Monday, 11 February 2019

LAB DEMO 03

Quick Class Roster Check

Today, I will call 4 names that I have remembered from last week ☺

- A, B, C, D

My target today is to remember at least 4 more names:

- E, F, G, H

PS1 Debrief

- Common mistake(s):
  - A – closingtheloop
    - Parsing problem, L can be two or three digits :O
  - B – chartingprogress
    - Parsing problem between test cases (blank lines vs EOF)
  - C – includescoring
    - Misunderstand the requirements, especially definition of ‘ties’
    - Rounding issue
- TLE issue
  - Generally not a problem in PS1 as N is just 1000 (N test cases)/100 (at most 100 test cases)/1000 (one test case/input) in problem A/B/C, respectively, so even an $O(N^2)$ sorting algorithm should pass

C++ STL list (DLL)

- constructor
- push_back, pop_back, push_front :O, pop_front :O
- insert, erase
- front, back
- begin, end, iterator
- http://en.cppreference.com/w/cpp/container/list
- For self exploration:
  - http://en.cppreference.com/w/cpp/container/forward_list (SLL)
  - We can generally just use list (can iterate both ways), memory is not a big issue these days

C++ STL stack, queue, deque

- constructor
- Stack: top, push, pop, empty
- Queue: front, back, push, pop, empty
- Deque: front, back, push_back, pop_back, push_front, pop_front
- http://en.cppreference.com/w/cpp/container/stack
- http://en.cppreference.com/w/cpp/container/queue
- http://en.cppreference.com/w/cpp/container/deque
  - Surprise :O, it has O(1) Random Access :O as it is NOT actually implemented as DLL as shown in VisuAlgo

VisuAlgo Training Mode

(If time permits, either do sorting or sorting+list)

PS1 was about sorting

PS2 is clearly about List and its variants + PQ :O

Make sure that you understand the explanation in:
https://visualgo.net/en/sorting?slide=1 (until end) and
https://visualgo.net/en/list?slide=1 (until end)

You can use VisuAlgo Online Quiz training mode to check your basic understanding about Sorting (previous topic), Linked List, Stack, Queue, Deque on “infinite” number of random questions:
https://visualgo.net/training?diff=Medium&n=5&tl=5&module=sorting,list

PS2 Early Status

Name	A	B	C
Group A	AC	AC	AC
Group B	AC	AC	
Group C	AC		
Have not AC anything (note that Wk6 has midterm test, so it is better to attempt PS2 sooner than later)			

Midterm Test material is up to here; NO PQ

PS2 Algorithmic Discussion

- A – guessthedatastructure
  - What if you are allowed to use ANY STL libraries discussed today, isn't it an easy simulation?
  - Challenge for top students: Code your own Stack/Queue/Priority Queue (to be discussed in Week 05)
- B – coconut
  - Do you understand the requirement? Let's simulate sample I/O
  - What data structure is good to simulate the requirements?
- C – ferryloading3
  - Do you understand the requirement? Let's simulate sample I/O
  - What data structure is good to simulate the requirements?