Assignment: For this lab, enter your code in VS Code (or your editor/IDE of choice), and then use the terminal to execute your programs. All of your functions can go in the same source file, which you should name `dcs229_hw1.py`. **In your program's block comment at the top, provide a list of all resources you used in completing this assignment, including a list of URLs as appropriate. Refer back to the syllabus for details.**

1. Write a fruitful function named `randomPermutation` having a single parameter corresponding to a word (string) to be randomly permuted (scrambled). The function must build and return a string that is a random permutation of the given word. You are not permitted to use `random.shuffle` nor are you permitted to convert the word to a list.

   Use good style, including good naming conventions, type hints for all parameters and function return type, complete docstring (including description of the function purpose, each parameter, and the return type).

   Include at least three tests inside your main function, clearly printing what you are testing, what the actual result of your test is, and what the expected result of your test is. For example, for initial seed 8675309, the output of one of your tests might look like:

   ```
   Testing randomPermutation("frankie") with initial seed 8675309:
       Result:   'nrekifa'
       Expected: 'nrekifa'
   ```

2. Write a fruitful function named `readWords` having a single parameter corresponding to the name (a string) of a file to be read. The function must build and return a list of all words, converted to lowercase, present in the given file.

   Notes:

   - There may be more than one word present on any line of the file.
   - You may presume there will be no blank lines, i.e., each line of the file contains at least one word.
   - You may presume that no punctuation will be present.
   - You must use `readline`, i.e., you are not permitted to use `read` to read the entire file contents at once. This means you will need to use a loop.
   - You may be interested in the `split` and `extend` methods, which operate on a string and a list respectively.

   Use good style, and include at least two tests inside your main function.

3. Write a fruitful function named `writePermutedWords` having two parameters[1]:

   - the 1st, a string, corresponds to the name of the (new) file to write to;
   - the 2nd, a list of strings, corresponds to a list of words to be written.

   The function must take each word from the given list and write a random permutation of that word (created using your previously defined function) to the output file, one word per line of the output file.

   Use good style, and include at least two tests inside your main function.

4. In the online text option in Lyceum for this assignment, provide a brief reflection, addressing each of the following:

   - What was challenging about this assignment, if anything?
   - What do you still need work on?
   - What new concept(s) or approach(es) did you learn in your completion of this assignment?

Autograder: An Ed autograder will be linked on Lyceum.

[1] Challenge/Extra Credit: Include a third parameter, a boolean with default value `False`, that determines whether the words should be written in a random order. For your solution, you are not permitted to use `random.shuffle`.