**Practical No:-9**

**Name - BANKHELE YASH DATTATRAY**

**Roll No -04**

**Exam Seat No - S190842009**

Title:-

/\*\*

A palindrome is a string of character that is the same forward and backward. Typically, punctuation, capitalization, and spaces are ignored. For example, ||Poor Dan is in a droop|| is a palindrome, as can be seen by examining the characters ||poor danisina droop|| and observing that they are the same forward and backward. One way to check for a palindrome is to reverse the characters in the string and then compare with them the original-in a palindrome, the sequence will be identical. Write C++ program with functions-

1). to check whether given string is palindrome or not that uses a stack to determine whether a string is a palindrome.

2). to remove spaces and punctuation in string, convert all the Characters to lowercase, and then call above Palindrome checking function to check for a palindrome

3). to print string in reverse order using stack;

\*\*/

INPUT:-

#include<iostream>

#include<stdlib.h>

#define SIZE 20

using namespace std;

class mystack

{

private :

char ST[SIZE];

int top;

public :

mystack();

void push(char X);

char pop();

int isEmpty();

int isFull();

};

mystack :: mystack()

{

top = -1;

}

int mystack :: isEmpty()

{

if(top == -1)

return 1;

else

return 0;

}

int mystack :: isFull()

{

if(top == SIZE-1)

return 1;

else

return 0;

}

void mystack :: push(char X)

{

if(!isFull())

{

top++;

ST[top] = X;

}

else

cout<<"\nStack Overflow !! Error!!";

}

char mystack :: pop()

{

char X = '\0';

X = ST[top];

top--;

return X;

}

void convert\_string(char Str[],char Str1[])

{

int i,j = 0;

for(i=0;Str[i] != '\0';i++)

{

if(Str[i] >= 'a' && Str[i] <= 'z')

Str1[j++] = Str[i];

if(Str[i] >= 'A' && Str[i] <= 'Z')

Str1[j++] = Str[i] + 32;

}

Str1[j] = '\0';

}

int main()

{

int ch,flag,i;

char Str[80],Str1[80];

mystack S;

system("clear");

do

{

cout<<"\n\t\t\t1 : Check for Palindrome";

cout<<"\n\t\t\t2 : Find Reverse";

cout<<"\n\t\t\t3 : Exit";

cout<<"\n\nEnter ur choice : ";

cin>>ch;

switch(ch)

{

case 1 : cout<<"\nEnter the string to be checked for palindrome : ";

cin.ignore();

cin.getline(Str,79);

cout<<"\nEntered String is "<<Str;

convert\_string(Str,Str1);

cout<<"\nconverted String is : "<<Str1;

for(i = 0; Str1[i] != '\0';i++)

S.push(Str1[i]);

i = 0; flag = 1;

while(!S.isEmpty())

{

if(Str1[i++] != S.pop())

flag = 0;

}

if(flag == 1)

cout<<"\nGiven string is a palindrome\n";

else

cout<<"\nGiven String is not a palindrome\n";

break;

case 2 : cout<<"\nEnter the string to be reversed : ";

cin.ignore();

cin.getline(Str,79);

cout<<"\nString entered is "<<Str;

for(i = 0; Str[i] != '\0';i++)

S.push(Str[i]);

cout<<"\nReverse String = ";

while(!S.isEmpty())

{

cout<<S.pop();

}

break;

case 3 : cout<<"\nEnd of Program\n";

break;

default: cout<<"\nInvalid choice !! Try again\n\n";

}

}while(ch != 3);

return 0;

}

OUTPUT:-

jaihind@jaihind-ThinkCentre-M60e:~$ g++ yash9.cpp

jaihind@jaihind-ThinkCentre-M60e:~$ ./a.out

1 : Check for Palindrome

2 : Find Reverse

3 : Exit

Enter ur choice : 1

Enter the string to be checked for palindrome : sami

Entered String is sami

converted String is : sami

Given String is not a palindrome

1 : Check for Palindrome

2 : Find Reverse

3 : Exit

Enter ur choice : 2

Enter the string to be reversed : s

String entered is s

Reverse String = s

1 : Check for Palindrome

2 : Find Reverse

3 : Exit

Enter ur choice : 3

End of Program