**CS PROJECT 4 REPORT**

GeoDatabase:

* load(const std::string& map\_data\_file)
  + **O(N)**, where N is the number of GeoPoints in the mapping data file
* get\_connected\_points(const GeoPoint& pt) const
  + On average runs **O(P)**, where P is the number of geopoints associated with pt
* get\_street\_name(const GeoPoint& pt1, const GeoPoint& pt2) const
  + On average runs in **O(1)** time

Router:

* route(const GeoPoint& pt1, const GeoPoint& pt2) const
  + On average, runs **O(M log K)**: M is the number of neighbors each gridpoint is associated with and K is the number of elements in the queue, log K since that is the insertion time and for a priority queue (O(1) for the unordered\_maps). It should be noted that **O(M log K) <<< O(N log N)** where N is the total number of GeoPoints in the mapping data