Course Name: DAA Lab **Course Code: 21ITH-311/21CSH-311**

Experiment: 1.1

Aim: Analyse if stack Isempty , Isfull and if elements are present then return top element in stacks using templates and also perform push and pop operations in stack.

Objectives: To understand the implementation of stacks.

Input/Apparatus Used: STL commands are used using C++ language

Procedure/Algorithm:

Step1: Start

Step2: Declare the variables int num and int power

Step3: Create the function and pass the parameters int num and int power

Step4: In function check the power==0 return and if power==1 return num

Step5: Call the recursive function func(num,power-1) and check for total number of power

Step6: Return the recursive function with the multiplication of num

Step7: End

Sample Code:

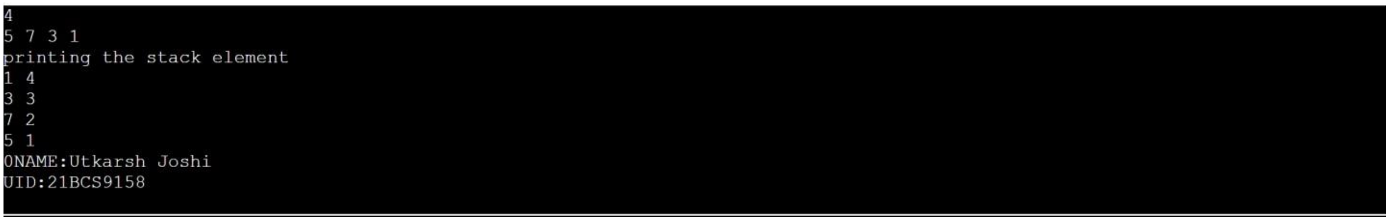
```
 #include<bits/stdc++.h>
  using namespace std;
  void
  printstack(stack<int>&st)
{ while(!st.empty())
{ cout<<st.top()<<"
  "<<st.size()<<endl;
  st.pop();
}
} int main()
{ stack<int>st;
cout<<"enter the element
  you want to enter in the
stack"<<endl; int n ;
cin>>n;

for(int i =0 ; i < n;i++)
{ int k;
cin>>k; st.push(k);
}
cout<<"printing the stack
  element"<<endl;
printstack(st);
  cout<<st.size();

cout<<"NAME:Utkarsh
  Joshi "<<endl;
cout<<"UID:21BCS9158"
  <<endl;


return 0;
}
```

Observations/Outcome :



```
4
5 7 3 1
printing the stack element
1 4
3 3
7 2
5 1
0NAME:Utkarsh Joshi
UID:21BCS9158
```

Time Complexity: O(1)

Learning Outcomes:

1. Stack Operations Understanding:
2. Stack Constraints and Error Handling:
3. Real-World Stack Applications.