

#LAB PROGRAM:- 1)

Ques: Write a Program to simulate the working of stack using an array with the following:-

- push()
- pop()
- display()

The program should print appropriate messages for stack underflow and overflow.

```

CODE: #include <stdio.h>
#include <stdlib.h>
int stack[50];
int ch;
void push(void);
void pop(void);
void display(void);
int n, top, no, i;
int main()
{
    top = -1;
    printf("\nEnter the size of the stack:");
    scanf("%d", &n);
    printf("\nPlease enter the stack operation which you want to perform:");
    printf("\n 1. Push \n 2. Pop \n 3. display \n 4. exit");
    while(ch != '0')
    {
        printf("Enter the choice");
        scanf("%d", &ch);
        switch(ch)
        {

```

case 1:

push();

break;

case 2:

pop();

break;

case 3:

display();

break;

case 4:

exit(0);

break;

default:

{

printf("\nInvalid choice!");

}

}

}

return 0;

}

void push()

{

if (top >= n-1)

{

printf("\n STACK OVERFLOW");

}

else

{

printf("Enter a value to be pushed or inserted");

scanf("%d", &val);

top++;

stack[top] = val;


```

    }
}
void pop()
{
    if (top <= -1)
    {
        printf("\n UNDERFLOW");
    }
    else
    {
        printf("\n The popped element is %d", stack[top]);
        top--;
    }
}

void display()
{
    if (top >= 0)
    {
        printf("\n The elements in stack are as follows\n");
        for (i = top; i >= 0; i--)
        {
            printf("\n %d", stack[i]);
        }
        printf("\n Press next choice");
    }
    else
    {
        printf("\n The stack is empty");
    }
}
}

```