

## LAB-2

\* 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 message for stack overflow

=>

```
#include <stdio.h>
```

```
#define Size = 5
```

```
void push (int );
```

```
void pop ();
```

```
void display ();
```

```
int stack [Size], top = -1;
```

```
void push (int value) {
```

```
    if (top == Size - 1) {
```

```
        printf ("The stack is in overflow condition");
```

```
    }
```

```
    else {
```

```
        top = top + 1;
```

```
        stack[top] = value;
```

```
    }
```

```
    printf ("Insertion successful");
```

```
}
```

```
}
```

```
void pop () {  
    if (top == -1) {  
        printf("The stack is in Underflow  
        condition");  
    }  
    else {  
        printf("The deleted item is %d",  
        stack[top])  
        top = top - 1;  
    }  
}
```

```
void display () {
```

```
    int i;
```

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

```
        printf("Empty Stack : ");
```

```
    }
```

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

```
        printf("%d", stack[i]);
```

```
    }
```

```
}
```

```
int main () {
```

```
    int value, choice;
```

```
    while (1) {
```

```
        printf("Enter 1 to push element:\n
```

```
        Enter 2 to pop element:\n
```

```
        Enter 3 to display element:\n
```

```
        Enter 4 to exit : ");
```

```
scanf ("%d", &choice);  
switch (choice) {
```

```
    case 1: printf ("Enter a value:");  
             scanf ("%d", &value);  
             push (value);  
             break;
```

```
    case 2: pop ();  
             break;
```

```
    case 3: display ();  
             break;
```

```
    case 4: exit (0);
```

```
    default: printf ("Wrong input...  
                  try again");
```

```
}
```

```
}
```

O/P

Enter 1 to push :

Enter 2 to pop :

Enter 3 to display:

Enter 4 to exit:





C:\Users\bmsce\Desktop\1BM X



Enter 1 to push element :

Enter 2 to pop element :

Enter 3 to display element :

Enter 4 to exit :

2

The Stack is in Underflow Condition !

Enter 1 to push element :

Enter 2 to pop element :

Enter 3 to display element :

Enter 4 to exit :

3

Empty Stack !

Enter 1 to push element :

Enter 2 to pop element :

Enter 3 to display element :

Enter 4 to exit :

|

```
Enter 2 to pop element :
Enter 3 to display element :
Enter 4 to exit :
1
Enter a value : 12

Insertion Successful !
Enter 1 to push element :
Enter 2 to pop element :
Enter 3 to display element :
Enter 4 to exit :
1
Enter a value : 32

Insertion Successful !
Enter 1 to push element :
Enter 2 to pop element :
Enter 3 to display element :
Enter 4 to exit :
3
32 12 Enter 1 to push element :
Enter 2 to pop element :
Enter 3 to display element :
Enter 4 to exit :
2
The deleted item is 32 Enter 1 to push element :
Enter 2 to pop element :
Enter 3 to display element :
Enter 4 to exit :
```

Insertion Successful !  
Enter 1 to push element :  
Enter 2 to pop element :  
Enter 3 to display element :  
Enter 4 to exit :

1  
Enter a value : 34

Insertion Successful !  
Enter 1 to push element :  
Enter 2 to pop element :  
Enter 3 to display element :  
Enter 4 to exit :

1  
Enter a value : 43

Insertion Successful !  
Enter 1 to push element :  
Enter 2 to pop element :  
Enter 3 to display element :  
Enter 4 to exit :

1  
Enter a value : 43

The Stack is in Overflow Condition !  
Enter 1 to push element :  
Enter 2 to pop element :  
Enter 3 to display element :  
Enter 4 to exit :