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/*
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Assignment: Project 2

Description: This program takes in two c-string digits and converts
            them to integers. It then multiplies them and writes the
            product to the file from the command line.
*/

//Preprocessor directives for file I/O
#include <iostream>
#include <fstream>
using namespace std;

//Function prototype for c-string converter and error check
int atoiMy(char*);
void error(int);

int main(int argc, char* argv[])
{
    //Error checking for too many command line arguments
    if (argc != 4)
        error(1);

    //Error checking for negative integers
    if (argv[1][0] == '-' || argv[2][0] == '-')
        error(2);

    //Declare and open file from command line
    ofstream fout;
    fout.open(argv[3]);

    //Writing product to file
    fout << atoiMy(argv[1]) * atoiMy(argv[2]) << endl;

    //Close file
    fout.close();
}

/*
Description: Turns a digit stored c-string into an int
Input: char str, a command line c-string that contains
       a digit
Return: the corresponding integer of the same value as
       the digit string inputted
*/
int atoiMy(char str[])
{
    //Running total for converted integer

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int intArg = 0;

for (int i = 0; str[i] != '\0'; i++)
{
    //Converts the ASCII value of character to its actual integer value
    int add = int(str[i]) - 48;

    //Converts c-string to integer by every tens place,
    //starting left and moving right placing following digit
    //to the right until string reaches null-terminator
    intArg = (intArg * 10) + add;
}

return intArg;
}

/*
Description: Error checking function that shuts down program
            if input is not acceptable for program
Input: int, key, to direct error function to correct message
Return: N/A
*/
void error(int key)
{
    if (key == 1)
    {
        cout << "Please make sure to enter only two positive integers and one
        output file!" << endl;
        exit(EXIT_FAILURE);
    }

    if (key == 2)
    {
        cout << "Only input positive integers for multiplication." << endl;
        exit(EXIT_FAILURE);
    }
}

```