



new*



```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #define MAX 3
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\n1.PUSH\n2.POP\n3.DISPLAY\n4.
15 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     {
39         printf("\n STACK OVERFLOW");
40     }

```



Tab

{

|

}

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new*



```
38  {
39  printf("\n STACK OVERFLOW");
40  }
41  else
42  { printf("\n ENTER ELEMENTS TO PUSH:");
43  scanf("%d",&val);
44  top=top+1;
45  stack[top]=val;
46  }
47  }
48  void pop()
49  {
50  if(top== -1)
51
52  {
53  printf("\n STACK UNDERFLOW");
54  }
55  else
56  { printf("\nDELETED ELEMENT IS %d",
stack[top]);
57  top=top-1;
58  }
59  }
60  void display()
61  { int i;
62  if(top== -1)
63  { printf("\n STACK IS EMPTY");
64  }
65  else
66  { printf("\n STACK IS... ");
67  for(i=top;i>=0;-i)
68  printf("%d\n",stack[i]);
69  }
70 }
```



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{

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}

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TAB



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

ENTER YOUR CHOICE(1-4):1

ENTER ELEMENTS TO PUSH:10

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

ENTER YOUR CHOICE(1-4):1

ENTER ELEMENTS TO PUSH:20

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

ENTER YOUR CHOICE(1-4):1

ENTER ELEMENTS TO PUSH:30

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

ENTER YOUR CHOICE(1-4):1

STACK OVERFLOW

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

ENTER YOUR CHOICE(1-4):3

STACK IS...30
20
10

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

ENTER YOUR CHOICE(1-4):2

DELETED ELEMENT IS 30

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



TAB



ENTER ELEMENTS TO PUSH:30

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

ENTER YOUR CHOICE(1-4):1

STACK OVERFLOW

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

ENTER YOUR CHOICE(1-4):3

STACK IS...30
20
10

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

ENTER YOUR CHOICE(1-4):2

DELETED ELEMENT IS 30

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

ENTER YOUR CHOICE(1-4):2

DELETED ELEMENT IS 20

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

ENTER YOUR CHOICE(1-4):2

DELETED ELEMENT IS 10

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

ENTER YOUR CHOICE(1-4):2

STACK UNDERFLOW

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

ENTER YOUR CHOICE(1-4):■

Lab Program - 1

1. Write a program to stimulate the working of stack using an array with the following Push, Pop, & display. The program should print appropriate message for stack underflow & overflow.

→ #include <iostream.h>

#include <stdlib.h>

#define MAX 3

int top = -1, stack[MAX];

void push();

void pop();

void display();

int main()

{

int ch;

while(1)

{

printf("In 1. PUSH In 2. POP In 3. DISPLAY In 4. EXIT");

printf("In Enter Your choice (1-4): ");

scanf("%d", &ch);

~~switch~~

switch(ch)

{

case 1 : push();
break;

case 2 : pop();
break;

case 3 : display();
break;

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

default : printf("In wrong choice");

}

y

return 0;

}

void push()

{

int val;

if (top == MAX-1)

{ printf("In Stack ~~Is Full~~ Overflow");

y

else

```
{ printf ("In Enter Elements to Push:");  
scanf ("%d", &val);  
top = top + 1;  
stack [top] = val;  
}  
}
```

void pop()

```
{  
if (top == -1)  
{ printf ("In Stack Is Empty");  
}  
}
```

else

```
{ printf ("In Deleted Element Is %d", stack [top]);  
top = top - 1;  
}  
}
```

void display()

```
{  
int i;  
if (top == -1)  
{
```

```
printf ("In Stack Underflow");  
}  
else {
```

```
printf ("In stack is : ");  
for (p = top; i >= 0; p = -i)  
    printf ("%d", stack[i]);  
}  
}
```

Output

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

ENTER YOUR CHOICE (1-4) : 1

ENTER ELEMENTS TO PUSH : 10

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

ENTER YOUR CHOICE (1-4) : 1

ENTER ELEMENTS TO PUSH : 20

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

ENTER YOUR CHOICE (1-4): 1

ENTER ELEMENTS TO PUSH: 30

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

ENTER YOUR CHOICE (1-4): 1

STACK OVERFLOW

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

ENTER YOUR CHOICE (1-4): 3

STACK IS ... 30

20

10

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

ENTER YOUR CHOICE (1-4): 2

DELETED ELEMENT IS 30

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

ENTER YOUR CHOICE (1-4): 2

DELETED ELEMENT IS 20

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

ENTER YOUR CHOICE (1-4): 2

DELETED ELEMENT IS 10

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

ENTER YOUR CHOICE (1-4): 2

STACK UNDERFLOW