

main.c



```
1  #include <stdio.h>
2  #include <stdlib.h>
3  #define MAX 10
4  int top=-1,stack[MAX];
5  void push();
6  void pop();
7  void display();
8
9  int main()
10 {
11     int ch;
12     while(1)
13     {
14         printf("\n**STACK MENU**");
15         printf("\n\n1.PUSH\n2.POP\n3.DISPLAY\n4.EXIT");
16         printf("\n\nENTER YOUR CHOICE(1-4):");
17         scanf("%d",&ch);
18
19         switch(ch)
20         {
21             case 1:push();
22                 break;
23
24             case 2: pop();
25                 break;
26             case 3: display();
27                 break;
28             case 4: exit(0);
29             default: printf("\nWrong choice");
30         }
31     }
32     return 0;
33 }
34 void push()
35 {
36     int val;
37     if(top==MAX-1)
38     { printf("\nSTACK IS FULL");
39     }
40     else
41     { printf("\n ENTER ELEMENTS TO PUSH:");
42       scanf("%d",&val);
43       top=top+1;
44       stack[top]=val;
45     }
```

```
32     return 0;
33 }
34 void push()
35 {
36     int val;
37     if(top==MAX-1)
38     { printf("\nSTACK IS FULL");
39     }
40     else
41     { printf("\n ENTER ELEMENTS TO PUSH:");
42       scanf("%d",&val);
43       top=top+1;
44       stack[top]=val;
45     }
46 }
47 void pop()
48 {
49     if(top==-1)
50     { printf("\nSTACK IS EMPTY");
51     }
52     else
53     { printf("\nDELETED ELEMENT IS %d",stack[top]);
54       top=top-1;
55     }
56 }
57 void display()
58 { int i;
59   if(top==-1)
60   { printf("\n STACK IS EMPTY");
61   }
62   else
63   { printf("\n STACK IS...");
64     for(i=top;i>=0;--i)
65       printf("%d\n",stack[i]);
66   }
67 }
```



```
clang-7 -pthread -lm -o main main.c  
./main
```

****STACK MENU****

- 1.PUSH
- 2.POP
- 3.DISPLAY
- 4.EXIT

ENTER YOUR CHOICE(1-4):1

ENTER ELEMENTS TO PUSH:3

****STACK MENU****

- 1.PUSH
- 2.POP
- 3.DISPLAY
- 4.EXIT

ENTER YOUR CHOICE(1-4):1

ENTER ELEMENTS TO PUSH:10

****STACK MENU****

- 1.PUSH
- 2.POP
- 3.DISPLAY
- 4.EXIT

ENTER YOUR CHOICE(1-4):3

STACK IS...10

3

****STACK MENU****

- 1.PUSH
- 2.POP
- 3.DISPLAY
- 4.EXIT

ENTER YOUR CHOICE(1-4):

→ WAP to ~~the~~ simulate the working of stack using 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 MAX 10
int top = -1, stack[MAX];
void push();
void pop();
void display();
int main()
{
    int ch;
    while (1)
    {
        printf("\n*** STACK MENU***");
        printf("\n\n1. PUSH\n2. POP\n3. DISPLAY\n4. EXIT");
        printf("\n\nENTER YOUR CHOICE (1-4): ");
        scanf("%d", &ch);
        switch(ch)
        {
            case 1: push();
                    break;
            case 2: pop();
                    break;
            case 3: display();
                    break;
            case 4: exit(0);
```

```
default: printf("\n Wrong choice");
}
}
return(0);
}
void push()
{
    int val;
    if (top == MAX-1)
    {
        printf("\n STACK IS FULL");
    }
    else
    {
        printf("\n ENTER ELEMENTS TO PUSH:");
        scanf("%d", &val);
        top = top + 1;
        stack[top] = val;
    }
}
void pop()
{
    if (top == -1)
    {
        printf("\n STACK IS EMPTY");
    }
    else
    {
        printf("\n DELETED ELEMENT IS %d", stack[top]);
        top = top - 1;
    }
}
void display()
```


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```
}  
int i;  
if (top == -1)  
{  
    printf("\n STACK IS EMPTY");  
}  
else  
{  
    printf("\n STACK IS...");  
    for (i=top; i>=0; --i)  
        printf("%d\n", stack[i]);  
}  
}
```