

Arron Schaar

Tiio Rideshare

CSCI 490 Senior Project, Final Paper

May 16, 2007

Introduction:

My project is a ride sharing web application that uses Google Maps API and Microsoft ASP.NET server technologies. This web application allows users to offer and find rides all around the world. One of the main features is that it uses GPS coordinates instead of a database of named locations. This allows it to be limitless as to the start and destination locations and will work worldwide. Users who need rides are able to conduct searches based on various criteria and the application will display the results. There is also a feedback system that allows members to review each other based on various service criteria. The primary focus of this project is to create an intuitive search interface with desktop like responsiveness as well as accurate and accountable user information.

Problem Being Solved:

I created this application to solve the problem of finding reliable ridesharing information on the web. As gas prices increase, there is more of a demand for reliable car pooling information so that people can save money and also reduce the number of cars on the road. There are numerous other carpool sites on the Internet, but they are usually hindered by their small scope and locality, or a horrible user interface. With my application, users from around the world are able to advertise and find people to share rides with. In addition to being worldwide, it allows users to post feedback on each other so that a record of reliable ride shares and passengers will be stored to promote safe and reliable transportation.

High-Level Design:

Tiio Rideshare application is divided into 5 sub-projects so that they can be reused in other applications. Rideshare and RideshareLib are unique to this application but TiioLib, TiioUtils and Data Access Library are used in other applications on Tiio.net domain.

Rideshare Project: This project contains all front end aspx pages and controls. It contains the styles, javascript and webservice.

RideshareLib Project: This project contains all classes specific to the Rideshare Project. It contains classes such as TravelLeg, Vehicle, Locations, UserReviews.

TiioLib Project: This project contains classes that are common amongst Tiio.Net applications. It contains classes TiioEmail, TiioMessages, TiioUser.

TiioUtils Projects: This project contains helper methods and mostly static functions that are used application wide. There is a TextTools class that contains numerous static methods for operations like

reversing a string, making it database safe, truncation, and validation for emails addresses, passwords and usernames. There is also a Common class that uses a singleton pattern to manage database connection strings, application logging methods and session handling.

Data Access Library Project: This project contains all access to the database. It uses static methods to do INSERT, DELETE, SELECT, UPDATE commands as well as access to stored procedures and transaction handling.

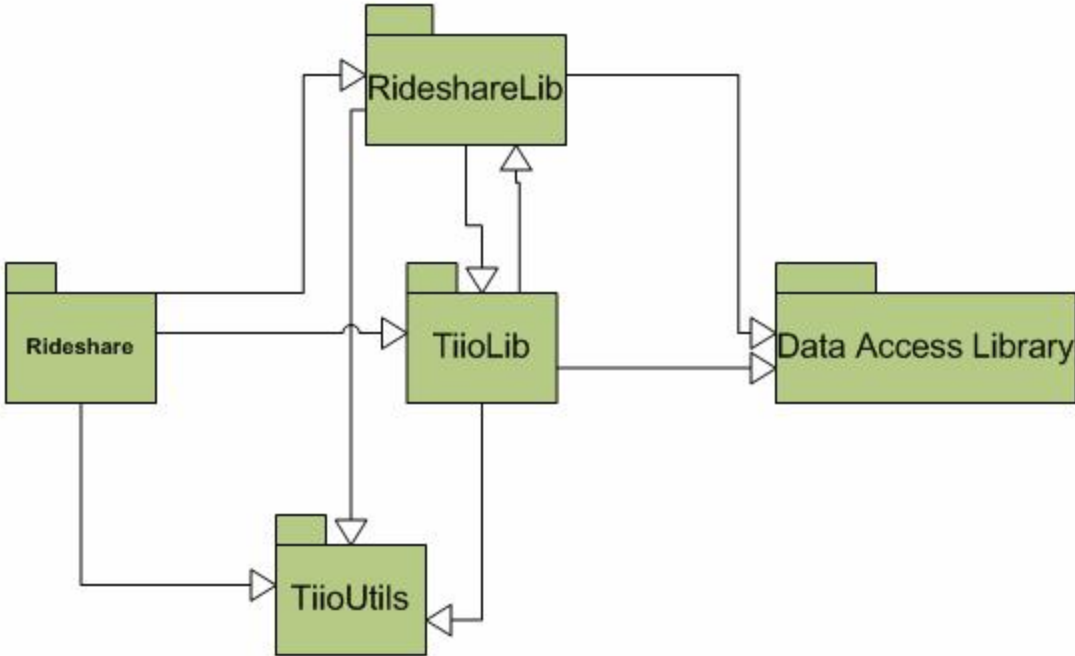


Figure 1 Application Architecture Overview

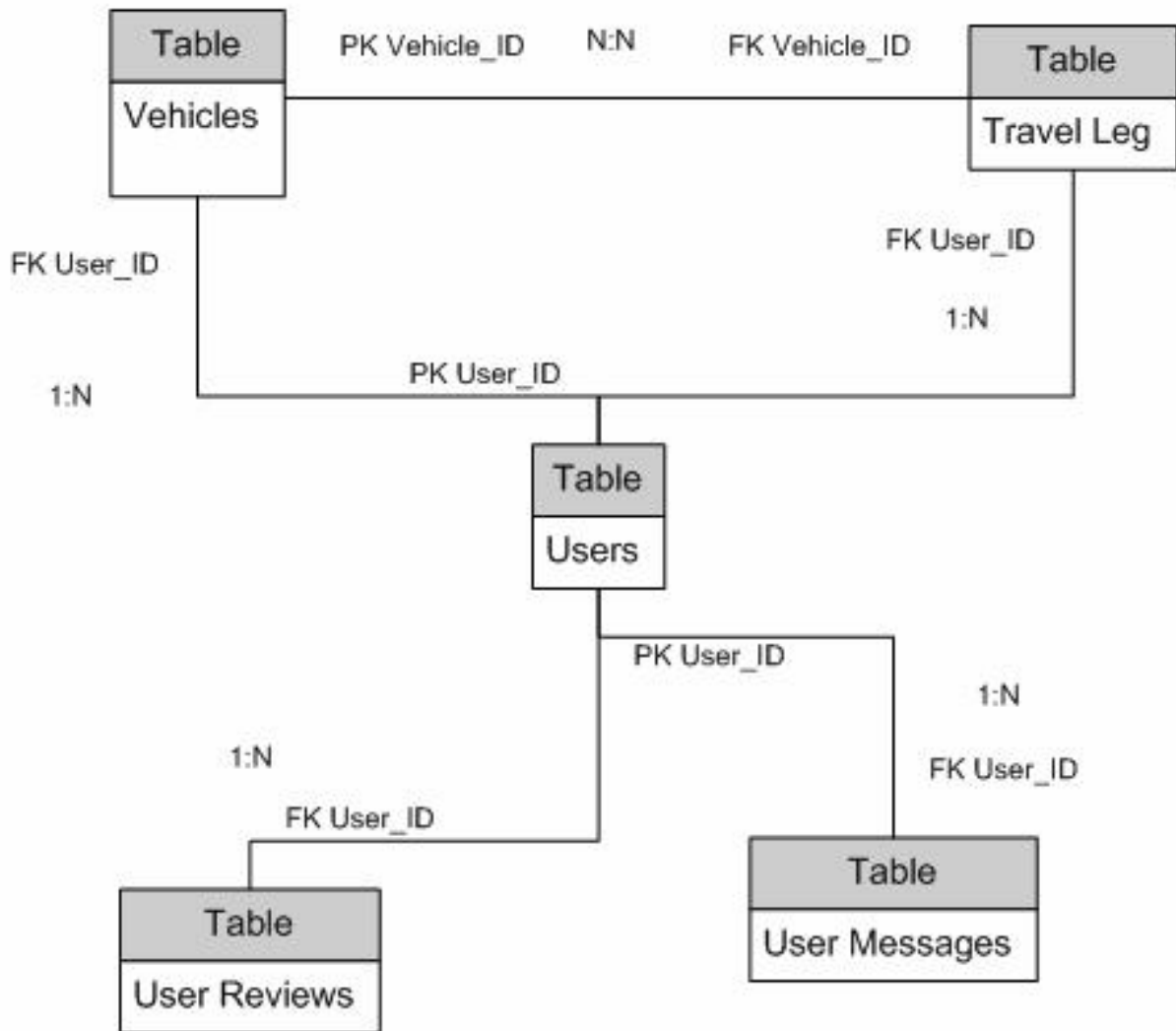


Figure 2 Relational Table Schema

User Interface Design

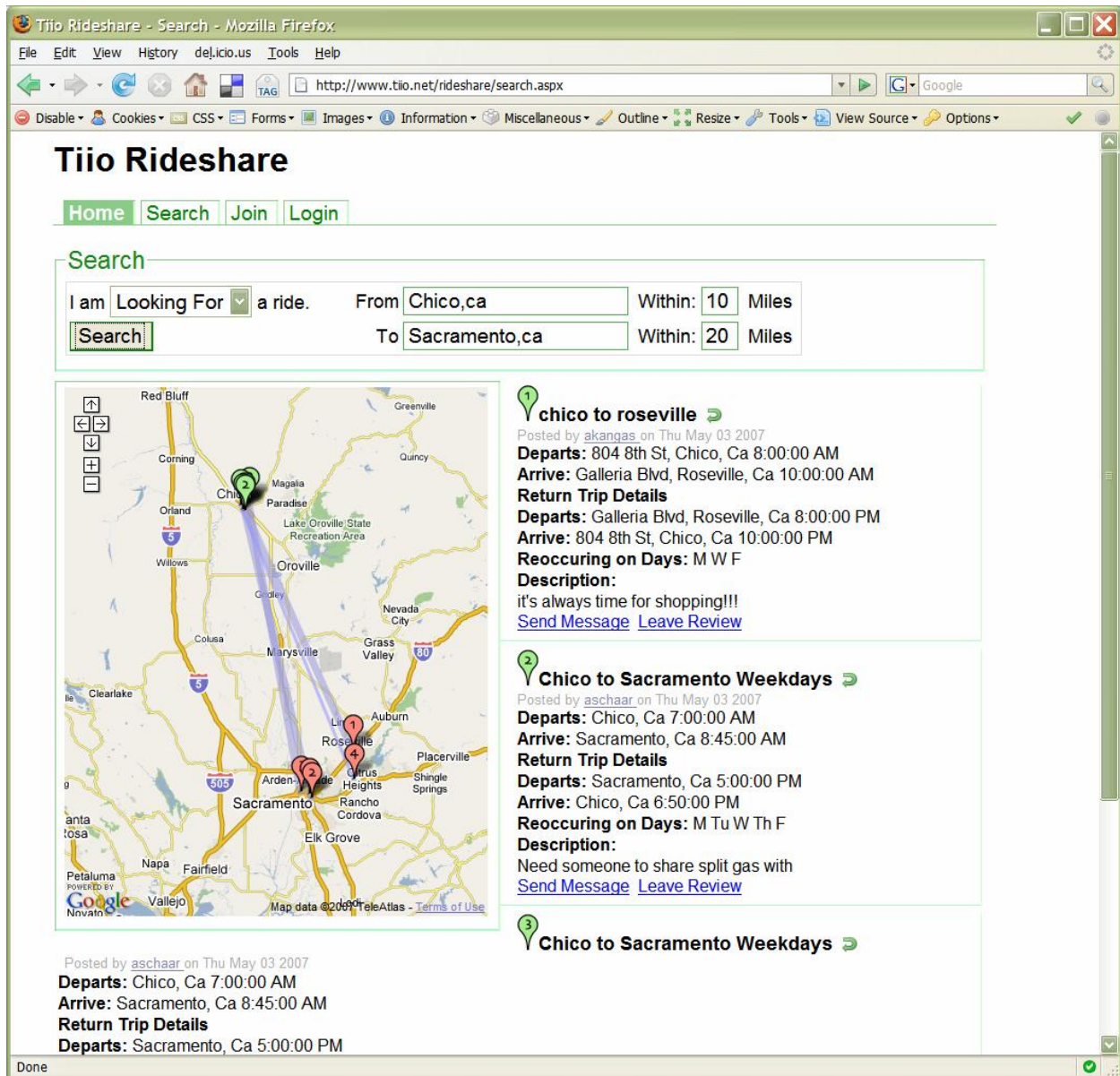


Figure 3 User Interface Search Page


★ Untitled Page

Create Listing


Title:

Offer Ride
 Need Ride

Start Location



End Location



Select Vehicle

Is this a reoccurring trip?

Is this one-way travel or round trip?
 One-Way Round Trip

Depart Date: Time:

Arrive Date: Time:

April, 2007						
Su	Mo	Tu	We	Th	Fr	Sa
25	26	27	28	29	30	31
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

Enter any add:

Figure 4 User Interface Create Listing Page

http://localhost:4708/join.aspx

Untitled Page

- [Home](#)
- [Search](#)
- [Test](#)

Create a new Account

Account Info

Choose an Username

Username must be between 4 and 16 characters.

Your Primary Email Address

 This email address will be your main means of communication and must be verifiable.

Create Password

Retype Password

 Password must be at least 7 characters in length.

I agree to the [Terms and Conditions](#) for using Tiio Rideshare

Figure 5 Create Account

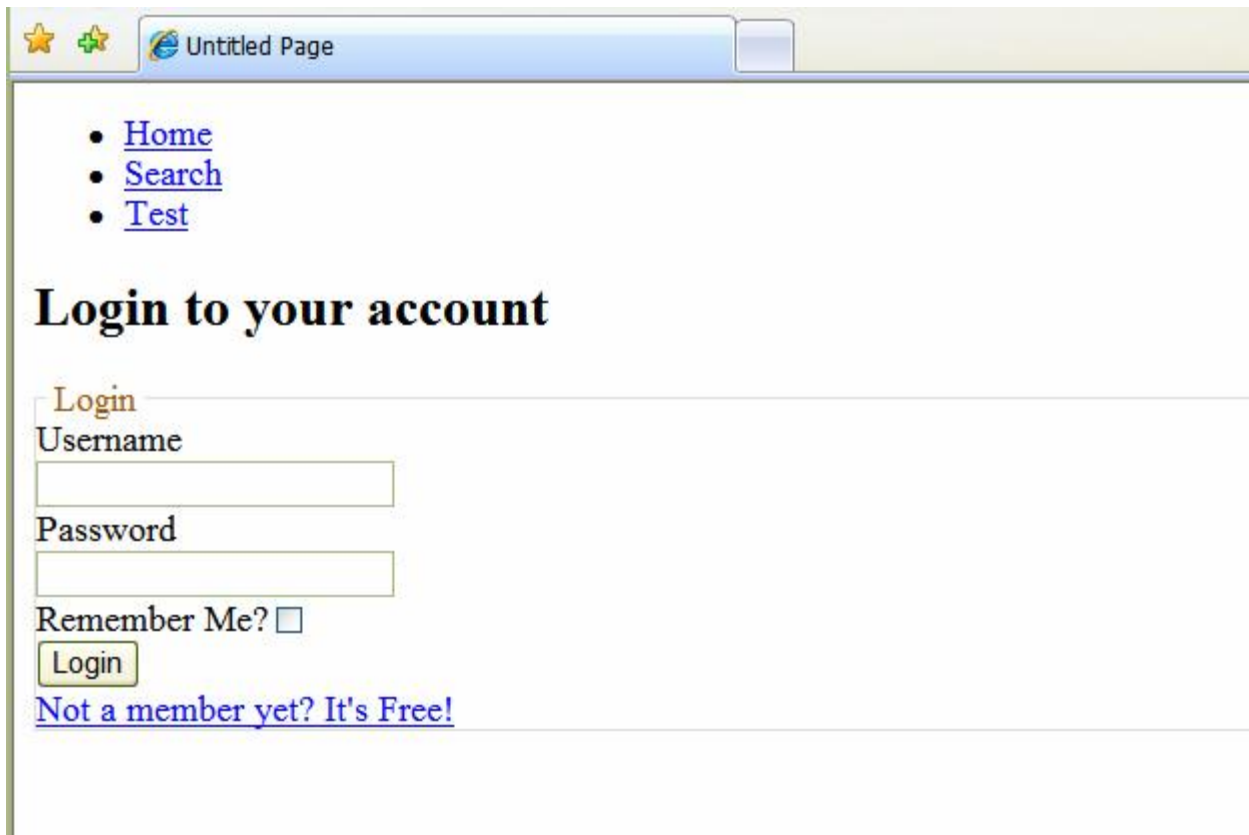


Figure 6 Login Page

Contribution:

I designed and created the entire project.

What I learned:

The functionality of the search page was the meat of this project. I learned how to use Microsoft's AJAX framework to make client callbacks. You'll notice that the search page is not refreshed at all. Each time the map is moved or a search is done, it uses a webservice callback to retrieve the information from the database and display it. I also went about showing the information on the search a little different. Instead of creating all the html code on the server then plopping it into an html element, I choose to use JSON. JSON is javascript object notation, which allows you to use object like syntax to access properties on javascript objects. This is the first time I've used it before and I liked it a lot. It's nice to have all the properties that are available on the server side objects on the client side. This allowed me to use `travelleg.Name`, `travelleg.Startlocation.Lat` and so forth. The main downfall of this approach is that you may have properties in the object that you don't end up using on the client side, thus data is being sent to the client that is not being used. I was considering creating a light object on the server side to be serialized and output that to the client which only contains the data that I'm going to use. Maybe I'll implement that later on.

I also learned some new CSS tricks like element properties. For example, they allow you to assign different styles to an input element depending on its type. So `[type=button]` and `[type=submit]` can have different styles.

This was the first time I have used the open source version control system Subversion. I have experience was Visual Source Safe from work, but after using Subversion I don't like having to go back to VSS.

Overall, I'm satisfied with the way my project turned out. I have plans to continue working on it in my spare time and hopefully launching it later this summer. I'll probably update the styles and add a better color scheme.