## Program 1

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

## Code:

```
#include<stdio.h>
#include<stdlib.h>
#define size 5
int top=-1;
int stack[size];
int item;
void push(){
  if(top==size-1){
     printf("Stack Overload\n");
  else{
     top+=1;
     stack[top]=item;
  }
}
int pop(){
  if(top==-1){
     printf("Stack Underflow\n");
  }
  else{
     return stack[top--];
  }
}
void display(){
  if(top==-1)
     printf("Stack is empty!");
  else{
     printf("Content of the stacks:");
     for(int i=0;i <= top;i++)
       printf("%d ",stack[i]);
     }printf("\n");
  }
}
void main(){
```

```
int choice;
  while(1){
     printf("Enter your options:\n");
     printf("1.Push\n2.Pop\n3.Display\n4.Exit\n");
    printf("Enter your choice:");
     scanf("%d",&choice);
     switch(choice){
       case 1:printf("Enter the element to be pushed in:");scanf("%d",&item);push();break;
       case 2:if(top==-1){
          printf("stack is empty!\n");
       }else{
          printf("%d popped from stack\n", stack[top]);
       pop();
       break;
       case 3:display();
       break;
       case 4:exit(0);
}
```

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Enter your choice:1
Enter the element to be pushed in:45
Enter your options:
1.Push
2.Pop
3.Display
4.Exit
Enter your choice:1
Enter the element to be pushed in:67
Enter your options:
1.Push
2.Pop
3.Display
4.Exit
Enter your choice:3
Content of the stacks:45 67
Enter your options:
1.Push
2.Pop
3.Display
4.Exit
Enter your choice:2
67 popped from stack
Enter your options:
1.Push
2.Pop
3.Display
4.Exit
Enter your choice:2
67 popped from stack
Enter your options:
1.Push
2.Pop
3.Display
4.Exit
Enter your choice:2
6.Exit
Enter your choice:2
6.Exit
Enter your choice:
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