Bahria University

# Lab # 2
# Stack Implementation

LAB Journal

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# Lab 2: Stack Implementation

## TASK:

TO check that is the given string is a Palindrome or Not.

## Lab Task GitHub Link:

## Link

## CODE:

```cpp
#include<iostream>

using namespace std;

//Stack Implementation
class stack{
private:
                char* arr;
                int top;
                int size;
public:
            stack(int n){
                    top = -1;
                    size = n;
                    arr = new char[size];
            }

            void push(char x){
                if(top == size - 1){
                        cout<<"Stack is full"<<endl;
                }
                else{
                        arr[++top] = x;
                }
            }
            char pop(){
                if(top == -1){
                        cout<<"Stack is empty"<<endl;
                }
                else{
                        char ch;
                        ch = arr[top];
                        top--;
                        return ch;
                }
```

```cpp
                }
                int Top(){
                        return arr[top];
                }
                bool Isempty() {
                        if (top == -1) {
                                return true;
                        }
                        else {
                                return false;
                        }
                }
                bool Isfull()
                {
                        if (top == size-1) {
                                return true;
                        }
                        else {
                                return false;
                        }

                }

                void display() {
                        for (int i = 0; i <= top; i++) {
                                cout << arr[i] << endl;
                        }
                }
};

//Input Function
string input() {
        string str;
        cout<<"Enter the string: ";
        cin>>str;

        return str;
}

//Compare Function
void compare(string Str,string Str1){

        if (Str == Str1) {
                cout << "The string is palindrome" << endl;
        }
        else {
                cout << "The string is not palindrome" << endl;
        }
}


int main()
{
        string letter = input();
        int strlen = letter.length();
        stack Str (strlen), Str1(strlen);
        string Reverse;
```

```cpp
        letter.erase(remove_if(letter.begin(), letter.end(), isspace), letter.end());
//Removing the spaces from the string

        //Pushing the Given string into the 1st stack
        for (int i = 0; i < strlen; i++) {

                Str.push(letter[i]);
        }

        //Popping the Characters of string from 1st stack and pushing it into 2nd
stack
        for (int i = 0; i < strlen; i++)
        {
                char ch;
                ch = Str.pop();
                Str1.push(ch);
                if (ch != '\0') {
                        Reverse += ch;
                }
        }

        compare(letter,Reverse);

}
```

## OUTPUT:



```
Enter the string: Asim
The string is not palindrome
```



```
Enter the string: wow
The string is palindrome
```