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README - Programming Assignment 1: prefixStat

Design & Implementation

- Words
  - Finding the words and number of words in the file runs in O(n) time. The program scans for space characters, prints and increments a counter when found.
- Lines
  - To find the lines, each line is read into a buffer, and then printed and increment the counter for the number of lines.
- Prefixes
  - To find prefixes, each word is fed into a loop. Then, each character of the current word is compared to the input word (given from the command line flag), checking for case-insensitive matches.
  - When the index reaches the length of the input word, then we know we've found a word that contains the input word as a prefix.
- Help Menu
  - The Help Menu is shown when incorrect arguments are used, or when run with the -h flag.

Challenges

- The most difficult part of the assignment was to check for prefixes, since it required accounting for words in a case-insensitive manner.
- Learning how to handle command-line arguments was interesting.

Analysis

- Words
  - Finding the words and number of words in the file runs in O(n) time.
- Lines
  - Finding the lines and number of lines in the file runs in O(n) time.
- Prefixes
  - Finding words that have the input word as a prefix runs in O(n) time.
- Help Menu
  - The Help Menu runs in O(1) time.