**Class**: MapGraph

**Modifications made to MapGraph (what and why):**

I have made the following modifications to the MapGraph class

1. private HashMap<GeographicPoint,Intersection> mapGraph;
2. private int numberOfVertices;
3. private int numberOfEdges;

The reason of adding the above member variables is to implement graphs having vertices and to simplify the solution of methods like getNumofVertices or getNumofedges etc.

I am storing the vertices in form of HashMap to make it easier to store and retrieve.

**Class name:**Intersection

private GeographicPoint cordinate;

private HashMap<Intersection,Road> neighbours;

**Purpose and description of class:**

Added the above class to store the information about the Intersection which is required in MapGraph. Storing this information in terms of HashMap because each intersection has the Road associated with it as well and saving it in Hashmap makes more sense.

**Class name:**Road

1. private String roadType;
2. private String roadName;
3. private double roadLength;

**Purpose and description of class:**

This class is desined to save the information about the edge. Since we need to save a lot of information about the edge so it made more sense to have a different class in itself.

**Overall Design Justification (4-6 sentences):**

Most of my implementation revolves around using the HashMap because storing and retrieving data from hashmap is faster and easier. And it is also easier to bind and save the important information about different vertices and roads associated with different intersections.