EE422C Project 3 (Word Ladder)Test Plan

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Test plan summary

Our goal for testing DFS and BFS were to devise tests that would test any edge cases that may cause crashes while also ensuring the programs works for basic ladders. After any section of the program was complete we would usually rigorously test it with test cases to see how it was working, or not working. I feel our tests cases covered almost any edge cases and trivial cases/simple cases. One place that was hard to make tests for was ensuring that BFS was finding the shortest path from start to end.

Grant's Test Cases:

1. Test 1
   a) Simple 0-rung test
   b) Check if both DFS and BFS can complete the simple 0-rung word ladder and output correct message
   c) input: start=HELLO end=JELLO
   d) a 0-rung word ladder exist between hello and jello.
      hello
      jello
   e) Test case fails if any output other than the specified output.
   f) Should run very fast.
2. Test 2
   a) Easy 1-rung BFS test
   b) Check if BFS can complete the 1-rung word ladder and output correct message
   c) input: start=HELLO end=JELLY
   d) a 1-rung word ladder exist between hello and jelly.
      hello
      jelly
   e) Test case fails if any output other than the specified output.
   f) Should run very fast.
3. Test 3
   a) Normal input test
   b) Check if BFS can complete the 9-rung word ladder and output correct message with legal word changes throughout
   c) input: start=SMART end=MONEY
   d) a 1-rung word ladder exist between hello and jelly.
      smart

start
…
boney
money

e) Test case fails if not 9-rung or has an illegal word change in ladder.
f) Should run under few seconds.

4. Test 4
   a) No ladder exist test
   b) Check if BFS and DFS finish without crashing and display that no ladder exists.
   c) input: start=MONEY end=ALOOF
   d) no word ladder can be found between money and aloof.
   e) Test case fails if crash or not correct message.
   f) May run slowly, but still <5s.
5. Test 5
   a) No adjacent words test
   b) Check if BFS and DFS can output when starting word has no legal permutations.
   c) input: start=ANGRY end=MONEY
   d) no word ladder can be found between angry and money.
   e) Test case fails crashes or incorrect output.
   f) Should run very fast.

Stephen's tests that are different

1. Test 1
   a. Normal input test
   b. Since DFS ladders are different then BFS ladders the behavior is very unpredictable this is to see how they look
   c. Input: start = BOOKS end=MONEY
   d. There should be some form of word ladder between books and money, it shouldn't be excessive either, at least under 3000
   e. This test should fail when it throws a stack overflow error, or there are repeats in the ladder
   f. It should run under a few seconds
2. Test 2
   a. Invalid input test
   b. Testing what would happen if a word is not in the dictionary at all
   c. Input: start = ASDFE end=QWERT
   d. No word ladder can be found between asdfe and qwert
   e. Test case fails if the program crashes or it returns a ladder
   f. Should run very fast.