

Stack Using Queue

↓
LIFO

5	→ top()
4	
3	
2	
1	

↓
FIFO

5	
4	
3	
2	
1	→ front()

(M-1) → Using 2 Queue

(i) Push (x)

(a) → push x to Q₂

(b) → $\Sigma Q_1 \rightarrow Q_2$

(c) → $\Sigma Q_2 \rightarrow Q_1$

(ii) → pop() → Q₁ front()

front ←

1		
2		/
3		/
4		/
5		/
6		/
7		/
8		/
9		/
10		/
11		/
12		/
13		/
14		/
15		/
16		/
17		/
18		/
19		/
20		/
21		/
22		/
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86		/
87		/
88		/
89		/
90		/
91		/
92		/
93		/
94		/
95		/
96		/
97		/
98		/
99		/
100		/

Q₁

Q₂

→ will give you top of stack

(iii) → top()

push(1) ✓

push(2) ✓

top() → 2

push(3) →

Push

Pop & Top

TC → O(n)

TC → O(1)

space → O(n)

(Q-2) → Using One Queue →

push(1)
push(2)
push(3)
push(4)

	4
	3
	2
	1

⇒ push()

(1) → Q → push(1)

(2) → Loop $p \rightarrow (size-1)$

→ temp = Q.front()

→ Q.pop()

→ Q.push(temp)

1
2
3

1
2
3
4
2

⇒ Pop() / pop()

→ to p = front()