COMP 261 2016
Assignment 1
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Auckland road map

Main file for this app is MapDrawer.java

It uses GUI and Location methods. Main classes: intersections (Node, NodeCollection), roads (Road, RoadCollection), segments (Segment, SegmentCollection), and classes to make a trie (TrieNode, Trie).

All the lines mentioned below refer to MapDrawer.java.

This app opens GUI canvas and allows to select data fodler.
As soon as files are selected, they are read and hash maps of intersections, road and segments are created (147, 148, 149).

Next the app takes the segments list and draws a blue map (34-43). If you load large file it will show you the centre of the Auckland at good zoom (so you can check highlighting quickly).

You can zoom in, zoom out, and move by using buttons. It doesn't pan or zoom on just mouse clicks.

Next it creates a graph structure, with Nodes as vertices and Segments as edges (151).
Every vertex has information on edges going in (170) and out (169). If it's a 2-way street, it will have the segment in both lists.
Every edge knows what its start point is (166), end point (167) and what road it is part of (165).
Every Road knows of what Segments it consists (168).

As Nodes and Roads are indexed, it takes constant time to get from Node through Segment to Road and back.

Next it creates a trie of road full names (152). It adds all names to the trie with the list of segments the road has (178-185).

If you click on the map, it will print out the names of all roads with intersection in radius 0.1 from the click point. It won't give you the closest one only. It will show outgoing as well as incoming roads with no name duplicates.

It uses exhaustive search for nodes (53), but it uses the graph to find streets (55, 56).

If you input a word into the search box and press enter, it will highlight all the matches red (98) and print out all the matching names with no duplicates (105-107). If you make a new search, it will highlight it with red, but turn the previous search blue (83). It will show all the roads with the matched prefix. If there is no match, it will output “Not found”.

It uses the trie to reduce the search time and make prefix search possible (89).