Daniel Moe

Programming II, SD 254

August 15, 2012

Lab 3

Compiler: Dev-C++

Files: strarray.h

strarray.cpp

strsort.cpp

strsort.exe

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| --- | --- | --- |
| Score | | |
|  | Team | Individual |
| Content & Quality |  |  |
| Format & mechanics |  |  |
| Timeliness |  |  |

**Lab 3 Source Code**

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\* FILE(S): **strarray.h**, strarray.cpp, strsort.cpp

\* PROGRAMMER: Daniel Moe

\* DATE: Aug. 15, 2012

\* LAB: Lab 3

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\* PURPOSE: Prototypes of functions in strarray.cpp.

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\*Includes

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#include <cstdlib>

#include <iostream>

int initStrArray(char \*A[], int arraySize);

int printStrArray(char \*A[], int arraySize);

int sortStrArray(char \*A[], int left, int right);

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\* FILE(S): strarray.h, **strarray.cpp**, strsort.cpp

\* PROGRAMMER: Daniel Moe

\* DATE: Aug. 15, 2012

\* LAB: Lab 3

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\* PURPOSE: Definitions of functions used in strsort.cpp

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\*Includes

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#include <cstdlib>

#include <iostream>

#include <iomanip>

#include <cstring>

#include "strarray.h"

using namespace std;

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\*Declarations

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const int ARRAYMAX = 10; //Assigns A 10 index positions

const int STRINGMAX = 256; //Maxium size of sting input

char A[10]; //"Holder" array of characters

char inLine[STRINGMAX]; //Array of input characters

int arraySize = ARRAYMAX; //Size of array, 10

int i; //Index counter

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\*Function initStrArray() - Initializes an array of pointers to characters and user fills the array by inputting strings.

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int initStrArray(char \*A[], int arraySize)

{

int i;

for(i = 0; i < 10; i++)

{

cout << "Enter string # "

<< (i+1) << " : ";

cin.getline(inLine, STRINGMAX);

A[i] = new char(strlen(inLine)+1);

strcpy(A[i], inLine);

}

}

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\*Function printStrArray() - Prints the array of pointers to characters to the screen.

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int printStrArray(char \*A[], int arraySize)

{

int i;

for(i = 0; i < arraySize; i++)

cout << A[i] << endl;

}

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\*Function sortStrArray() - Sorts the array of pointers to characters via the quick sort method.

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int sortStrArray(char \*A[], int left, int right)

{

int i;

int j;

char \*pivot;

char \*temp;

i = left;

j = right;

pivot = A[(left + right)/2];

do

{

while(strcmp(A[i], pivot) < 0)

{

i++;

}

while(strcmp(A[j], pivot) > 0)

{

j--;

}

if(i <= j)

{

temp = A[i];

A[i] = A[j];

A[j] = temp;

i++;

j--;

}

}while(i <= j);

if(left < j)

sortStrArray(A, left, j);

if(i < right)

sortStrArray(A, i, right);

}

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\* FILE(S): strarray.h, strarray.cpp, **strsort.cpp**

\* PROGRAMMER: Daniel Moe

\* DATE: Aug. 15, 2012

\* LAB: Lab 3

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\* PURPOSE: Fills and sorts and array of pointers to characters via quick sort.

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\*Includes

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#include <cstdlib>

#include <iostream>

#include "strarray.h"

using namespace std;

const int ARRAYMAX = 10;

const int STRINGMAX = 256;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\*Function Main() - User inputs strings which populate an array of pointers to characters.

\* Array is then sorted with the quick sort method.

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int main(int argc, char \*argv[])

{

char \*A[ARRAYMAX];

initStrArray(A, ARRAYMAX);

cout << "Unsorted:" << endl;

printStrArray(A, ARRAYMAX);

cout << endl << "Sorting Array..." << endl;

sortStrArray(A, 0, ARRAYMAX-1);

printStrArray(A, ARRAYMAX);

system("PAUSE");

return EXIT\_SUCCESS;

}

**Program Output**

