LAB PROGRAM:- 1)

Ques: 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 underflow and overflow.

CODE:

```c
#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("P\nPlease enter the stack operation which
    you went 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", &no);
    top++;
    stack[top]=no;
```

```
      }
      }
void pop()
{
    if (top <= -1)
        {
        printf("\n UNDERFLOW");
        }
    else
        {
        printf("\n The popped elements 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");
        }
}
```