

## Data Structures

Based on last 2 digits of Student ID: ex. 0032416015

if even, choose A  
if odd, choose B

if even, choose C  
if odd, choose D

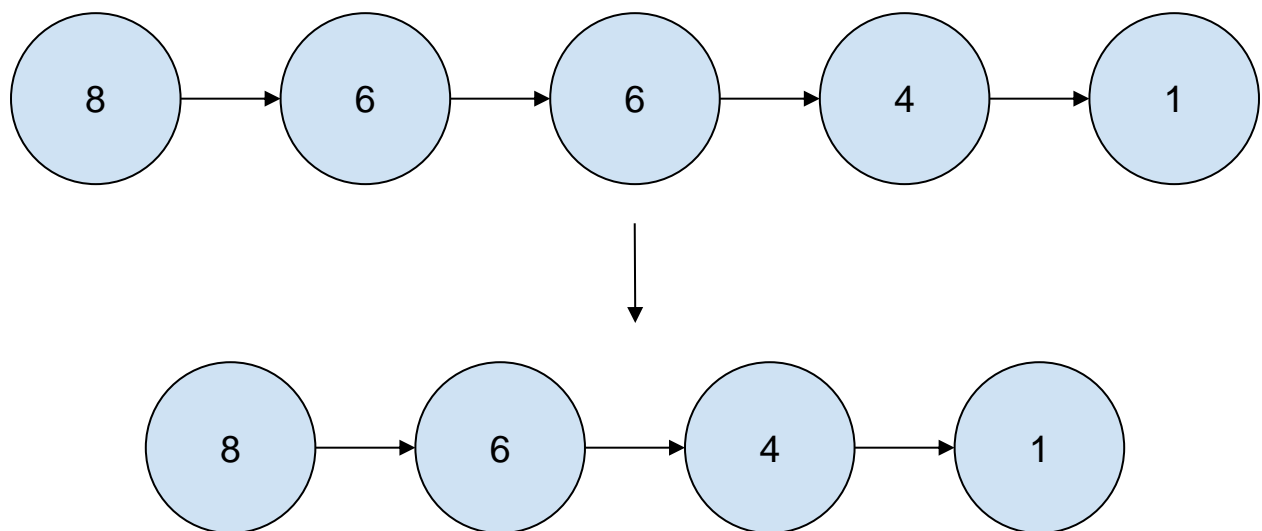
Problem: Given the head of a [A: singly, B: doubly] linked list, return the list sorted [C: numerically, D: reverse numerically]

ex: [B, C]

The diagram illustrates a doubly linked list sorting process. The top row shows a doubly linked list with nodes containing the values 2, 4, 3, and 1, connected by double-headed arrows. A downward arrow indicates the transformation to a sorted doubly linked list shown in the bottom row, with nodes containing the values 1, 2, 3, and 4, also connected by double-headed arrows.

<https://leetcode.com/problems/remove-duplicates-from-sorted-list/>

Given a linked list storing one digit per node sorted from greatest to least, remove all duplicate value nodes from the list



<https://leetcode.com/problems/valid-parentheses/>

<https://leetcode.com/problems/two-sum/>

<https://leetcode.com/problems/best-time-to-buy-and-sell-stock/>

Given an array representing the daily price of a digital asset in USD, find the most profitable buy/sell days, and return the value of this profit. If no profitable transactions are possible, return 0.

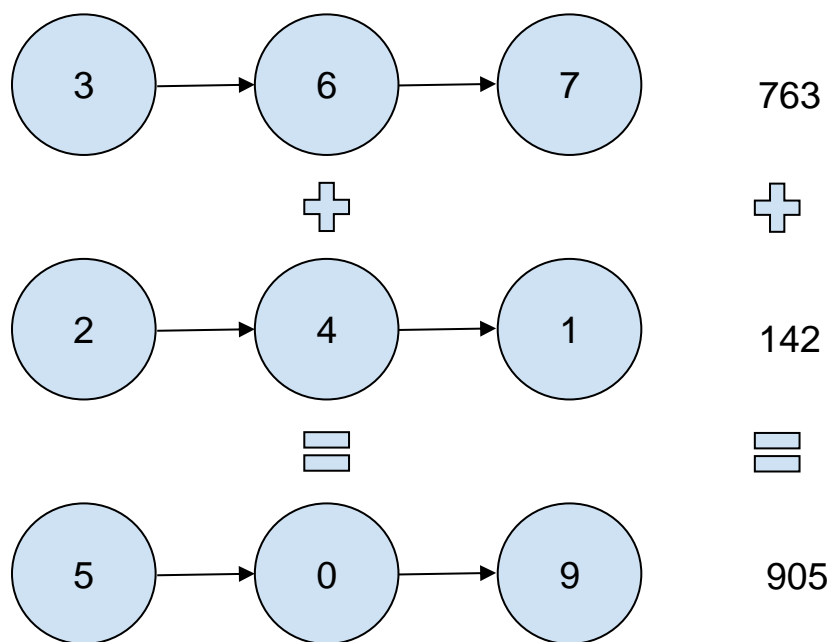
Ex.

[3, 5, 1, 7, 9, 2] -> Buy on day 3, sell on day 5, Profit = \$9 - \$1 = \$8

[6, 4, 4, 3, 2, 1] -> No profitable transactions, return 0

<https://leetcode.com/problems/add-two-numbers/>

Given two linked lists representing two positive integers in reverse order (ex. One's place -> ten's place -> hundred's place) where each node stores a single digit, return the sum of these two integers as a linked list.



## Graph/ BST Coding Questions

- 1) Perform preorder traversal in a given binary tree?
- 2) Perform an inorder traversal in a given binary tree?
- 3) Implement a postorder traversal algorithm?
- 4) Count the number of leaf nodes in a given binary tree.
- 5) Find a height of a given binary tree
- 6) Merge two binary trees
- 7) Perform DFS on an acyclic graph
- 8) Perform BFS on an acyclic graph

## MULTIPLE CHOICE QUESTIONS(OOP)

1. Which of following is shared structure of a set of similar objects
  - a) Encapsulation
  - b) A Class**
  - c) Inheritance
  - d) None of Above
2. In oops public, private & protected are
  - a) Classes**
  - b) Access Modifiers
  - c) Interfaces
  - d) Method signature
3. Constructor can return a value
  - a) True
  - b) False**
4. Which Feature of OOP encourages code reusability?
  - a) Polymorphism
  - b) Inheritance**
  - c) Abstraction
  - d) Encapsulation
5. A(n) \_\_\_\_\_ method is declared, but not implemented.
  - a) Private
  - b) Public
  - c) Abstract**

d) Getter

6. A derived class is also called a \_\_\_\_\_.

a) Small class

**b) Subclass**

c) Noticeable class

d) Big class

7. A method implemented several times to accept different parameters is considered to be \_\_\_\_\_.

a) Overridden

b) Redundant

c) Restructured

**d) Overloaded**

8. A default catch block catches

a) all thrown objects

b) no thrown objects

**c) any thrown object that has not been caught by an earlier catch block**

d) all thrown objects that have been caught by an earlier catch block