count digits of a number (2 approaches)
<u>reverse a number</u>
<u>inverse of a number</u>
<u>rotate a number</u>
gcd and lcm ( in time compelxity O(min(a,b))
gcd and lcm (optimized using euclid division algorithm)
<u>prime factorization</u>
<u>bulb switcher</u>
Pattern 1
Pattern 2
Pattern 3
Pattern 4
Pattern 5
Pattern 6
Pattern 7
Pattern 8
Pattern 9
Pattern 10
Pattern 11
Pattern 12
Pattern 13
Pattern 14
Pattern 15

Pattern 16
Pattern 17
Pattern 18
Pattern 19
Pattern 20
decimal to anybase
any base to decimal
any base to any base
anybase additon
anybase subtraction
anybase multiplication
set a bit at a given position
unset a bit at the given position
toggle a bit at a given position
check whether the given bit set or not
Number of 1 Bits
Single number
number of 1 bits (kernighan)
number of 1 bits (kernighan aproach 2)
number of 1 bits (inbuilt function)
<u>reverse integer</u>

# power of two power of four complement of base 10 integer

intro to pointers and its types
call by value and call by reference
pointer arithematic
pointer to pointer
stack vs heap
dynamic memory allocation in c and cpp
1D array creation

# <u>2D array creation</u> References and its types (Ivalue and rvalue)

Smart pointers

show call by value
show call by reference using pointers
show call by reference using references
Program of 1D array in stack
Program of 1D array in heap
Program of 2D array in heap (row-major order)
Program of 2D array in heap (using array of pointers)

analysis of time and space complexity

perform these operations (cpp: stl vector and array two files) (java: arraylist, one file) insertion at end (push\_back)(add) -> O(1) removal at end (pop\_back)(remove or removeLast) -> O(1) insertion at random position (insert)(add(index)) ->O(n) removal at random position (erase)(remove(index)) -> O(n) find (find)(find and indexOf) -> O(n) reverse(reverse) (collections.reverse) -> O(n) min and max (min, max) (collections.min, collections.max) -> O(n) fixed size array stl functions(swap,fill,sum,max,min) Array using Structs Array using Classes Vector implementation {at(), size, capacity, print, push back, pop back, insert erase, accumulate,min,max,reverse,find,operator overloading(==,=,[])} Reference code Sum of two arrays Cyclically rotate array by one Rotate array by k "Second Largest in Array" Reverse Array Single Number 2 **Next Permutation** 

### Permutation Sequence Factorial of large numbers Move all negative elements to end (brute + optimized) Sort Colors Union of two arrays Two Sum container with most water smallest Range I Minimize the Heights I minimize the Heights II 3 Sum Merge Sorted Array without Extra[] **Majority Element** Majority Element II 3 Sum Closest 3Sum with Mutiplicity sqrt(x) Valid Perfect Square Peak index in a mountain range First bad version

#### Koko Eating Bananas

#### Capacity To Ship Packages Within D Days

find the first and last position of element in sorted array

# Find Peak Element Search in Rotated Sorted Array

Aggresive Cows
Allocate books
Search in a 2d matrix
search in a 2d matrix 2

Cycle Sort

Set Mismatch

Find Duplicates in Array

Missing Number

Find all numbers disappeared in array

Find Duplicate Number

First missing positive

Custom Comparator

Largest Number

**Custom Sort String** 

### Shell sort Merge Two Sorted Arrays Pivot Index Trapping rain water Subarray sum equals K Count Triplets That Can Form Two Arrays of Equal XOR Range Sum Query 2D - Immutable Max Sum Subarray of size K **Count Anagrams** Maximum No of Vowels **Longest Substring Without Repetition** Longest Substring Dynamic Maximum Consecutive Ones III Array traversal 1 to N N to 1 Fibonacci Binary search

Factorial
pow(x,n)
Count Good numbers
Print good numbers
Subset 1
Subset 2
Combination Sum 1
Generate all Binary strings(gfg)
Subset sum(gfg)
Letter Combination
Combination Sum 2
Combination Sum 3
Target Sum
Rat in a MAZE
N - Queens
11 Queens
Valid Sukdoku
Sudoku Solver
Knights's Tour
<u>Cherry Pickup</u>

### Difference of GCDs **GCD** Partition **Common Divisors** Exponentiation **Design Linked List** Reverse Linked List(iterative and recurrsion) Palindrome(Brte and Optimized) HOMEWORK Reverse Linked List 2 Add Two numbers 2 Design Linked List 2 - LeetCode Reverse a Doubly Linked List Detect cycle Flatten a Multilevel Doubly Linked List - LeetCode **HOMEWORK** fibonacci number N-th Tribonacci Number **Climbing Stairs** Count ways to N'th Stair

<u>Jump Game</u>
HOMEWORK
<u>Dice Combinations</u>
Minimizing Coins
Coin Combinations I
<u>Duplicate Number</u>
Intersection of two linked lists
clone list with random pointer
HOMEWORK
<u>Insertion sort list</u>
merge sort list
Count inversions
I DU Ok-
LRU Cache
<u>LFU Cache</u>
<u>preorder traversal</u>
<u> </u>
<u>post order traversal</u>
HOMEWORK
max and min element in binary tree
sum of binary tree

Invert Binary Tree

Maximum Depth

Path sum

Path sum II

Path Sum III

N-Arry Post Order Traversal

Path sum III (OPTIMISED)

level order traversal

level order traversal II

zigzag level order traversal

diameter of binary tree

LCA of binary tree

<u>left side binary tree (both DFS and BFS)</u>

right side view binary tree(both DFS and BFS)

balanced binary tree

Same tree

**Boundary Traversal** 

Top view of binary tree

Bottom view of binary tree

Vertical order traversal

## Binary Tree Cameras Distribute Coins in Binary tree

Delete Leaf Node

Delete leaves with given value

Delete Nodes and return forest

Binary Tree Paths

Find Bottom left tree value

Pseudo palindromic paths in a binary tree

Serialize and Deserealize Binary Tree

All Nodes Distance K in Binary tree (BFS)

Maximum Path Sum

All Nodes Distance K in Binary tree (DFS)

K distance from root(BFS & DFS)

Binary tree to be infected (BFS & DFS)

Path to given node

Construct Binary Tree from Preorder and Inorder
Construct Binary tree from Inorder and Postorder

<u>Duplicate SubTree</u> <u>Maximum Width of Binary Tree</u> preorder traversal (using stack)
inorder traversal(using stack)
post order traversal (using stack)

Implement Trie
Word Break
Shortest Unique prefix
minimum xor pair

Populating next right pointers(bfs)
Populating next right pointers(dfs)
Populating next right pointers(iterative)
Populating next right pointers 2(dfs)

Insert in binary search tree
search in binary search tree
Minimum element in binary search tree
ceil in binary search tree
floor in binary search tree
delete node in binary search tree

validate binary search tree
binary search tree to greater sum tree
maximum sum bst in binary tree