

LAB 1

Q 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.

```
#include <stdio.h>
#include <stdlib.h>
#define N 5
int stack [N];
int top = -1;
void push ()
{
    if (top == N)
        printf("stack overflow");
    else
    {
        int x;
        printf("Enter the element to be inserted");
        scanf ("%d", &x);
        top ++;
        stack [top] = x;
    }
}

void pop ()
{
    if (top == -1)
```

```

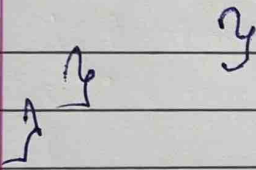
    {
        printf("stack underflow");
    }
    else
    {
        int y;
        y = stack[top];
        top--;
        printf("The element deleted is %d", y);
    }
}

void display()
{
    if (top == -1)
    {
        printf("Stack is empty");
    }
    else
    {
        printf("The element in stack are");
        for (int i = N; i >= 0; i--)
        {
            printf("%d", stack[i]);
        }
    }
}

void main()
{
    while (1)
    {
        int choice;
        printf("Enter your choice: \n 1. Push\n 2. Pop\n 3. Display");
    }
}

```

```
scanf ("%d", &choice);
switch (choice)
{
    case 1: push();
            break;
    case 2: pop();
            break;
    case 3: display();
            break;
    case 4: exit(1);
            break;
    default: printf ("Invalid Input");
            break;
}
```



O/P

Enter your choice :

1. Push
2. Pop
3. Display

Enter the element to be inserted 2

Enter your choice :

1. push
2. pop
3. display 2

The element deleted is 2

Enter your choice :

1. Push
2. Pop
3. display 3

stack is empty.

[Signature] 20/12/23