Pointers & Dynamic Memory Allocation

C Language Pointers <cstdlib> C++

#include <stdlib.h>

* malloc (size)
* calloc (n , size)
* realloc (ptr , new)
* free (ptr)

(Syntax)

> void → Type casting
(int *) int [ ]
(char *)

(garbage 40 bytes)

new
delete

int
10 blocks - default 0, false, null, null : 0

DMA for 2D (Matrix)

Square Matrix
n rows n cols
n × n matrix
int ** oneD = new int * [n]   (rows)

for i = 0 to i < n) rows
oneD [i]

oneD [i] = new int [n] (n cols)

Non-Square Matrix
n rows m cols
n × m matrix
int ** twoD = new int * [n] (rows)

for (i = 0 to i < n) rows
twoD [i]

twoD [i] = new int [m] (m col)

Linear Data Structures :→

① Stacks :→ LIFO
↳ Reversal **

→ Balanced Parentheses

1 2 3 4
4 3 2 1

top, pop

{ [( )] }

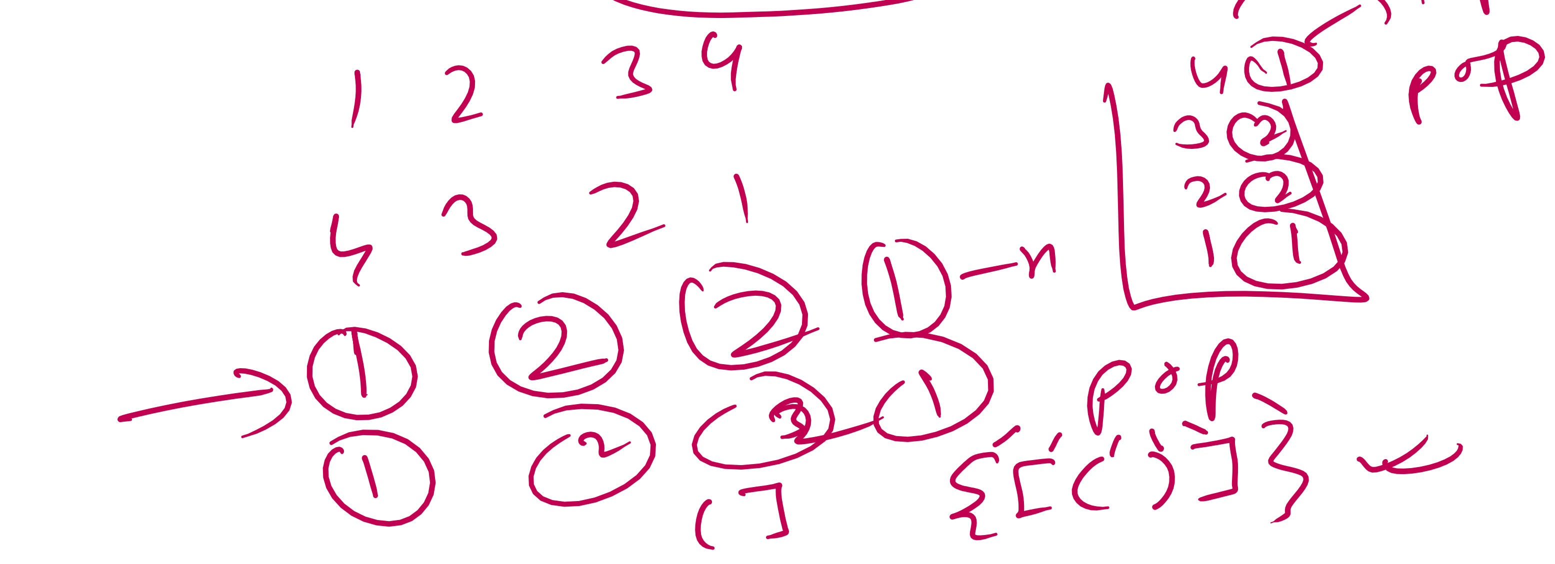
Max Size = 100
Last In First Out

Stack of cards
Stack of plates

top = -1
top++

Stack

peek , Push , pop , size , empty



Access Modifier/Specifier Table

Name	Inside Class	Outside Class	Inside Package	Outside Package
public	Yes	Yes	Yes	Yes
private	No	No	No	No
protected	Yes	Yes	Yes	Yes (inheritance)
default	Yes	Yes	Yes	No

Java
P2