CS532 Homework 7 - Critique
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Question 1

```python
class lexicon:
    def __init__(self):
        file1 = open('hw7.txt','r')
        words = file1.readlines()
        self.word_array = [s.strip('\n') for s in words]

    def get_index(self, input_string, first, last):
        word_len = len(input_string)
        if last < first:
            return last
        if word_len == 0:
            return -1
        mid = (first + last) // 2
        if self.word_array[mid][0:word_len] < input_string:
            return self.get_index(input_string, mid + 1, last)
        elif self.word_array[mid][0:word_len] > input_string:
            return self.get_index(input_string, first, mid - 1)
        else:
            while self.word_array[mid][0:word_len] == self.word_array[mid-
1][0:word_len]:
                mid = mid - 1
            if self.word_array[mid] == input_string:
                return mid
            return mid - 1

    def find_after(self,input_string):
        first = 0
        last = len(self.word_array) - 1
        index = self.get_index(input_string,first,last)
        next_index = index + 1
        if next_index == last+1:
            return None
        return next_index

    def next5(self,input_string):
        first = 0
        last = len(self.word_array)
        index = self.get_index(input_string,first,last)
        next5_words = []
        next_index = index + 1
```

```
        num = 0
        while next_index < last and num < 5:
            next5_words.append(self.word_array[next_index])
            next_index = next_index + 1
            num = num + 1
        return next5_words

    def prefix5(self,input_string):
        first = 0
        last = len(self.word_array)
        index = self.get_index(input_string,first,last)
        next5_prefix_words = []
        next_index = index + 1
        num = 0
        word_len = len(input_string)
        while next_index < last and num < 5:
            if self.word_array[next_index][0:word_len] == input_string:
                next5_prefix_words.append(self.word_array[next_index])
            next_index = next_index + 1
            num = num + 1
        return next5_prefix_words
```

Question 1 Critique

Instead of the while loop using the minimum of word+5 or length is a better way to get the next 5 words in both prefix5 and next5.

Question 2

```
def retrieve_all():
    l = lexicon()
    all_words = []
    num = 5
    a = ''
    while num >= 5 :
        words_5 = l.next5(a)
        all_words.extend(words_5)
        num = len(words_5)
        if num >= 5:
            a = words_5[4]
    print(all_words)
    assert all_words == l.word_array
```

Question 2 Critique

Instead of directly printing I'm saving into an array and then printing. I could just print them instead of

saving.

Question 3

```python
def add_child(self,other):
    other.parent = self
    if self.child is None:
        self.child = other
    else:
        ch = self.child
        if other.value <= ch.value:
            other.sibling = ch
            self.child = other
        else:
            while ch.sibling != None and other.value > ch.sibling.value:
                ch = ch.sibling
            new = ch.sibling
            ch.sibling = other
            other.sibling = new

def find(self,string):
    while len(string) > 0:
        a = len(self.value)
        if self.value == string[0:a]:
            if self.value == string:
                node = self
                break
            self = self.child
            string = string[a:]
        else:
            self = self.sibling
    return node
```

Question 3 Critique

I am not taking care of the case when the string is not present in find.