

CS 240

Data Structures and Algorithms

Fall 2013

1 Lab 04

The purpose of this assignment is to make you more familiar with file input streams and output streams.

The content of the assignment is very simple, you will be graded on functionality. Please make efforts to test that your program does as intended on your own.

2 Assignment

The assignment for this lab is to change the genre of a piece of classic literature, and calculate the percentage of words that needed to be changed to do so.

By changing some key words we can change some of the elements for a Sci-Fi novel, and turn it into a Fairy Tale. For this assignment you are to assume that all words will appear completely on a line (i.e. no words will be hyphenated and split across lines). Only replace words that match the case exactly.

For each of the following match whole words in order to make replacements.

- War \mapsto Rainbows
- Martians \mapsto witches
- died \mapsto laughed

- die \mapsto laugh
- gun \mapsto puppy
- water \mapsto lemonade
- people \mapsto children

Additionally, change the following words so that the mood of the book is changed to be more pleasant. For each of these words, they DO NOT need to match the entire word, just a part of the word.

- dark \mapsto bright
- blood \mapsto strawberry syrup
- destroy \mapsto mend

During file processing no output should be printed to the screen. At the conclusion of file processing print the following:

Processing < filename > resulted in change rate of < z > %

Where < filename > is replaced with the name of the file that was processed and < z > is the percentage of change ($100 * (\text{number of replacements} / \text{number of words in the original text})$).

Note that since processing of this file (and verifying the output by hand) will take an unreasonable amount of time you should generate a test file that handles all of these cases so that you can test your code on a smaller scale.

I recommend that you modularize your program in order to save yourself time when debugging.

It is a requirement that you take the name of the file that you are going to parse as the first parameter to your program and the name of the output file as the second parameter to your program.

Your program should run with the following command

./makeInteresting War_Of_The_Worlds.txt Rainbows_Of_The_Worlds.txt

Also note that you should NOT get clever with this assignment. Replace things exactly as instructed. This program will be graded automatically with a diff. This means that you should NOT have variance in your results from what is specified here.