

EE3980 Algorithms  
Homework 9. Comparing Files

Due: May 13, 2018

```
宋江
盧俊義
公孫勝
關勝
林冲
秦明
武松
花榮
柴進
魯智深
李應
朱仝
```

File 1.

```
宋江
盧俊義
吳用
公孫勝
關勝
林冲
秦明
呼延灼
花榮
柴進
李應
朱仝
```

File 2.

Given two similar files as shown above, one can modify file1.dat to get file2.dat by the following operations:

```
line 3 add " 吳用"
line 7 change " 武松" to " 呼延灼"
line 10 delete " 魯智深"
```

The assignment for this homework is to write a C program, which is capable of transforming a file A to a similar file B by using a minimum number of editing operations: **add**, **change** and **delete**. Five sets of files are also provided for you to test your program. They are (file1A, file1B), (file2A, file2B), (file3A, file3B), (file4A, file4B), and (file5A, file5B). The output of the program should be the editing operations to transform A files to B files.

Though your program can transform file A to file B, it is usually used to compare two files for the similarity of their contents. In a unix system, the command `diff` uses the same algorithm to compare two ASCII files. Thus, your program can be used to compare similar files regardless the sizes of the input files. And, one of the challenges is to minimize the memory space needed to run your program.

**Notes.**

1. One executable and error-free C source file should be turned in. This source file should be named as `hw09.c`. Execution of the program is invoked by

```
$ ./a.out file1A file1B
```

And the output of the program is listed above.

2. A pdf file is also needed. This report file should be named as hw09a.pdf.
3. Submit your hw09.c and hw09a.pdf on EE workstations using the following command:

```
$ ~ee3980/bin/submit hw09 hw09.c hw09a.pdf
```

where hw09 indicates homework 9.

4. Your report should be clearly written such that I can understand it. The writing, including English grammar, is part of the grading criteria.

