

```

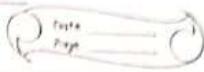
#include<stdio.h>
#include<stdlib.h>
# define MAX 5
int stack [MAX];
int top = -1;
void push (int value){
    if (top ==MAX-1){
        printf("stack overflow!");
    }
    else {
        stack [++top] = value;
        printf("%d pushed into stack\n ", value);
    }
}
void pop (){
    if(top == -1){
        printf("stack underflow");
    }
    else {
        printf("%d dropped from stack\n", stack[top]);
    }
}
void display (){
    if(top== -1){
        printf("stack is empty\n");
    }
    else {
        printf("stack elements:");
        for(int i = top; i>=0;i--){
            printf("%d", stack[i]);
        }
        printf("\n");
    }
}
int main (){
    int choice, value;
    while(1){
        printf("\n---stack menu---\n");
        printf("[1.push\n2.pop\n3.display\n4.exit]\n");
        printf("enter your choice :");
        scanf("%d", &choice);

        switch(choice){
            case 1:
                printf("enter the value to push:");
                scanf("%d", &value);
                push(value);
                break;
            case 2:
                pop();
                break;
            case 3:
                display();
            case 4:
                exit(0);
                default:
                    printf("invalid choice");
        }
    }
    return 0;
}

```

```
--stack menu--  
1.push  
2.pop  
3.display  
4.exit  
enter your choice :1  
enter the value to push:10  
10 pushed into stack  
  
--stack menu--  
1.push  
2.pop  
3.display  
4.exit  
enter your choice :1  
enter the value to push:20  
20 pushed into stack  
  
--stack menu--  
1.push  
2.pop  
3.display  
4.exit  
enter your choice :3  
stack elements:2010
```

LISTS & PROGRAMS



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 messages for stack overflow or stack underflow.

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

#define MAX 5

int stack[MAX];
int top = -1;

Void push (int value) {
    if (top == MAX-1) {
        printf("Stack overflow!");
    } else {
        stack[++top] = value;
        printf("%d pushed into stack\n", value);
    }
}

Void pop() {
    if (top == -1) {
        printf("Stack underflow");
    } else {
        printf("%d dropped from stack\n", stack[top]);
    }
}

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

```
printf("stack is empty \n");
y
else{
    printf("stack elements: ");
    for (int i=top; i>=0; i--) {
        printf("%d", stack[i]);
    }
    printf("\n");
    y
}
```

```
int main () {
    int choice,value;
    while(1) {
        printf("\n--- stack menu ---\n");
        printf("1.push\n2.pop\n3. Display\n4. Exit\n");
        printf("Enter your choice:");
        scanf ("%d", &choice);
    }
}
```

Switch (choice){

case 1:

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

Case 2:

```
    pop();
    break();
```

Case 3:

```
    display();
```

Case 4:

```
    exit(0);
```

```
default: cout << "Enter your choice: ";
        cout << endl;
        cout << "1. Push" << endl;
        cout << "2. Pop" << endl;
        cout << "3. Display" << endl;
        cout << "4. exit" << endl;
        cout << endl;
        cout << "Enter your choice: ";
        cin >> choice;
        cout << endl;
        cout << "Enter value to push: ";
        cin >> value;
        cout << endl;
        cout << "Value pushed into stack" << endl;
        cout << endl;
```

Output

```
-- Stack Menu --
1. Push
2. Pop
3. Display
4. exit
```

```
Enter your choice: 1
Enter value to push: 10
10 pushed into stack
```

```
Enter your choice: 1
```

```
Enter value to push: 20
```

```
20 pushed into stack
```

```
Enter your choice: 3
```

```
Stack element: 20, 10
```

```
Enter your choice: 2
```

```
20 popped from stack
```

✓ 22/11
Enter your choice: 2

Stack underflow!