UNIVERSITY OF WITWATERSRAND, DEPARTMENT OF ELECTRICAL ENGINEERING

Software Requirement Specification for Shopping Route Recommender

Luka Cakic (671913), Ronen Freeman (386910), Devin Taylor (603956) and Matthew Marsden (609293)

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1 Introduction

1.1 Purpose

1.2 Document Conventions

1.3 Intended Audience and Reading Suggestions

1.4 Project Scope

1.5 References

2 Overall Description

2.1 Product Perspective

The Shopping Route Recommender is an application used by consumers to maximise their shopping experience in terms of three preferred optimisations: minimum cost, travel distance and travel time. The consumer is able to log onto a Website or Smartphone application and create a shopping list with a desired route being generated. Enabling a user to optimise their shopping experience is a potential success from the start, as their daily routines can become more efficiently and effectively undertaken. The application's use is not only restricted to the general public, but can also be used by businesses and companies involved in the stock collection courier service industries. The application is aimed at being user friendly, simple, and interactive with maximum customisation being a priority aspect in order to maximise an individuals needs.

2.2 Product Features

The list of product features below aim to provide an easy-to-use, customizable application interface for all users.

- Interactive shopping list menu.
  - add or remove item
- Interactive optimisation selection options.
  - minimise cost
  - minimise travel time
  - minimise travle distance
- Interactive shopping area selection options.
  - select from a number of suburbs or regions

- Interactive route map displaying alternate routes for selection.
  - rotate map
  - slide map
  - zoom in/out
  - satellite view

2.3 User Classes and Characteristics

The application is aimed for the general public's use as well as certain business industries.

- General Public
  - General population wanting to buy their routine shopping list
  - General population looking for more specific products and their preferred optimised route
  - Foreign individuals looking for their ideal shopping locations or travel routes
- Business Industries
  - Courier companies collecting stock or products from various distributors/stores

2.4 Operating Environment

Shopping Route Recommender is an application designed to run on the most Web Browsers as well on Google Android and Mac OS X Smartphones.

- Software Requirements
  - Internet connectivity
  - Entry level Smartphone
  - Mozilla Firefox, Microsoft Edge, Google Chrome, Microsoft Explorer, Safari
- Hardware Requirements
  - Entry level Smartphone with interactive touch screen

2.5 Design and Implementation Constraints

Shopping Route Recommender is platform independent and is written in language. In addition, Google Maps API is implemented for generating the desired optimised shopping route. The accuracy of the generated route and optimisation algorithms is therefore dependent on the accuracy of the Google Maps detailing.

2.6 User Documentation

A general help and FAQ menu will be provided within the application. This will function as the "user manual" of the application.

2.7 Assumptions and Dependencies

3 System Features

Shopping Route Recommender was designed with user experience as its primary concern. As a result of this the product features are simplistic in nature in order to provide the customer with only the essentials. This section provides a detailed description of each system features in order to make future system extensions as easy as possible.

3.1 System Feature 1 - Adding items to shopping cart

3.1.1 Description

The Shopping Route Recommender's primary feature is for the user to be able to continuously add shopping items to their cart. The user will be able to continuously log into the application and add items to the shopping cart on an add-hock basis. These items will remain in the basket until such time that the user wants to go shopping.

3.1.2 Stimulus/Response Sequences

The user will click in the "Add Items" field at which point a list will be displayed that will contain all previously added items listed one after the other (in the order in which they were added). Within this list the user will be able to complete one of the following actions:

- Add new item - The user will be able to select the "Add new item" button in order to be allowed to enter a new item.
- Remove existing item - The user will be able to select the cross new to a specific item at which point the item will be removed from the shopping list.
- Edit existing item - The user will be able to make modifications to the description of an existing item.

3.1.3 Functional Requirements

- The user can only add a single item at a time.
- The user can only remove a single item at a time.
- The user can only edit a single item at a time.

3.2 System Feature 2 - Upload Existing List

3.2.1 Description

The developers acknowledge the fact that not all users will have continuous access to internet and thus the ability to access the above mentioned shopping list. The proposed solution was to allow the user to add items to a .csv file and upload this only when they actual want to go shopping.

3.2.2 Stimulus/Response Sequences

On the home page there is a "Upload Shopping List" button. Once the user clicks on this button the user will be required to provide the path to the .csv document. Once the path has been provided the user will be required to click on the upload button and the .csv file will be imported. Upon completion the user will be able to access, and interact with, the shopping list as mentioned in Section 3.1.

3.3 System Feature 3 - Add Location

3.3.1 Description

In order for the route to be provided it is required that the application know the user's location.

3.3.2 Stimulus/Response Sequences

The user is presented with a ”Add Location” option on the home screen. Upon selecting this option the user has the ability to make their location known in two different ways:

- Entering their location manually.
- Finding their location through the use of the Google Maps API.

The primary motivation behind allowing the user to manually enter their location is that not all users will have access to GPS and thus will be able to find their location.

The location entered at this point is the same location that will be used as the starting position for the route that is planned when the ”Generate Route” option is selected.

3.3.3 Functional Requirements

- In order to use the ”find my location” option the user is required to have GPS access.

3.4 System Feature 4 - Preferred Optimisation

3.4.1 Description

A decision was made in order to allow the user to have control of the nature of the route that they will follow. This was due to the fact that multiple customers will view different aspects as their primary concern. In other words, some users might value the cost of things over the distance required to travel, while for other the cost of things may not be of concern.

3.4.2 Stimulus/Response Sequences

On the home page there is a ”Preffered Optimisation” drop down menu. Once the user selects the ”Preffered Optimisation” drop-down menu they will be provided with the following options:

- Fastest Route - The user will be allowed to select that they would like to take the fastest possible route in order to obtain all the items on their shopping list. The primary contributor to delays will be traffic.
- Shortest Route - The user will be allowed to select that they would like to travel the shortest possible distance in order to obtain all the items on their shopping list. This selection will not incorporate traffic information.
- Cheapest Total Cost - The optimisation will primarily consider the cost of items at the expense of the distance required to be travelled in order to obtain these items.

The user will also be provided with all alternative routes and they time expense that would be incurred if they select to take the alternate routes. The route distance optimisation will primarily be achieved through the use of the Google Maps API.

3.4.3 Functional Requirements

- The application is required to link to the Google Maps API.
- The user is required to have GPS activated on their mobile device if they wish to use navigation.

3.5 System Feature 5 - Generate Route

3.5.1 Description

The generate route option incorporates all the above mentioned features and provides the user the with the preferred route.

3.5.2 Stimulus/Response Sequences

Upon selection of the ”Generate Route” option the user will be directed to a page that contains the Google Map with the route drawn onto it as well as a set of directions in order to allow for off-line use. If the user would prefer to navigate using a mobile device they will be able to do so through the use of Google Maps.

3.5.3 Functional Requirements

- Access to Google Maps API is required.

4 External Interface Requirements

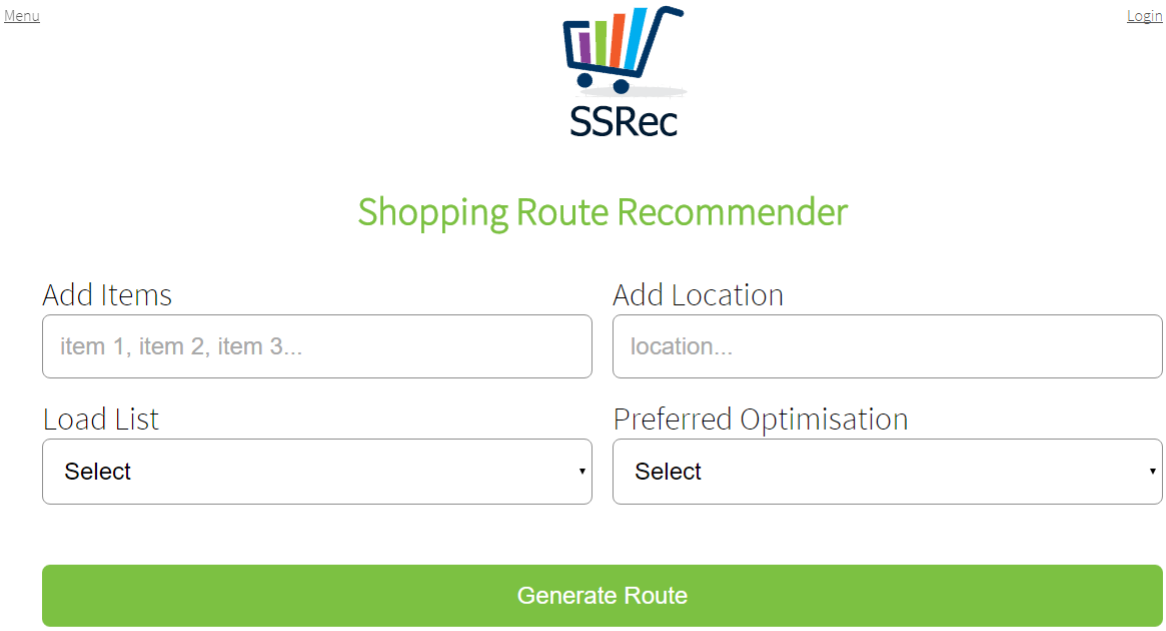
4.1 User Interfaces - GUI

The Shopping Route Recommender (SRRec) GUI is simple to use and designed such that the user is able to access all the main features easily. The interface communicates with the data layer which then incorporates Googles’ API to deliver the most accurate and optimised shopping route.

The most common features of SSRec’s GUI are:

- The sidebar menu accessible from all the subsequent pages:

- The landing page and main application window where a user inputs their shopping list, location and preffered optimisation from which the application generates an optimised route:
- Route and Directions page generated after a user has input their shopping list, location and preferred optimisation:
- The page where a new user can create an account:
- The page where a user can either login or create a new account:



5 Other Non-functional Requirements

References

[1] Fluid Switch. *Airplane Fule Gauges: How they Work, Challenges, & Solutions*. Fluid Switch. URL: http://www.fluidswitch.com/blog/airplane-fuel-gauges/. [Accessed: February 15, 2016]

Menu

Login

SSRec

Shopping Route Recommender

Your optimised route has been generated!

Directions:

Generated map:

Menu

Login

SSRec

Shopping Route Recommender

Login or Create Account

New user

- Create and save shopping lists
- Save your routes
- Manage your shopping schedule
- Earn rewards

Create Account

Returning user

Email address

Password

(forgot your password?)

Login

Menu

Login

SSRec

Shopping Route Recommender

Create Account

Full Name

Email

Password

Confirm password

Enter the text in the image above

Create Account