

AIM : Array implementation of Stack

THEORY : 1) **Stack** :

A Stack is a linear , LIFO data structure that stores elements in an ordered manner. It is open from only one end. It can be implemented using arrays or linked lists.

For eg: stack of books, plated, etc.

2) **Push function** :

By Push, we insert or add an element to the top of the stack.

Algorithm for Push :

1. If $top == MAX-1$, then print overflow message.
2. Set $top = top+1$;
3. Set $stack[top] = value$;
4. End.

3) **Pop function** :

By Pop, we delete or remove the top-most element of the stack.

Algorithm for Pop :

1. If $top == -1$, then print underflow message.
2. Set $value == stack[top]$.
3. Set $top == top-1$.
4. End.

4) **Peek function** :

Peek returns the value of the top-most element of the stack without deleting it from the stack.

If (top == -1) , print "Stack Empty".

else value = st[top].

5) **Traversing :**

It means to access each data item exactly once so that it can be processed.

6) **Overflow :**

If a stack is full, then no more insertions are possible. If an attempt is made to insert even if $\text{top} == \text{MAX} - 1$, then it is called "overflow" condition.

7) **Underflow :**

If a stack is empty(i.e. $\text{top} == -1$) and the pop function is executed then the condition is called "underflow".

Conclusion :

Errors :

1) expected 'int' but argument is of type 'int *'.

2) each undeclared identifier is reported only once for each function it appears in.