Project Proposal

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February 16, 2014

Summary

The application will use data from Tri-Met's database. (Tri-Met is a the public transit system in Portland, Oregon). The database contains route information for all of Tri-Met's trains and buses.

Since we are new to Haskell and have limited time to work on this project, we have broken the project down into manageable, intermediate goals.

1 Project Goals

The aim of this project is to use the Haskell programming language to create a web-based application. It is intended as a learning exercise with the following project goals:

* Learn functional programming with Haskell * Learn how to use a REST API as a web service * Learn how to use Haskell libraries to present the data in a meaningful way

1.1 Initial Goal

The initial goal of the project is to successfully pull a single, small piece of information from the database, massage it in Haskell, and present it on a web page. This may be something as basic as showing the next bus/train to arrive at a given stop number.

1.2 Secondary Goal

Once the initial goal is in place, we will expand the user interface to contain ever more complex query abilities. For example, we might add the ability to select a certain route, list the stops of a route, estimate the travel time between two stops, plan a trip (including multiple transfers), etc.

1.3 Final Goal

Since this is a web-based application, it would be nice to have it hosted on a public server. The final goal is to be able to pack all the code up and install it on a server in the cloud (such as Amazon EC2). This will involve installing Haskell (or just shipping the compiled version) on a server equipped with Apache web server.

Project Motivation

The authors of this application are Computer Science students at Portland State University. We are relatively new to programming and would like to gain experience in building applications of greater complexity than those developed for small academic projects. As part of our requirement to use functional programming, we will use Haskell and associated libraries to create an integrated piece of software with 'real world'-like behavior.

This includes using graphical libraries and/or HTML wrapper libraries for the front end, and calls to an exposed web API for the backend. The final user interface will be presented on a web page using HTML (and possibly some Javascript).

Project

A Trimet application wrapper to make use of Trimet's public web API's. And example use case would be to submit a stop ID, and get back arrival times.

Gtk2HS is a haskell wrapper over the gtk+2.x library for creating user interfaces.

Previous experience

Niether student has experience with user interfaces besides very mild use of the Java Swing API. Niether student has experience interacting with web API's. Both of these reasons are further motivation for the project.