27/09/2025

LAB PROGRAM 1:-

Write a program to simulate the working of stack using an array with the following:
a) Push
b) Pop
c) Display
The program should print appropriate messages for stack overflow, stack underflow

```c
#include <stdio.h>

int maxsize = 5;

int top = -1;

int a[5];

void push(int item) {

    if (top == maxsize - 1) {

        printf("Stack is full\n");

    } else {

        top = top + 1;

        a[top] = item;

    }

}

void pop() {

    if (top == -1) {

        printf("Stack is empty\n");

    } else {

        int item = a[top];

        printf("Popped element: %d\n", item);

        top = top - 1;

    }

}

void display() {

    if (top == -1) {

        printf("Stack is empty\n");

    } else {
```

```c
        printf("Stack elements are: ");

        for (int i = top; i >= 0; i--) {

            printf("%d ", a[i]);

        }

        printf("\n");

    }

}

int main() {

    int item, n;

    printf("Enter number of elements to insert (max %d): ", maxsize);

    scanf("%d", &n);


    for (int i = 0; i <=n; i++) {

        printf("Enter element: ");

        scanf("%d", &item);

        push(item);

    }

    display();

    // Example of pop

    pop();

    display();

    return 0;

}
```
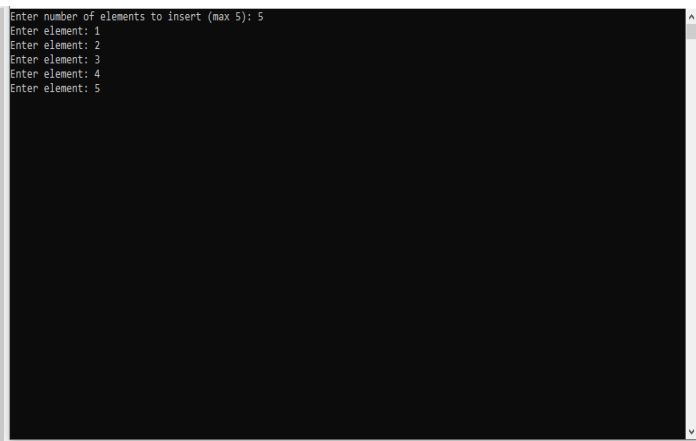
OUTPUT:-


```
Enter number of elements to insert (max 5): 5
Enter element: 1
Enter element: 2
Enter element: 3
Enter element: 4
Enter element: 5
```