Assignment 4 : Stack

Instructions:-

1. **You need to upload a pdf file for this assignment**
2. **Format:- Q1 code, screenshot of Q1 output , Q2 code, Q2 screenshot of output and so on in the sequence.**
3. **File Naming convention :- ID_Lab04.pdf**
    a. **Eg:- 202011002_Lab04.pdf**

1 :- Create stack class with the following properties

```
class stack {
        int *arr;  // Implement using array
        int top;
        int capacity;
        public:
                stack(int size = SIZE); // constructor
                void push(int); // push the element into the stack
                int pop(); // pop the element from the top
                int peek(); // get top element
                int size(); // Return size of stack
                bool isEmpty(); // return true if stack is empty
                bool isFull(); // return true if stack is full };
```

2:- Given string str, we need to print reverse of individual words.
Input:- Hello World
Output:- olleH dlroW

3:- Given an array, print the Next Greater Element (NGE) for every element. The Next greater Element for an element x is the first greater element on the right side of x in the array. Elements for which no greater element exists, consider the next greater element as -1.

Input1 :- 4 5 2 25
Output1 :- 5 25 25 -1

Input2 :- 1 2 3 4 5
Output2 :- 2 3 4 5 -1

Input3 :- 5 4 3 2 1
Output3 : -1 -1 -1 -1 -1

4:- Write a program to convert infix expression to postfix expression
Input1 :- a + b
Output1 :- ab+

Input2:- a - b * c
Output2:- a b c * -

Input3:- a * (b + c) / d
Output3:- a b c + * d /

5:- Write a program to implement two stacks with a single array. Create separate push() and pop() for both the stacks and perform a set of push and pop such that overflow, underflow, successful push, as well as successful pop operation, takes place for both the stacks.
Note: Utilize the entire space of the array.