Instructions

Please complete the following two exercises using Java, Python, Go, Ruby, or C#. This typically takes about 2 hours to complete. Please write your code in a manner you think is suitable for a professional production environment.

Each exercise should include instructions on how to run the program that can successfully demonstrate the solved problem. When you have completed the two exercises, please deliver the source code by putting it up on a service like GitHub or GitLab.

Thanks for taking the time - good luck!

Exercise 1

Please write a program that can read the contents of any directory (and its subdirectories) in the filesystem, and print out the contents sorted in order of file size in the command line. The directory to search should be passed in as a parameter to the program.

The output should show the full path of the file, the file name, and the file size.

Exercise 2

Please write a program that can take in a string as input and print out the result by applying the following string compression algorithm:

- If a character, *ch*, occurs *N(> 1)* times in a row, then it will be represented by *{ch}{n*}. For example, if the substring is a sequence of 'a' ("aaaa"), it will be represented as "a4".
- If a character, *ch*, occurs exactly one time in a row, then it will be simply represented as *ch*. For example, if the substring is "a", then it will be represented as "a".

The input string will contain at least one character, and will be lowercase English characters (*a-z*) only.

Examples:
Input -> Output

- abcaaabbb -> abca3b3
- abcd -> abcd
- aaabaaaaccaaaaba -> a3ba4c2a4ba