Introduction to Computers and Programming

Homework 10

2023/11/28

1. Deadline

You have one week to complete the homework. Hand in your homework via E3 before 2023/12/05 23:55. Please finish your homework as soon as possible. In addition, make sure that your code can be executed on Visual Studio Community 2019. We will use Online Judge for grading.

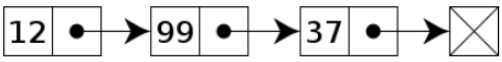
2. Problems

2.1 Money on the go, queues in a row

Christmas is coming, the famous American wholesale market (Costco) has gotten a long line before opening. We want to simulate the process of line up, but sometimes there are some people jumping in queue, join or leave the queue, it is not easier to implement it by a simply array.

linked list is a linear collection of data elements whose order is not given by their physical placement in memory. In its most basic form, each node contains: data, and a reference (in other words, a link) to the next node in the sequence.

EX:



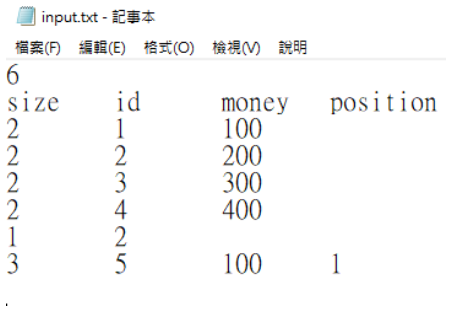
In this assignment, First, you need to create a **structure** which has the data we want to store and **the pointer of this structure for storing the next reference**. Second, store every people's ID and how much money they have, also you need to implement three functions as follow:

- **Join**: give you a person's information, add him/her in your queue.
  (Input size: 2 number (ID, money))
- **Insert**: give you a person's information and the position he/she wants to insert.
  (Input size: 3 number (ID, money, position))
- **Leave**: give you the position where someone want to leave.
  (Input size: 1 number (position))

Because this is a simple practice, you don't need to consider the exception.

Input

First line indicates the number of lines you will get, and each line will have 2 ~ 4 numbers. The first number in each line indicates the quantity of inputs to be given. The input requirements and format for various functions will be consistent with the corresponding function introduction. (Like input.txt below)


input.txt - 記事本

檔案(F) 編輯(E) 格式(O) 檢視(V) 說明

```
6
size    id      money   position
2       1       100
2       2       200
2       3       300
2       4       400
1       2
3       5       100     1
```

Output
After all of the operations, please print out everyone's information sequentially.

Example 1:
Input
6
2 1 100
2 2 200
2 3 300
2 4 400
1 2
3 5 100 1

Output
ID money: 1 100
ID money: 5 100
ID money: 2 200
ID money: 4 400

Example 2:
Input
7
2 3 100
2 2 200
3 1 300 0
2 4 400
1 3
3 5 100 2
1 0

Output
ID money: 3 100
ID money: 5 100
ID money: 2 200

3. Submission format
Your submission should follow the format below, or you might get some penalty for the wrong format.

- xxxxxxxxx_hw_w12.zip
    - xxxxxxxxx_hw_01.cpp

xxxxxxxxx is your student ID