Test Plan

White Box Tests – To check all branches, each method of WordLadderSolver is tested to make sure that they work individually. Use results from Assign4Driver to check all the interactions between the driver, WordLadderSolver, and the NoSuchLadderException.

- Wordladdersolver_tests.java: Tests all the methods in the WordLadderSolver class using a testerMain to access private methods. checkValidInput() is tested for words that are not the right length, empty, or not in the dictionary. generateTempList() has a test that can be used for a variety of words, but will only pass if all the words returned are one letter different from the given word. checkValidInput ensures generateTempList() will be given a valid input. computeDiff() is tested by giving two words and asserting the hand calculated difference between them, and just like before a valid input is guaranteed. This test covers all possible branches for each of these methods in WordLadderSolver.
- validateResult_tests.java: This test case has correct word ladder solution lists hard coded in to it and runs them through validateResult() to ensure it correctly identifies word ladders.
- exceptiontest.java: This test case has three tests to determine if the NoSuchLadderException is being thrown at the right time. This test creates a WordLadderSolver object and attempts to create a ladder from words that are known to not have a word ladder between them. This test completely covers the NoSuchLadderException throwable.

Black Box Tests – These tests use the Driver and all the components to test the console output for certain input, and test to make sure all the parts tested in white box testing work together.

- Blackboxtesting.java: This test includes a functionally complete Driver that can set up and test the main. The Driver will create a word-pair file, write to it, pass it to main with the dictionary file name and the new word-pair file name as arguments, and observe the resulting solution. An arrayList of words needs to be passed to the driver to be put into the word-pair file. Therefore each testcase is an arraylist of test words that can be passed to the driver which then executes the test. This program can be used to test any number of word pairs. The console then displays what it would display to a user calling the function with their own arguments. The test case "test3" goes through all the word pairs from the homework 4 pdf file.
- testMain(): This is a method that is only used for implementing the driver in blackboxtesting.java.
- validateResult(): This is a method that is only used for testing. Given a solution list, this method returns true if it is a correct word ladder.