# **Technical Manual for Distance and Directions with Google Maps**

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1. Overview

2. Installation

3. Persistence

1. DataController

the program utilizes a class called DataController, which provides several methods to load and save distance direction information. These methods include: reading in data from excel documents using readFromExcelDoc(), reading from a text file with readFromTextFile() and saving to a text file using writeToTextFile().

These methods load and save distance and directions information to and from a HashTable, which is referenced by the rest of the program.

2. DistanceAndDirectionsController

On program startup a new DataController is created, and any saved queries are loaded from the data.txt file into the DataController’s hash table.

The main controller class DistanceAndDirectionsController has a method called newQuery() which takes in information from the webpage to generate an API call. the data controller is called with every query to make sure that the distance information Is not already saved in the text file. If it is there, the API is not called and the data is loaded from the data controller into the database. If it isn’t there, the API is called and the information is saved into both the database and the data controller. The DataController saves any new queries to the data.txt file every time the newQuery() method is used.

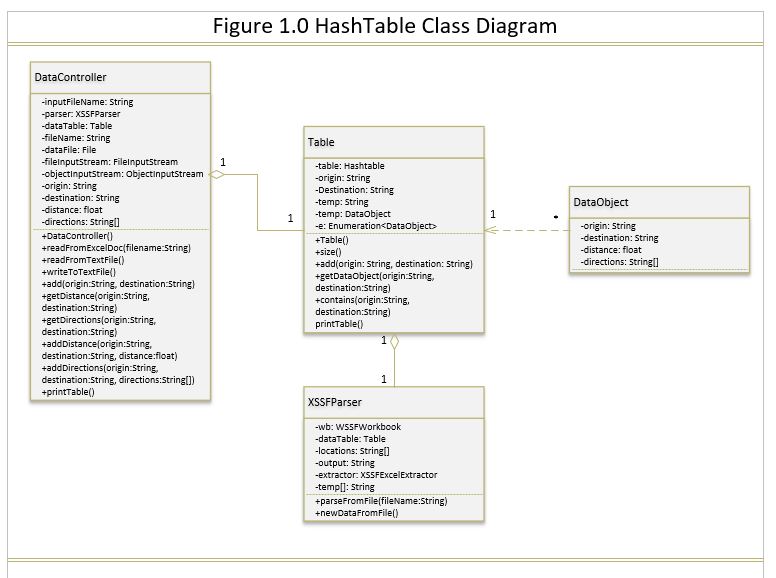
4. Running Google Maps

5. Google Maps Classes

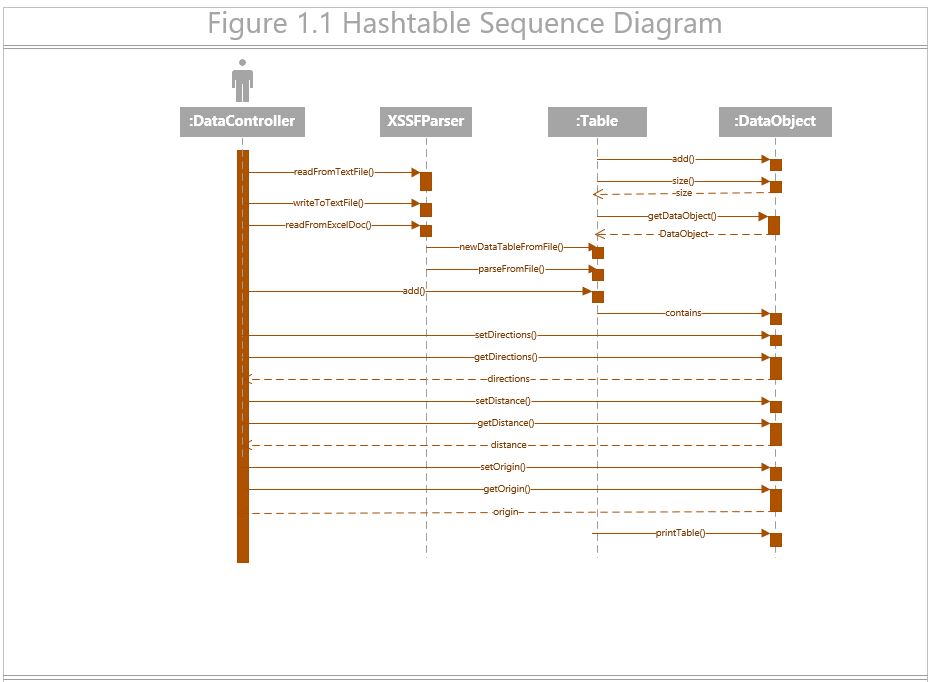
6. Interactions between Google Maps Classes

7. UML Diagrams on functionality of Google Maps

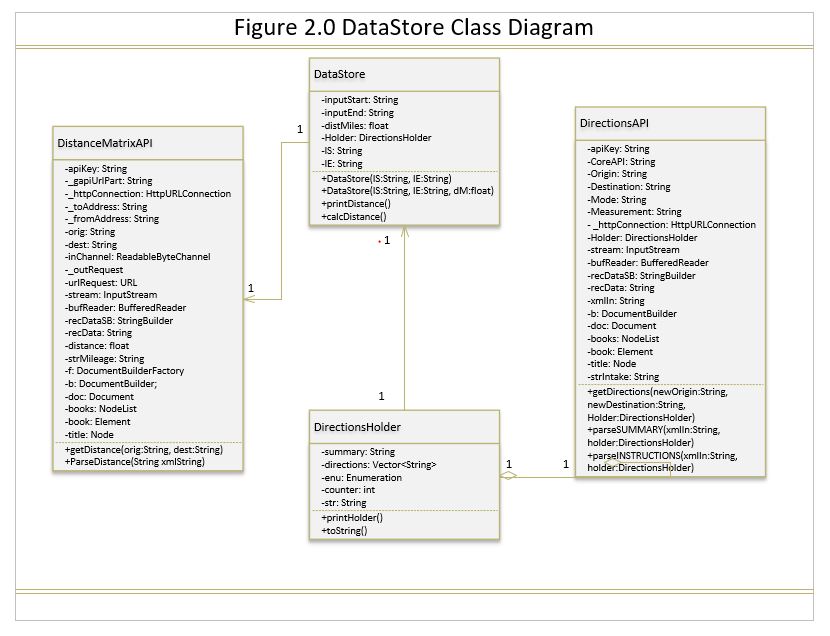
The following UML diagrams will show the interaction between different classes, how they are being used, and their functionality together as a whole.



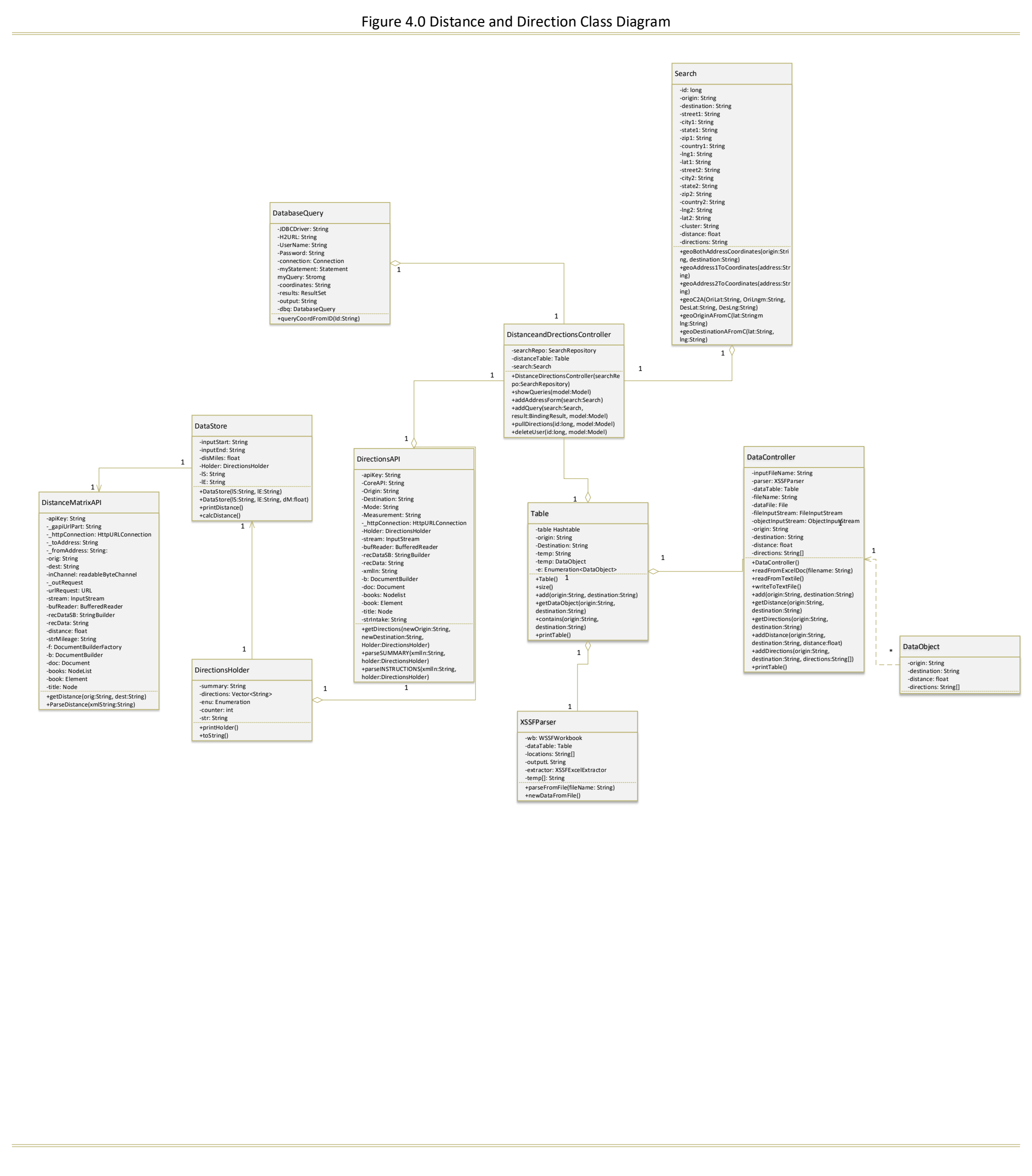
This UML class diagram shows the interactions of classes that are used to create and use the HashTable data structure. The Hashtable is what is used to load and save data for the project. There is a Table class that sets up the table, an XSSFParser that allows reading and writing to a text file. A DataObject that makes getters and setters for the Hashtable info and finally a DataController class that is used to implement all these classes together. Lastly, this shows the associations between these classes.



This UML sequence diagram shows the sequence of events existing between these four classes. This displays all the methods that are being used in each class as well as where they are being used and how they’re being used based on each class interaction. This diagram shows the sequence of information being used for the HashTable.



This UML diagram class diagram shows the interaction of classes that are used to access the API. As their names indicate DirectionsAPI accesses the Google Directions API and likewise, the DistanceMatrixAPI accesses Google Matrix API and both of these store their results in the data store. Lastly, this diagram shows the associations between these classes.



This UML class diagram is a representation of the class interactions of the entire program.