2. 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 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("\n Stack Overflow\n");
        return;
    }
    top +=1;
    s[top] = item;
}
int pop()
{
    if(top == -1)
    return -1;
    return s[top--];
}
void display()
{
    int i;
    if (top==-1)
```

```
{
    printf ("\n Stack is empty \n");
    return;
}
printf("The contents of the stack are: \n");
for (i=0; i<=top; i++)
{
    printf ("%d\n", s[i]);
}
}
void main()
{
    int item_deleted, choice;
    while (1)
    {
        printf("\n 1: Push \n 2: Pop \n 3: Display \n 4:
         Exit \n");
        printf ("Enter your choice: ");
        scanf ("%d", &choice);
        switch (choice)
        {
            case 1:
            printf ("\n Enter the item to be inserted: ")
            scanf ("%d", &item);
            push();
            break;
            case 2:
            item_deleted = pop();
            if (item_deleted == -1)
            {
                printf ("\n Stack is empty \n");
            }
            else
            {
```

```
            printf("\n The item deleted is %d
              \n", item_deleted);
            }
            break;
            case 3:
            display();
            break;
            default: exit(0);
        }
    }
}
```