

Experiment 2

Aim: Write program to implement stack ADT using array

Practice Questions

Q1. What is LIFO?

→ LIFO stands for last in first out. which means whichever element is inserted last, only that element will get deleted.

2. Explain push/pop operation of stack?

→ push() = This operation is used to insert a value at the top of the stack.

pop() = This operation used to delete (pop-out) a value from stack. In pop, only stack's top value get deleted because stack works on LIFO mechanism.

Q3. Explain stack overflow / underflow condition.

i. Before pushing a new value into stack, we must check whether full or it has space. This condition is 'stack overflow' condition.

If top pointer is pointing to $(size-1)$ index then stack is full means it is overflowed.

Example :-

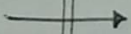
```
void isFull()
{
    if (top == size-1)
        printf("stack overflow");
    else
        // perform push
        push();
}
```

ii. While deleting top value of stack stack underflow condition is checked i.e. $top == -1$ means stack is empty, pop operation is invalid in this case.

Example.

```
void isEmpty()
{
    if (top == -1)
        printf("stack underflow");
    else
        pop();
}
```

4. What is peek operation.



Peek operation is used to know what is present on the stack top. It returns element present at top.

Example:-

```
int peek()
{
    if (stack.isEmpty())
        return 0;
    else
        return st[top];
}
```