Second assignment (2022/2023, this is the one you need to do, due ??-??-2022) Word ladder (part 1)

A word ladder is a sequence of words in which two adjacent words differ by one letter. For example, in English, it is possible to go from head to tail in five steps: head → heal → teal → tell → tall → tail. In Portuguese, we can go from tudo to nada in four: tudo → todo → nodo → nado → nada.

The archive A02.tgz contains incomplete source code – file word_ladder.c – for the second assignment. In it you will find

- comments near the beginning of the file with suggestions about what should be done,

- declarations of some data types (feel free to change them at will, but it is not necessary to do so),

- a very incomplete implementation of a hash table,

- a very incomplete implementation of code to deal with an undirected graph,

- a very incomplete implementation of code to implement the union-find data structure, and

- other miscellaneous code.

At the very least, you should present a complete functionally correct implementation of the hash table, including code that dynamically resizes the hash table array when more stuff is added to the hash table. Discuss with your teacher what else should be done. Use the comments at the beginning of the source code to guide you. If possible, give your own suggestions for other things to do.

In the A02.tgz archive you will also find some text files with lists of Portuguese words. Use a small list when developing the program, and the big one only at the end.