

**CS240 Assignment 4**  
**Xiao Wang x297wang 20393001**

Question 1e,

To offer a suggestion to a misspelt word with a one character difference, we can use a hash table with a hash function that operates on only the even or odd characters of the string, eg, for string abcde, if we choose odd characters, then ace would be relevant to the hash function. Then, we implement chaining for collision resolution, and insert the even (or odd if hash function operates on even characters) characters in the linked list. We can then do character comparison with a Boolean flag for if there is a character mismatch, the pseudocode is:

```
Int hash (string s) {  
    return the sum of the ASCII value of the even characters MOD (size of hash table);  
}  
  
String suggestword (string s) {  
  
    • lookup(s) in hash table  
    • return NULL if no match  
    • else  
        ○ loop thru LinkedList  
        ○ match odd characters of s to each character in node  
            ▪ if there is one character mismatch  
                • build the string by combining the even characters of the  
                  hash table value with the odd characters in the node  
            ▪ if there are two character mismatches  
                • continue  
        ○ end matching loop and linkedList traverse  
        ○ return built string  
  
}
```