Ram Yadav

Project 4 Report

I have used for different class MyMap.h, MapLOader.cpp, AtractionMapper.cpp, SegmentMapper.cpp

MyMap.h holds arbitrary keys like string or latitude/longitude. Method associate(parameters) append the node, and method find(parameters) returns the value type. I have created struct{} where, I implemented several different method for erase, finding nodes, and associate.

those method takes O(log(n)) for all functions

MapLoader.cpp load data from the mapdata.txt. It has method load(parameter) that return true if the map successfully loaded, and false it the map is not successfully loaded. It has loaded every street segment from the file, each into its own StreetSegment object. getNumSegment(parameter) returns the size of the segments loaded otherwise it return 0. Another method getSegment(parameter) returns the Boolean value, where it retrieve the StreetSegment associated with the specified segment number. If the specified segment number is invalid, then returns false and leave unchanged otherwise it returns true and fill in the segment parameter.

AttractionMapperImpl.cpp look for the attraction place and return geo-coordinate if it if found in the data. It has init(parameters) and getGeoCoord(parameter) functions. GetGeoCoord and init are correlated. init(parameter) uses to construct and efficient data structure that allows the getGeoCood(parameter) method to quickly find the GeoCoord that is associated with the specified attraction name. If the getGeoCoord(parameter) finds the attraction, it returns true and sets the gc parameter to the corresponding GeoCoord.

init takes O(A + Alog(A))

geocord O(log(A))

SegmentMapper.cpp class look for geo coordinate and return all segments associated with it. init(parameter) function doesn’t return anything, but it uses the MapLoader Object to construct an efficient data structure that allows the getSegments(parameter) method to quicly find all StreetSegments that are associated with the specified geocoordinate. The another method getSegments(parameter) method returns a vector containing all those StreetSegment. It returns empty if there are no geocoordinate associated with StreetSegments

init takes O(N+A)\*log(N +A)

getSegments() O(log(N + A)

Navigator.cpp specify the starting attraction and ending, then return a vector of turn-by-turn direction. It has methond loadMapData (parameter) where in parameter, client passes the name of a map data file. This method loaed all required data and initialize all internal data

structures like SegmentMapper, AttractionMapper. The navigate(parameter) function find and connects the set of segments from source/address to the destination attraction/address. It uses vector parameter with a sequence of NavSegments that represent turn-by-turn directions.

O(log(N +A) + Alog(n)