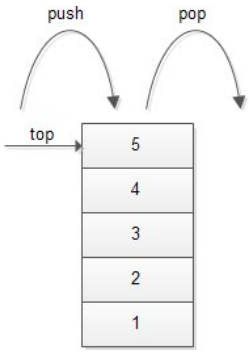
C Program for Stack Operations using arrays.

Stack is a data structure in which the objects are arranged in a non linear order. In stack, elements are added or deleted from only one end, i.e. top of the stack.

```
/*****************************************************************
*  Here we implement the PUSH, POP and DISPLAY stack operations using the array
*****************************************************************/

#include<stdio.h>
#define SIZE 5      /* Size of Stack */

int s[SIZE];        /* Global declarations */
int top = -1;       /* -1 indicates stack is empty */

void push(int elem) /* Function for PUSH operation */
{
    if(isFull())
        printf("\n Stack is full!\n");
    else {
        ++top;
        s[top] = elem;
    }
}

int pop()           /* Function for POP operation */
{
    int elem;
    if(isEmpty()) {
        printf("\nStack is Empty!\n");
        return -1;
    }
    else {
        elem = s[top];
        top--;
        return elem;
    }
}

int isFull()        /* Function to Check if Stack is Full */
{
    if(top == SIZE - 1)
        return 1;
    return 0;
}

int isEmpty()       /* Function to Check if Stack is Empty */
{
    if(top == -1)
        return 1;
    return 0;
}
```



```c
void display()  /* Function to display status of Stack */
{
    int i;
    if(isEmpty())
        printf(" \n Empty Stack\n");
    else
    {
        for (i = 0; i <= top; i++)
            printf("%d\n", s[i]);
        printf("^Top");
    }
}

void main()  /* Main Program */
{
    int opn, elem;
    do
    {
        printf("\n Stack Operations \n");
        printf("\n Press 1-Push, 2-Pop,3-Display,4-Exit\n");
        printf("\n Your option ? ");
        scanf("%d", &opn);

        switch (opn)
        {
        case 1:
            printf("\n Enter the element to be pushed ?");
            scanf("%d", &elem);
            push(elem);
            break;
        case 2:
            elem = pop();
            if (elem != -1)
                printf("\n Popped Element is %d \n", elem);
            break;
        case 3:
            printf("\n Status of Stack \n");
            display();
            break;
        case 4:
            printf("\n Terminating \n");
            break;
        default:
            printf("\n Invalid Option !!! Try Again !! \n");
            break;
        }
        printf("\n Press a Key to Continue . . . ");
    }
    while (opn != 4);
}
```