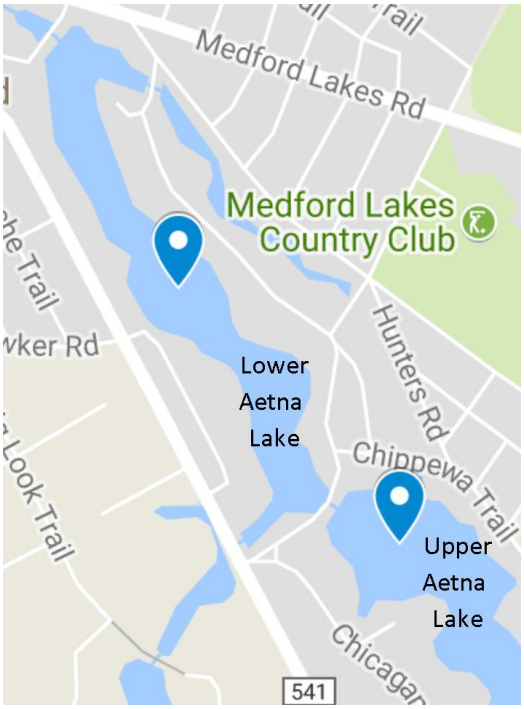
Walking in Medford Lakes

(this assignment is designed for MySQL Spatial)



1. Using the diagram of Medford Lakes (http://jackmyers.info/db/exercises/grad/medfordlakes/medfordlakes.pdf), create and populate the following tables in MySQL

   - **POI** (point of interest): store a primary key, the name of the POI, and the X, Y location
     - PJ Whelihans
     - Medford Lakes Country Clubhouse
     - the Zinc Café
     - YMCA Camp Ockanickon
     - 13 Big Chief Trail
       (at the intersection of Big Chief Trail and Big Look Trail)
     - Chicagami Trailhead (80, 21)
     - Upper Aetna Lake Dam (90, 31)
     - Medford Lakes private island

   - **Lake**: store a primary key, the name of the lake, and the lake's geometry
     - Lower Aetna Lake
     - Upper Aetna Lake (don't forget to account for the private island in the lake)

   - **Person:** store a primary key, then name of the person and the person's X, Y location. You can make as many people as you like.

2. Create a person for you. Your mission is to start walking/swimming from one POI to another in a straight line by calling a procedure named move with inputs of a person id, and two poi_ids. You will place your person at the starting location then "step through" X and Y coordinates on your journey until the person is at the destination. However, you cannot move more than one unit in either the X or Y direction. (You're not Wonder Woman or Superman.) Only integer coordinates allowed. If your journey takes you into a lake, indicate that.

   HINTS:

   - Your MySQL procedure needs to calculate the slope of the line between POIs and its y intercept.

   - You need to know if you are predominantly moving northward, southward, eastward, or westward to properly move. Eastward/Westward movements increment X and calculate Y. Northward/Southward movements increment Y and calculate X.

   - MySQL procedures do not let you write to the console directly. A work-around technique is to create a table called procedure_log used to store messages with an autoincremented id and a varchar message field. Then you could build a helper procedure to log messages.

     ```
     CREATE PROCEDURE `log`(IN line varchar(255))
     BEGIN
        INSERT into procedure_log (message) VALUE (line);
     END
     ```

You could use that helper procedure in your “walking” procedure as follows:

```
TRUNCATE procedure_log;  -- to clean out the log from its last use.
CALL log('Let''s take a walk in Medford Lakes');
CALL log('');
```

And when ready to display the messages:

```
SELECT message FROM procedure_log ORDER BY message_id;
```

3. What to turn in?
   - A copy of all your code that creates and populates tables.
   - In the same file, a copy of the code that creates your procedure.
   - Screen shots of your journeys (please call the procedure five times for five journeys:
     - One from the Upper Aetna Lake Dam to the Chicagami Trailhead (as shown above);
     - One essentially heading north;
     - One essentially heading south;
     - One essentially heading east;
     - One essentially heading west.

Here’s a sample run from my solution program

message
Let's take a walk in Medford Lakes
The journey will start from Chicagami Trailhead (80,21)
The journey will end at Upper Aetna Lake Dam (90,31)
Amber is currently at location (90,31).
Amber will primarily be headed East.
Amber will start from location (80,21).
Amber moved to location (81,22). In a lake? No
Amber moved to location (82,23). In a lake? Yes
Amber moved to location (83,24). In a lake? Yes
Amber moved to location (84,25). In a lake? Yes
Amber moved to location (85,26). In a lake? Yes
Amber moved to location (86,27). In a lake? No
Amber moved to location (87,28). In a lake? Yes
Amber moved to location (88,29). In a lake? Yes
Amber moved to location (89,30). In a lake? No
Amber moved to location (90,31). In a lake? No
You have arrived at your destination