Choose Your Words!

Consider the following problem: you have a sentence and want to select words from that sentence. If you pick a word, you may not pick either of its neighbors. Which words should you pick to have the maximum total number of letters?

For example, if you had "This is a sentence", you could get 12 points by picking the words 'This' and 'sentence'. You could not pick both 'This' and 'is' because they are next to each other.

How did we solve this problem? Consider the recursive approach. If we knew the best possible score if we had only the first n-2 words, and we also knew the best possible score for the first n-1 words, do these values help us find the best score for all n words?

Yes!

For word n, we can either exclude the word from the answer (and just use the anser same score as n-1) -or- we can include it. If we include it, we must exclude n-1, so we take the length of word n and add it to the best score for the first n-2 words.

Here is the table that we use to perform this calculation:

WORD:	This	is	a	sentence
LETTERS:	4	2	1	8
BEST SCORE:	4	4	5	12