Stack operations using Array

CODE :

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

#define size 5 int stack[size];
int top = -1;

void push(){
   int x;    if(top == size -1){
      printf("\n Stack in Overflow Condition");
   }
   else{
      printf("\nEnter the data value: ");       scanf("%d",&x);       top++;       stack[top] = x;
   }
   display();
}

void pop(){    if(top==-1){
      printf("\n Stack in Underflow Condition");
   }
   else{
      printf("\nThe Dequeued element is: %d",stack[top]);
      top--;
   }
   display();
}

void peek(){    if(top == -1){
      printf("\n Stack in Underflow Condition");
   }
   else{
      printf("\nThe element at the top is: %d",stack[top]);
   }
}

void isFull(){    if(top == size -1){
      printf("\n Stack in Overflow Condition");
   }
   else{
      printf("\n Stack in not in Overflow Condition");

   }
}

void isEmpty(){    if(top == -1){
      printf("\n Stack in Underflow Condition");
   }
   else{
      printf("\n Stack in not in Underflow Condition");

   }
}

void display(){
   int x;    if(top == -1){
      printf("\n Stack in Underflow Condition");
   }
   else{
      printf("\nThe elements in the stack are:\t");       x = top;       while(x!=-1){          printf("\t%d",stack[x]);
         x--;
      }
   }
}

void main(){    int choice=0;    while(1){
      printf("\n\n-------MENU-------");
      printf("\n1: Push\n2: Pop\n3: Peek\n4: Is Full?\n5: Is empty\n0: Exit Loop");       printf("\nENter your Choice: ");       scanf("%d",&choice);
      switch (choice)
      {          case 1:{             push();             break;
        }          case 2:{             pop();             break;
```

```
        }       case 3:{        peek();         break;
        }       case 4:{        isFull();       break;
        }       case 5:{        isEmpty();          break;
        }       case 0:{        break;
        }

        default:{
           printf("\nInvalid Input !! Try again\n");
           break;
        }
     }
     if(choice==0){
        printf("\nLoop is successfully exited");
        break;
     }
  }
```

OUTPUT:

```
-------MENU-------
1: Push
2: Pop
3: Peek
4: Is Full?
5: Is empty
0: Exit Loop
ENter your Choice: 1

Enter the data value: 1

The elements in the stack are:          1

-------MENU-------
1: Push
2: Pop
3: Peek
4: Is Full?
5: Is empty
0: Exit Loop
ENter your Choice: 1

Enter the data value: 2

The elements in the stack are:          2       1

-------MENU-------
1: Push
2: Pop
3: Peek
4: Is Full?
5: Is empty
0: Exit Loop
ENter your Choice: 2

The Dequeued element is: 2
The elements in the stack are:          1
```

}