Write a program to simulate the working of stack using an array with the following :

a) **Push b) Pop c) Display**
b) **The program should print appropriate messages for stack overflow, stack underflow**

```
#include<stdio.h>
#include<stdlib.h>
#define STACK_SIZE 5
int top=-1;
int s[10];
int item;
void push()
{
if(top==STACK_SIZE -1)
{
printf("Stack Overflow\n");
return;
}
top=top+1;
s[top]=item;
}
int pop()
{
if(top==-1)
return -1;
return s[top--];
}
```

```
void display()
{
int i;
if(top==-1)
{
printf("Stack is empty\n");
return;
}
printf("Contents of the stack:\n");
for(i=0;i<=top;i++)
{
printf("%d\n",s[i]);
}
}
void main()
{
int item_deleted;
int choice;
for(;;)
{
printf("\n1.Push\n2.Pop\n3.Display\n4.Exit\n");
printf("Enter the choice\n");
scanf("%d",&choice);
switch(choice)
{
case 1:printf("Enter the item to be inserted\n");
scanf("%d",&item);
```

```
push();
break;
case 2:item_deleted=pop();
if(item_deleted==-1)
printf("Stack is empty\n");
else
printf("Item deleted is %d\n",item_deleted);
break;
case 3:display();
break;
default:exit(0);
}
}
}
```

F:\3333333333333.exe

```
1.Push
2.Pop
3.Display
4.Exit
Enter the choice
1
Enter the item to be inserted
2

1.Push
2.Pop
3.Display
4.Exit
Enter the choice
1
Enter the item to be inserted
6

1.Push
2.Pop
3.Display
4.Exit
Enter the choice
2
Item deleted is 6

1.Push
2.Pop
3.Display
4.Exit
Enter the choice
2
Item deleted is 2
```

F:\3333333333333.exe

```
1.Push
2.Pop
3.Display
4.Exit
Enter the choice
2
Stack is empty

1.Push
2.Pop
3.Display
4.Exit
Enter the choice
4

Process returned 0 (0x0)   execution time : 27.132 s
Press any key to continue.
```