Name	Komal Tarachandani
UID no.	2021600065
Experiment No.	1

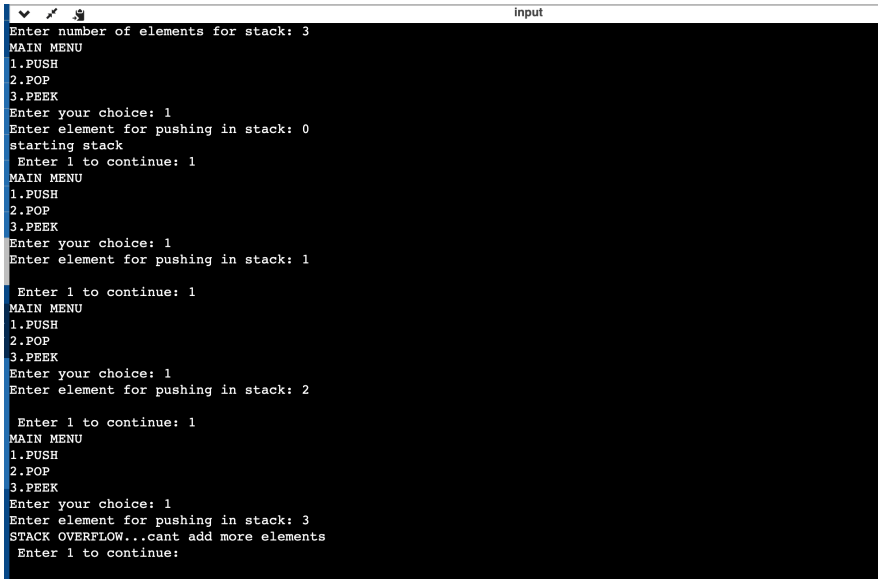
AIM:	Implement stack operations basics.
Program 1	
PROBLEM STATEMENT :	Implement Basic Stack operations

PROGRAM:	#include <iostream>
	#include <stdlib.h>
	using namespace std;
	int n=0;
	typedef struct{
	  int arr[10];
	  int top;
	}stack;
	stack *s;
	void push(int num)
	{
	  if(s->top==n-1)
	  {
	  cout<<"STACK OVERFLOW...cant add more elements";
	  }
	  else if(s->top==-1)
	  {
	  cout<<"starting stack";
	  s->top++;
	  s->arr[s->top]=num;
	  }
	  else
	  {
	  s->top++;
	  s->arr[s->top]=num;
	  }
	}

```
int pop()
{
   if(s->top==-1)
   {
      cout<<"\nEmpty stack....STACK UNDERFLOW";
      return 0;
   }
   else if(s->top==0)
   {
      cout<<"last element popped";
      return s->arr[0];
   }
   else
   {
      int temp= s->arr[s->top];
      s->top--;
      return temp;
   }
}
int peek()
{
   return s->arr[s->top];
}
int main()
{
  int num,ch=1,choice;
  s = (stack *)malloc(sizeof(stack));
  cout<<"Enter number of elements for stack: ";
  cin>>n;
  s->top=-1;
  while(ch==1)
  {
     cout<<"MAIN MENU \n1.PUSH \n2.POP \n3.PEEK\nEnter your
choice: ";
     cin>>choice;
     switch(choice)
     {
        case 1:
        {
           cout<<"Enter element for pushing in stack: ";
```

```
            cin>>num;
            push(num);
        }
        break;
        case 2:
        {
            num=pop();
            cout<<"POPPED ELEMENT: "<<num;
        } break;
        case 3:
        {
            num=peek();
            cout<<"PEEKED ELEMENT: "<<num;
        }
    }
    cout<<"\n Enter 1 to continue: ";
    cin>>ch;
  }
  return 0;
}
```

RESULT:



```
 Enter 1 to continue: 1
MAIN MENU
1.PUSH
2.POP
3.PEEK
Enter your choice: 1
Enter element for pushing in stack: 2

 Enter 1 to continue: 1
MAIN MENU
1.PUSH
2.POP
3.PEEK
Enter your choice: 1
Enter element for pushing in stack: 3
STACK OVERFLOW...cant add more elements
 Enter 1 to continue: 1
MAIN MENU
1.PUSH
2.POP
3.PEEK
Enter your choice: 2
POPPED ELEMENT: 2
 Enter 1 to continue: 1
MAIN MENU
1.PUSH
2.POP
3.PEEK
Enter your choice: 3
PEEKED ELEMENT: 1
 Enter 1 to continue: 0


...Program finished with exit code 0
Press ENTER to exit console.
```

CONCLUSION:	Hence I was able to learn the proper implementation and application of stacks.