

LAB PROGRAM 1:-

```
#include <stdio.h>

#include <stdlib.h>

#define SIZE 5

int top=-1;

int stack[SIZE];

void push(int ele)

{

    if(top==SIZE-1)

    {

        printf("The stack is overflow\n");

    }

    else

    {

        top++;

        stack[top]=ele;

    }

}

int pop()

{

    if(top== -1)

    {

        return 0;

    }

    else

    { printf("Element removed is : %d\n",stack[top--]);

        return 1;

    }

}
```

```
    }  
}
```

```
void display()  
{  
    if(top== -1)  
        printf("The stack is empty\n");  
    else  
    {  
        printf("The elements are\n");  
        for(int i=0;i<=top;i++)  
        {  
            printf("%d\n",stack[i]);  
        }  
    }  
}
```

```
int main()  
{  
    int c,d,p;  
    while(c!=4)  
    {  
        printf("Enter command\t1-push\t2-pop\t3-Display\t4-Exit\n");  
        scanf("%d",&c);  
        switch(c)  
        {  
            case 1:printf("Enter an element\n");
```

```
scanf("%d",&d);

push(d);

break;

case 2:p=pop();

if(p==0)

printf("Stack is Underflow\n");

else

printf("\nElement removed succesfully\n");

break;

case 3:display();

break;

case 4:break;

default: printf("Invalid input\n");

}

}

return 0;

}
```

SCREENSHOTS OF PROGRAM AND OUTPUT:-

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replit/repls/PastelCluelessAlphatest#main.c

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Files main.c

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #define SIZE 3
4 int top=-1;
5 int stack[SIZE];
6 void push(int ele)
7 {
8     if(top==SIZE-1)
9     {
10         printf("The stack is overflow\n");
11     }
12     else
13     {
14         top++;
15         stack[top]=ele;
16     }
17 }
18 int pop()
19 {
20     if(top==--1)
21     {
22         return 0;
23     }
```

```
> clang-7 -pthread -lm -o main main.c
> ./main
Enter command 1-push 2-pop 3-Display 4-Exit
1
Enter an element
10
Enter command 1-push 2-pop 3-Display 4-Exit
1
Enter an element
20
Enter command 1-push 2-pop 3-Display 4-Exit
1
Enter an element
30
Enter command 1-push 2-pop 3-Display 4-Exit
3
The elements are
10
20
30
Enter command 1-push 2-pop 3-Display 4-Exit
1
Enter an element
20
The stack is overflow
```

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replit/repls/PastelCluelessAlphatest#main.c

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Files main.c

```
23 }
24 }
25 { printf("Element removed is : %d\n",stack
26     [top--]);
27     return 1;
28 }
29 }
30 void display()
31 {
32     if(top==--1)
33     { printf("The stack is empty\n");
34     }
35     else
36     { printf("The elements are\n");
37       for(int i=0;i<=top;i++)
38       { printf("%d\n",stack[i]);
39       }
40     }
41 }
42 }
43 }
```

```
Enter command 1-push 2-pop 3-Display 4-Exit
1
Enter an element
20
The stack is overflow
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 30
Element removed successfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 20
Element removed successfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 10
Element removed successfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Stack is Underflow
Enter command 1-push 2-pop 3-Display 4-Exit
```

Type here to search

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repl.it/repls/PastelCluelessAlphatest#main.c

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Files main.c

```
43 int main()
44 {
45     int c,d,p;
46     while(c!=4)
47     {
48         printf("Enter
49         command\t1-push\t2-pop\t3-Display\t4-Exit\n");
50         scanf("%d",&c);
51         switch(c)
52         {
53             case 1:printf("Enter an element\n");
54                     scanf("%d",&d);
55                     push(d);
56                     break;
57             case 2:p=pop();
58                     if(p==0)
59                         printf("Stack is Underflow\n");
60                     else
61                         printf("\nElement removed
62                         successfully\n");
63                     break;
64             case 3:display();
65                     break;
66             case 4:break;
67             default: printf("Invalid input\n");
68                     break;
69         }
70     }
71 }
```

20
The stack is overflow
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 30

Element removed successfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 20

Element removed successfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 10

Element removed successfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Stack is Underflow
Enter command 1-push 2-pop 3-Display 4-Exit
3
The stack is empty
Enter command 1-push 2-pop 3-Display 4-Exit

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repl.it/repls/PastelCluelessAlphatest#main.c

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Files main.c

```
48 {
49     printf("Enter
50     command\t1-push\t2-pop\t3-Display\t4-Exit\n");
51     scanf("%d",&c);
52     switch(c)
53     {
54         case 1:printf("Enter an element\n");
55                 scanf("%d",&d);
56                 push(d);
57                 break;
58         case 2:p=pop();
59                 if(p==0)
60                     printf("Stack is Underflow\n");
61                 else
62                     printf("\nElement removed
63                     successfully\n");
64                 break;
65         case 3:display();
66                 break;
67         case 4:break;
68         default: printf("Invalid input\n");
69                 break;
70     }
71 }
```

20
The stack is overflow
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 30

Element removed successfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 20

Element removed successfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 10

Element removed successfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Stack is Underflow
Enter command 1-push 2-pop 3-Display 4-Exit
3
The stack is empty
Enter command 1-push 2-pop 3-Display 4-Exit

WRITTEN PROGRAMS:-

```
DATE: / /  
  
#include <stdio.h>  
#include <stdlib.h>  
#define SIZE 5  
int top = -1;  
int stack[SIZE];  
void push(int ele)  
{  
    if (top == SIZE - 1)  
    {  
        printf("The stack is full \n")  
        }  
        else  
        {  
            top++;  
            stack[top] = ele;  
        }  
    }  
    int pop()  
    {  
        if (top == -1)  
        {  
            return 0;  
        }  
        else  
        {  
            printf("element removed is: %.d \n", stack[top]);  
            top--;  
        }  
    }
```



```
return 1;
```

```
}
```

```
}
```

```
void display()
```

```
{
```

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

```
printf("The stack is empty\n");
```

```
else
```

```
{
```

```
printf("The elements are\n");
```

```
for (int i=0; i<=top; i++)
```

```
{
```

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

```
}
```

```
}
```

```
}
```

```
int main()
```

```
{
```

```
int c, d, p;
```

```
while (c != 4)
```

```
{
```

```
printf("Enter command (1- push 1 2- pop\n1 3- Display 4- Exit\n");
```

```
scanf("%d", &c);
```

```
switch(c)
{
    case 1: printf("Enter an element \n");
            scanf("%d", &d);
            push(d);
            break;
    case 2: p = pop();
            if (p == 0) underflow
                printf("Stack is empty \n");
            else
                printf("In element removed \n");
            break;
    case 3: display();
            break;
    case 4: break;
    default: printf("Invalid input \n");
}
}
return 0;
}
```