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//CS 210

//Description: This code takes a user data, as a character data type. It passes the character to the Add //function, and creates the string and the size, adding one character at a time. The output function uses a for //loop to display the character string and its length by using an object to access the string members. The //check function determines if it is a palindrome or not.

#include <iostream>

#include <string>

#include <iomanip>

using namespace std;

struct StringRec

{

int strLen;

char theStr[256];

};

void AddChar(StringRec& str, char theCh); // adds one character to the string

void OutputString(StringRec str); // outputs the string and the length of the string

bool CheckString(StringRec str); // returns true if string is a palindrome, false otherwise

int main()

{

StringRec theString;

char theChar;

theString.strLen = 0;

cout << "Enter a string: ";

cin.get(theChar);

while(theChar != '\n')

{

AddChar(theString, theChar);

cin.get(theChar);

}

OutputString(theString);

if( CheckString(theString) )

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

else

cout << "\n\nThe string is not a palindrome\n";

}

void AddChar(StringRec& str, char theCh){

// store the character into the next element of the character array

// theStr and then increment the length by one.

str.theStr[str.strLen++] = theCh;

}

void OutputString(StringRec str){

// iterate for each of the characters in the array to

// print them. The for loop that will iterate over the string

// array inside the struct object str.

cout << "String is: ";

for(int i = 0; i < str.strLen; ++i){

cout << str.theStr[i]; //object.member[index]

}

cout << endl;

cout << "The length of the string is: " << str.strLen << endl;

}

bool CheckString(StringRec str)

{

bool comparison = true;

//int j; // for end loop count

int n = str.strLen; // find a word's length. int n = word.length();

for (int i =0, j= n-1; i < j; i++, j--){ // set up 2 loops, one starts at position 0, the other at n.

// skip any space if you have from the left to right

while(str.theStr[i] == ' '){

++i;

}

// skip any spaces that you may have from left-to-right

while(str.theStr[j] == ' '){

--j;

}

// now you have other characters

if (str.theStr[i] != str.theStr[j]) // if it finds a missmatch

comparison = false; // then turn off the comparison

}

return comparison;

}

