

Test Plan:

We will use JUnit to test our program with both black box testing and white box testing. For black box testing, we will test the two methods defined in Assignment4Interface, computeLadder and validateResult. For white box testing, we will test other methods used to compute and validate each ladder, namely the Word class.

Black Box:

First, we will test the computeLadder method. If there is no ladder between two words, a NoSuchLadderException must be thrown. If the input words are not in the dictionary, a null pointer must be returned. Otherwise, if the ladder is given proper inputs and there is a possible ladder, validateResult should return true. If the start word and the end word are the same or different by one, the ladder should be one word or two words long, respectively.

Next, we will test validateLadder. If the ladder contains two words that are not one letter off, the method should return false. If the ladder is a valid ladder but the first and last words in the ladder are not the same as the given start and end words, the method should return false.

White Box:

To test the Word class, we will make sure that the equals method will return false if two words do not have the same string. We will also make sure that the getWord method returns the correct string that the Word represents. Then, we will test the differentByOne method and make sure that it returns true if two words are different by at most one letter and false otherwise.