Design Exercise - Part 1

Give a design of a program which reads an input text file and outputs it with proper line breaks. Here's its requirements:

1. All the words from the input appear in the same order in the output file.
2. The lines output by the program shall not exceed 80 characters.
3. Each output line contains as many words as possible without violating the condition (2).
4. All the repeated white spaces are ignored.
5. A blank line forces a line break.

Your design should contain, at least, module diagrams, the specific relationship between them, and any key data types.

Key questions to ask:

1. Did you end up using top-down or bottom-up design. Or something in between?
2. How's the degree of coupling among your modules?
3. Did you end up using function decomposition or data decomposition?
4. Did the principles of "separation of concern" or "generality" play some role?