LAB2

WAP, to simulate the working of stack using an array with the following:

a.] Push
b.] Pop
c.] Display.

The programs should print appropriate messages for stack overflow, stack underflow.

```
#include <stdio.h>
# define SIZE 3
int top = -1;
void push (int [], int);
int pop (int []);
void display (int []);
int main ()
{
    int stack [SIZE];
    int choice, element;
    char ch;
    do
    {
        printf ("Enter your choice\n");
        printf ("1. Push\n");
        printf ("2. Pop\n");
        printf ("3. Display\n");
        scanf ("%d", &choice);
```

```
switch (choice).
{
        case 1: printf("Enter the element to be pushed \n");
                scanf("%d", &element);
                push(stack, element);
                break;
case 2 : element = pop(stack);
         if(element == -1)
            printf("Stack Underflow \n");
         else
            printf("Poped element is %d \n", element);
         break;
case 3: display(stack);
        break;
        default : printf("Invalid choice \n");
}
printf("Do you want to continue : Yes ");
fflush(stdin);
scanf("%c", &ch);
}while(ch == 'y' || ch == 'Y');
return 0;
}
```

```
void push (int stack[], int ele)
{
    if (top == SIZE-1)
    {
        printf ("stack overflow \n");
    }
    else
    {
        top++;
        stack[top] = ele;
    }
}

int pop (int stack[])
{
    int popele;
    if (top == -1)
        return -1;
    else
    {
        popele = stack[top];
        top--;
        return popele;
    }
}
```

```
void display(int stack[])
{
    int i;
    printf("The stack elements \n");
    for (i=top; i>=0; i--)
    {
     printf("%d\n", stack[i]);
    }
}.
```

Output:

Enter your choice:

1. Push
2. Pop
3. Display

1
Enter the element to be pushed: 1
Do you want to continue: y
Enter your choice:

1. Push
2. Pop
3. Display

1.
Enter the element to pushed: 2

Do you want to continue : y

Enter your choice:

1. Push
2. Pop
3. Display

3

stack elements

2

1

Do you want to continue: y

Enter your choice:

1. Push
2. Pop
3. Display

1.

Enter the element to be pushed: 3

Do you want to continue: y

Enter your choice:

1. Push
2. Pop
3. Display

3

stack elements

3

2

1

Do you want to continue: y

Enter your choice:

1. Push
2. Pop
3. Display

2.

Poped element is 3

Do you want to continue: y

Enter your choice:

1. Push
2. Pop
3. Display.

2. Poped element is 2.

Do you want to continue: y

Enter your choice:

1. Push
2. Pop
3. Display

2.

Poped element is 1

Do you want to continue: y

Enter your choice:

1. Push

2. Pop

3. Display

2.

Stack Under flow

Do you want to continue: n