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### HW 3 Analysis

For my WordSplitter.java file, I have wrote three methods which allow me to split a given string in to the words found in the Trie. There are two methods I use check whether, a word found is the prefix of another word in the input string, or if a word found has overlapping parts with another word.

In the findSplit method, we iterate through the letters of the input and we then determine if the first word found is either a prefix of another word or if it contains overlapping elements. If it is the prefix of another word, the char at the current index of the for loop is appended to the substring which we are determining is a part of the trie or not. If the word found is not a prefix it will be added to the result and the string we use to determine if it is in the trie is reset. If the word has overlapping elements then the substring is added to the result and the resulting string we use to find a word in the trie is reset.

In the checkPre method, we are only checking to see if the current input index, indicating a potential found word, is the prefix of a word also contained later down the input string. If the index correlates to a word that is a prefix the method will return true, and if not it will return false.

In the checkOverlap method, the program checks to see if the current input index indicates a word that has overlapping elements with an adjacent word. This is checked by running through the input string twice, once using checkPre and once without. The found words

are added to a stack. If the stack of words added regularly is greater than the stack of the other words added with using checkPre, then the method returns true indicating the word contains overlapping elements. The method also returns true if a word popped from the normal stack is greater in length than a word in the other stack of words using checkPre. If this method returns true, it indicates in the findSplit method that the current found word contains overlapping elements this the current found word is added to result and the resulting string is modified accordingly.