Analysis

Design

**Main Driver Algorithm:**

Start a stopwatch

Initialize ArrayList of five letter words by getting them from the file given to us on Canvas (file needs to be in src folder)

Initialize a WordMap graph object from this list of words

Initialize a WordLadderSolver object from the word map graph

Record the elapsed time using the stopwatch, and then reset and restart it

Try to open the input file specified in args for reading

If there’s an error reading the file, print a message explaining the error and exit.

Otherwise, read through the input file line-by-line and for each line:

Try to:

Parse the input line for start and end five-letter words

Compute a word ladder from the start and end words using the WordLadderSolver

object’s computeLadder(startWord, endWord) method

Check if the result is a correct word ladder using the WordLadderSolver object’s

validateResult(startWord, endWord, wordLadder) method

Print a message showing the found word ladder and whether that word ladder is correct

If there’s an InvalidInputException: (when the input words aren’t valid)

Print a message explaining the invalid input

If there’s a NoSuchLadderException: (when a ladder cannot be computed between two words)

Print a message explaining that a ladder cannot be computed

Stop the stopwatch and record the elapsed time again

Print a message showing the set-up and computation times for the program

**Use Case Diagram:**



**UML Diagram:**

