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1  #include<stdio.h>
2  #include<stdlib.h>
3  #define MAX 20
4
5  int stack_a[MAX];
6  int top = -1;
7
8  void push(int value);
9  int pop();
10 int peek();
11 int isEmpty();
12 int isFull();
13 void display();
14
15 int main()
16 {
17     int choice,value;
18     while(1)
19     {
20         printf("This is a Menu based program\n");
21         printf("\n1.Push\n");
22         printf("2.Pop\n");
23         printf("3.Display the top element\n");
24         printf("4.Display all stack elements\n");
25         printf("5.Quit\n");
26         printf("\nEnter your choice from the above options : ");
27         scanf("%d",&choice);
28         switch(choice)
29         {
30             case 1 :
31                 printf("\nEnter the item to be pushed : ");
32                 scanf("%d",&value);
33                 push(value);
34                 break;
35             case 2:
36                 value = pop();
37                 printf("\nThe item to be Popped is : %d\n",value);
38                 break;
39             case 3:
40                 printf("\nThe item which is present at the top is : %d\n", peek() );
41                 break;
42             case 4:
43                 display();
44                 break;
45             case 5:
46                 exit(1);
47             default:
48                 printf("\nSorry you have entered the wrong choice\n");
49         }/*End of switch*/
50     }/*End of while*/
51
52     return 0;
53
54 }/*End of main()*/
55
56 void push(int value)
57 {
58     if( isFull() )
59     {
60         printf("\nStack Overflow\n");
61         return;
62     }
63     top = top+1;
64     stack_a[top] = value;
65 }/*push() function ends*/
66

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67 int pop()
68 {
69     int value;
70     if( isEmpty() )
71     {
72         printf("\nThis condition is for Stack Underflow\n");
73         exit(1);
74     }
75     value = stack_a[top];
76     top = top-1;
77     return value;
78 }/*pop() function ends*/
79
80 int peek()
81 {
82     if( isEmpty() )
83     {
84         printf("\nThis condition is for Stack Underflow\n");
85         exit(1);
86     }
87     return stack_a[top];
88 }/*peek() function ends*/
89
90 int isEmpty()
91 {
92     if( top == -1 )
93         return 1;
94     else
95         return 0;
96 }/*isEmpty ends*/
97
98 int isFull()
99 {
100     if( top == MAX-1 )
101         return 1;
102     else
103         return 0;
104 }/*isFull ends*/
105
106 void display()
107 {
108     int i;
109     if( isEmpty() )
110     {
111         printf("\nStack is empty\n");
112         return;
113     }
114     printf("\nStack elements :\n\n");
115     for(i=top;i>=0;i--)
116         printf(" %d\n", stack_a[i] );
117     printf("\n");
118 }/*display() function ends*/

```