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/*
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Class: CPSC 122, Section 1
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Assignment: Example 1
Description: Program illustrates console output
Program illustrates:
    trapping for file open errors
    passing argv elements to functions
    passing file stream objects to functions
    requires that the user enter and input and output file at the
command line
*/

#include <iostream>
#include <fstream>
#include <cstdlib> //necessary for the constant EXIT_FAILURE
#include <string>
using namespace std;

void fileOpen(fstream&, string, char);

void readWrite(fstream&, fstream&);

int main(int argc, char* argv[])
{
    fstream fin;
    fstream fout;

    if (argc != 3)
    {
        cout << "Incorrect number of command line arguments" << endl;
        exit(EXIT_FAILURE);
    }

    //argv[1] is a c-string, a sequence of characters terminated by '\0'
    //here it is being transformed to a string
    fileOpen(fin, argv[1], 'r');
    fileOpen(fout, argv[2], 'w');

    readWrite(fin, fout);

    fin.close();
    fout.close();

    return 0;
}

/*
Description: reads and writes a line at time from an input file to an
output file
Input: file stream object references
Output: output file with the contents of an input file
*/

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void readWrite(fstream& fin, fstream& fout)
{
    string line;
    while (fin.peek() != EOF)
    {
        getline(fin, line, '\n'); //' \n is the default delimiter and not
        read in
        fout << line << endl;
    }
}

/*
Description: function opens a file
Input: file stream object reference, name of the file, mode of open
Output: void function, but at exit, file stream object is tied to
the input file name.
*/
void fileOpen(fstream& file, string name, char mode)
//void fileOpen(fstream& file, char name[], char mode)
{
    string fileType;

    if (mode == 'r')
        fileType = "input";
    if (mode == 'w')
        fileType = "output";

    if (mode == 'r')
        file.open(name, ios::in); //available thorough fstream
    if (mode == 'w')
        file.open(name, ios::out); //available through fstream;

    if (file.fail()) //error condition
    {
        cout << "Error opening " << fileType << " file" << endl;
        exit(EXIT_FAILURE);
    }
}

```