**Name of the experiment :** Write a C program that implements Stack with following operations:

a) Push: Add an element to the top of a stack

b) Pop: Remove an element from the top of a stack

c) IsEmpty: Check if the stack is empty

d) IsFull: Check if the stack is full

e) Peek: Get the value of the top element without removing it

**Objective :** The objective is to implement a program in C that creates Stack with the functions to perform all relevant operations on the queue .

**Algorithm:**

PUSH(STACK, TOP, MAXSTK, ITEM)

//This procedure pushes an ITEM onto a stack.

1. [Stack already filled?]

If TOP= MAXSTK, then: Print: OVERFLOW, and RETURN.

2. Set TOP:= TOP+1. [Increases TOP by 1.]

3. Set STACK[TOP]:= ITEM. [Inserts ITEM in new TOP position.]

4. Return.

POP(STACK, TOP, ITEM)

//This procedure deletes the top element of STACK and assigns it to the variable ITEM.

1. [Stack has an item to be removed?]

If TOP= 0, then: Print: UNDERFLOW, and RETURN.

2. ITEM:=STACK[TOP]. [Assigns TOP element to ITEM.]

3. Set TOP:= TOP-1. [Decreases TOP by 1.]

4. Return.

**Input:**

Enter number of items to push in stack:5

Enter item 1 :1

Enter item 2 :3

Enter item 3 :4

Enter item 4 :5

Enter item 5 :7

Enter number of items to pop from stack:2

**Output:**

The top of the item of this Stack = 7

The top of the item of this Stack = 4