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Submitted to

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Sir Mohsin

***BS***

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***Software Engineering***

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Title: Assignment 1

DSA

Hamza Mehmood

Roll# SP-21-110

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**National University of Modern Languages**

DATA STRUCTURES & ALGORITHMS

**Subject:** Data Structures and Algorithms **Instructor:** Mohsin Abbas

**Lab Assignment:** 1 **Due Date:** 15-03-2022

**Class:** BSSE III (Eve)

**Student Roll No:SP-21-110**  **Student Name:Hamza Mehmood**

**Total Marks:** 20 **Obtained Marks:**

// Authors:-Hamza Mehmood(SP-21-110).

// Program Title:-Lab task

// Preprocessor Directive Section

#include <iostream>

// Standard Allocation

using namespace std;

// define size

#define size 15

int stackarray[size];

int top = -1;

void push(int val)

{

    if (top >= size)

    {

        //case 1:Stack Already Full

        cout << "Stack overflow" << endl;

    }

    else

    {

        //case 2:Stack Has Space

        if (top < 0)//user entering very first value

           top = 0;}

        stackarray[top] = val;

        top++;

    }

    void pop()

    {

        //case 1:Stack is Empty

        if (top == -1) //(top<0)

            {cout << "stack underflow" << endl;}

    else

    //Stack Has Values

    {

        top--;

    }}

    //Pop Function

    void display()

    {

        //CASE 1: Stack is Empty

        if (top == -1)

        {

            cout << "stack underflow" << endl;

        }

        else

        {

//Case 2: stack is not empty

            cout << "values in stack are as follows : ";

        }

        for (int i = top - 1; i >= 0; i--)

        {

            cout << stackarray[i] <<"\t";

        }

   cout<<"\n"; }

void Intro() // Function For Introduction

{

    cout << "\t\t    /\\/\\/\\/\\/\\/\\/\\/\\/\\/\\/\\/\\/\\/\\/\\/\\/\\/\\/\\/\\/\\\n"

         << endl;

    cout << "\t\t      National University of Modern Languages \n"

         << endl;

    cout << "\t\t    \t Software Engineering Department \n"

         << endl;

    cout << "\t\t  \t  Instructor:- Prof.Mohsin Abbas \n"

         << endl;

    cout << "\t\t\t\t--LAB TASK   \n"

         << endl;

    cout << "------------------------------------------------------------------------------\n"

         << endl;

    cout << "\t\t |Name| = Hamza Mehmood(SP-21-110)\n "

         << endl;

    cout << "\t\t      |Roll #| = SP-21-110\n "

         << endl;

    cout << " \\\*\\\*\\\*\\\*\\\*\\\*\\\*\\\*\\\*\\\*\\\*\\\*\\\*\\\*\\\*\\\*\\\*\\\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\*/\n"

         << endl;

}

int main()

{

    Intro();

    cout << "\n\n";

    cout << "\n\n";

    cout << "\n\n";

        push(14);

        push(5);

        push(12);

  display();

  pop();

  display();

 return 0;

 }

Screenshot of Task

