

Computer Science 220 S2 (2015)

Assignment 2 (Hashing)

Due date: Oct 3th, 2015

Problem Statement

For this assignment, two programs are required to understand the use of hashing.

Program 1: String Matching

Given two strings s and t , determine if there is an isomorphic matching of characters, i.e. if the characters in s can be replaced to get t . You may assume both s and t have the same length. All occurrences of a character must be replaced with another character while preserving the order of characters. No two characters may map to the same character but a character may map to itself.

For example, the following input:

```
egg add
foo bar
paper title
```

should have the following output:

```
True
False
True
```

Program 2: Anagram Partition

Given a white-space separated list of strings (each line is a test case), group anagrams together in list of lists, sorted lexicographically. Note all input strings will be lower-case letters.

For example, this sample input (two test cases):

```
abc cba ccb bcc
eat tea tan ate nat bat
```

has expected output (e.g. add blank line after each test case):

```
abc cba
bcc ccb

ate eat tea
bat
nat tan
```

Submission and Due Date

Submit your source code to the automated marker www.cs.auckland.ac.nz/automated-marker. Name them like `StringMatch.java` or like `AnagramParts.java`, where the filename extension `java` may be replaced with extensions `cpp`, `py` or `cs`, for C++, Python, C#/mono compilers. There will be two test cases provided for each problem. Note that for both problems, one reads input from stdin/keyboard and prints the output to stdout/console/screen; read the automarker's Help/FAQ page for more information.

The deadline is 8:30pm (automarker time) on the 3rd of October. The marks for this assignment is worth 9% of your course grade. Some partial credit may be given if you do not achieve “Correct” (green) on the automarker. Note we use plagiarism detection software so do not share any source code with your fellow students. The due date is firm in that there are *no* penalty options available for late submissions (except zero marks).