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COS485

PROG3: Text Formatting

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Program #3 - Optimal Text Formatting

- briefly describe your algorithm in English

My algorithm is using the bottom-up dynamic programming.

First it tries all the combinations possible of words per line.

Then it eliminates combinations that have words that go beyond the acceptable width.

It finds the best way of formatting by starting from the last word which helps figure the badness per line.

Then it tracks the best badness possible per line with the index of the word that starts that line.

The algorithm then stores the best badness per line from the previous line by adding it in the next line's best badness.

The best badness for all the words is stored at the first index of the badness per line combined.

The last part then uses those words' indexes at the beginning of the line to print the results.

- analyze the worst case execution time of your program

My algorithm is using the bottom-up dynamic programming, so its worst case is $O(n^2)$.