Week 7 Programming Assignment 2

Due on 2020-03-18, 23:59 IST

In this exercise you will write a program that keeps track of who is in a certain classroom. At the start, the classroom is empty. Then for some time, students keep arriving and departing until the door finally closes. These events are given to the program as input consisting of lines of the following form:

- `a x`: This says student with roll number x arrived into the class room.
- `d x`: This says student with roll number x departed from the class room.
- `c`: This says the door closed.

After this you should print the roll numbers of the students who are in the classroom (in increasing order), one per line and the program should stop. Arrivals and departures can happen in any order; and you can assume that a student departs only if she was present and arrives only if she was not present earlier. Assume further that the roll numbers are in the range 0 through 99. You should use a bool array present of size 100, and use the invariant: present[i] should be true if and only if student with roll number i is present in the class room.

Sample Test Cases

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a 5</td>
</tr>
<tr>
<td></td>
<td>a 9</td>
</tr>
<tr>
<td></td>
<td>a 99</td>
</tr>
<tr>
<td></td>
<td>d 9</td>
</tr>
<tr>
<td></td>
<td>a 0</td>
</tr>
<tr>
<td></td>
<td>d 5</td>
</tr>
<tr>
<td></td>
<td>d 0</td>
</tr>
<tr>
<td></td>
<td>d 99</td>
</tr>
<tr>
<td></td>
<td>c</td>
</tr>
</tbody>
</table>

Test Case 1
An Introduction To Programming Through C++ - Course

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Sample solutions (Provided by instructor)

```c++
#include <iostream>
#define repeat(x) for(int _iterator_i = 0, _iterator_limit = x; _iterator_i < _iterator_limit; _iterator_i++)
#define main_program int main()
#include <cmath>
using namespace std;

int main(){
    bool present[100];
    for(int i = 0; i < 100; i++) present[i] = false;

    while(true){
        char command; cin >> command;
        if(command == 'a'){
            int r; cin >> r;
            present[r] = true;
        }
        else if(command == 'd'){
            int r; cin >> r;
            present[r] = false;
        }
        else break; // will break for other characters too..
    }

    for(int i = 0; i < 100; i++)
        if(present[i]) cout << i << endl;
}
```

Test Case 2

<table>
<thead>
<tr>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>a 99</td>
</tr>
<tr>
<td>a 0</td>
</tr>
<tr>
<td>a 50</td>
</tr>
<tr>
<td>a 49</td>
</tr>
<tr>
<td>d 49</td>
</tr>
<tr>
<td>d 50</td>
</tr>
<tr>
<td>c</td>
</tr>
</tbody>
</table>

Test Case 3

<table>
<thead>
<tr>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>a 5</td>
</tr>
<tr>
<td>a 7</td>
</tr>
<tr>
<td>a 15</td>
</tr>
<tr>
<td>d 5</td>
</tr>
<tr>
<td>a 3</td>
</tr>
<tr>
<td>c</td>
</tr>
</tbody>
</table>

Lecture 15:
Array Part-1:
Part 2: Marks averaging problem (unit?
unit=92&lesson=99)

Lecture 15:
Array Part-1:
Part 3: Histogram computation (unit?
unit=92&lesson=100)

Lecture 15:
Array Part-1:
Part 4: Marks display variation (unit?
unit=92&lesson=101)

Lecture 15:
Array Part-1:
Part 5: Polynomial multiplication (unit?
unit=92&lesson=102)

Lecture 15:
Array Part-1:
Part 6: Queues in dispatching taxis (unit?
unit=92&lesson=103)

Lecture 15:
Array Part-1:
Part 7: More efficient Queues in dispatching taxis (unit?
unit=92&lesson=104)

Lecture 15:
Array Part-1:
Part 8: Disk intersection (unit?
unit=92&lesson=105)

Lecture 15:
Array Part-1:
Part 9: Arrays of graphical objects and conclusion (unit?
unit=92&lesson=106)
Lecture 16:
Array Part-2:
Part 1:
Introduction (unit? unit=92&lesson=107)

Lecture 16:
Array Part-2:
Part 2:
Interpretation of aName[index] (unit? unit=92&lesson=108)

Lecture 16:
Array Part-2:
Part 3: Arrays and function calls (unit? unit=92&lesson=109)

Lecture 16:
Array Part-2:
Part 4: A function to sort an array (unit? unit=92&lesson=110)

Download Videos (unit? unit=92&lesson=183)

Weekly Feedback (unit? unit=92&lesson=195)

Quiz: Week 7 Quiz (assessment? name=203)

Week 7 Programming Assignment 1 (/noc20_cs53/progassignment? name=204)

Week 7 Programming Assignment 2 (/noc20_cs53/progassignment? name=205)

Week 7 Programming Assignment 3 (/noc20_cs53/progassignment? name=206)

Week 8
Week 9
Week 10
Week 11
Week 12
Text Transcripts