     ListNode *link2 = new ListNode{3, 4, nullptr};
22     head->next = link2;
23
24     ListNode *link3 = new ListNode{5, 6, nullptr};
25     link2->next = link3;
26
27     ListNode *link4 = new ListNode{7, 8, nullptr};
28     link3->next = link4;
29
30     ListNode *link5 = new ListNode{9, 10, nullptr};
31     link4->next = link5;
32
33     //Current node for iteration
34     ListNode *currentNode = head;
35     //Values for final cout
36     double sum1 = 0, sum2 = 0, largest = 0;
37     cout << "===Printing the linked list===" << endl;
38     while (currentNode != nullptr) { //Loop through the list
39         static int count = 1;
40         //Print value
41         cout << "Node " << count << "'s first value is " << currentNode->value1 ↗
42             << endl;
43         cout << "Node " << count << "'s second value is " << currentNode->value2 ↗
44             << endl;
45         //Add to sums
46         sum1 += currentNode->value1;
47         sum2 += currentNode->value2;
48         //Find largest
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47     if (currentNode->value1 > largest) {
48         largest = currentNode->value1;
49     }
50     if (currentNode->value2 > largest) {
51         largest = currentNode->value2;
52     }
53     currentNode = currentNode->next; //Move to next link
54     count++; //Increase counter
55 }
56
57 //Final couts
58 cout << "The sum of the first values is " << sum1 << endl;
59 cout << "The sum of the second values is " << sum2 << endl;
60 cout << "The largest value of all is " << largest << endl;
61
62 return 0;
63 }
64
65 /*
66     SAMPLE OUTPUT
67     ===Printing the linked list===
68     Node 1's first value is 1
69     Node 1's second value is 2
70     Node 2's first value is 3
71     Node 2's second value is 4
72     Node 3's first value is 5
73     Node 3's second value is 6
74     Node 4's first value is 7
75     Node 4's second value is 8
76     Node 5's first value is 9
77     Node 5's second value is 10
78     The sum of the first values is 25
79     The sum of the second values is 30
80     The largest value of all is 10
81
82     Press any key to close this window . . .
83 */
```