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Interview Preparation

Lecture: 6- Linked Lists

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#define

Inline Functions?

Backtracking Problems?

Recursion & Other Doubts

Linked Lists

Singly Linked List(SLL)

```
class Node {
   int data;
   Node* next;
   Node() {};
   void SetData(int aData);
   void SetNext(Node* aNext);
   int Data();
   Node* Next();
}
```

Doubly Linked List(DLL)

```
class Node {
   int data;
   Node* next;
   Node* prev
   Node() {};
   void SetData(int aData);
   void SetNext(Node* aNext);
   void SetPrev(Node* aNext);
   int Data();
   Node* Next();
   Node* prev();
}
```

Lets solve few problems

1. Given a Linked List
   a1→a2→a3….→an→b1→b2→…..→bn.
   Convert it to a1→b1→a2→b2…→an→bn
2. Implement selection sort on a linked list
3. Check if two LL's are reverse of each other

Your Turn

1. Reverse a linked list
2. Implement bubble sort on a linked list
3. Dutch National Flag

BT – 1: Average Salary

Three coworkers would like to know their average salary. However, they are self-conscious and don't want to tell each other their own salaries, for fear of either being ridiculed or getting their houses robbed**. How can they find their average salary, without disclosing their own salaries?**

BT – 2: Greedy Pirates

A pirate ship captures a treasure of 1000 golden coins. The treasure has to be split among the 5 pirates: 1, 2, 3, 4, and 5 in order of rank. The pirates have the following important characteristics: infinitely smart, bloodthirsty, greedy. Starting with pirate 5 they can make a proposal how to split up the treasure. This proposal can either be accepted or the pirate is thrown overboard. A proposal is accepted if and only if a majority of the pirates agrees on it. **What proposal should pirate 5 make?**

BT – 3: Circular Jail Cell

There is a circular jail with 100 cells numbered 1-100. Each cell has an inmate and the door is locked. One night the jailor gets drunk and starts running around the jail in circles. In his first round he opens each door. In his second round he visits every 2nd door (2,4,6---) and shuts the door. In the 3rd round he visits every 3rd door (3,6,9---) and if the door is shut he opens it, if it is open he shuts it. This continues for 100 rounds (i.e. 4,8,12 ---; 5,10,15 ---; ---; 49,98 etc.) and exhausted the jailor falls down. **How many prisoners found their doors open after 100 rounds**?

Time for another test!

Thank you

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