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CSE100 Winter

PA3 Refactor Writeup

In my refactoring of PA2, I changed my entire approach. For the assignment, I made a ternary search trie. My original approach was iterative. It worked, but it was really difficult to read and it took a long time to get the indexes correct in my loops. The code looked messy. Here is some pseudo code for my original insert:

```
If root
        Make root
        For loop
                Make rest of word straight down
Else
        While loop
                Go through tree until need to branch off
                Make the first new node
        For loop
                Make rest of word straight down
Fix variables of node
```

As seen, there are many loops and the logic is confusing especially in the while loop. My find function was very similar to this and my predictCompletions also took a part of this code as well.

To refactor this code, I wanted to get rid of the confusing loops and indexes. Instead, I took a recursive approach. To do this, I made some helper functions called insert_help and find_help. These recursively created the tree in a much simpler and easier to read way. In addition, I was able to use find_help in predictCompletions instead of copying over the contents of my find function inside of predictCompletions. This shortened the code and reduced redundancy.