Deliverable #1 Template

SE 3A04: Software Design II { Large System Design}

1. Introduction

This section of the SRS should provide an overview of the entire SRS.

1. Purpose

This software requirement specification provides a description of the software system that will be developed. It layouts the the functional and non-functional requirements. This establishes the basis of agreement between the contractor, testers, stakeholders and developers of the software. Not only does this document outline the functions and non-functions, constraints and run-time behaviours are provided as well. This software requirement specification layouts what the software will do such that developers and testers have a clear understanding of what needs to be met. Note that if the specifications of this document are not met further revisions can be made during the architecture design phase.

1. Specify the intended audience for the SRS

1.2 Scope

Bob is a software the allows user to carpool their taxis, it has two modes; the “Request Taxi Carpool” which allows the user to view any personnel(s) that they may be able to share the fare and the “Offer Taxi Carpool” which allows the user to make their own offer to for carpooling. The application will determine the fare for each passenger depending on the distance they traveled in the taxi. This application is available to all android users.

1. Describe the application of the software being speci ed, including relevant bene ts, objectives, and goals
2. Each customer must register with the application by creating a profile that can later be edited or removed. Only registered customers may oﬀer or request a taxi carpool.
3. When a taxi carpool request arrives, the application must present the options to the oﬀering customer, indicating the potential changes to their trip (estimated fare, distance, time, etc.) along with some kind of measure to help them decide whether it is optimal to accept or refuse the request.
   1. Definitions, Acronyms, and Abbreviations

a) Provide the definitions of all terms, acronyms, and abbreviations required to properly interpret the SRS

* **Political Correctness -** is the attitude or policy of being excessively careful not to offend or upset any group of people in society who are believed to have a disadvantage.
* **Dispatcher -** is a communications server responsible for receiving and transmitting pure and reliable information , tracking taxi location, and recording other important information
* **Taxi Carpool -** An arrangement between individuals to make a singular trip to a final destination in a single vehicle, which in this case is a taxi.
* **Android Operating System (Android) -** is an operating system developed by google and will be used for this software application

1. References

* Kai Qian, Xiang Fu, Lixin Tao, Chong-wei Xu, and Jorge Diaz-Herrera. Software Architecture and Design Illuminated, Jones and Bartlett Publishers, ISBN: 9780763754204.

1. Provide a complete list of all documents referenced elsewhere in the SRS
2. Identify each document by title, report number (if applicable), date, and publishing organization
3. Specify the sources from which the references can be obtained
   1. Overview
4. Describe what the rest of the SRS contains
5. Explain how the SRS is organized
6. Overall Description

This section of the SRS should describe the general factors that a ect the product and its requirements. It does not state specific requirements; it provides a background for those requirements and makes them easier to understand.

1. Product Perspective

Within the Google Play store and Apple store there exists apps that provides their users the ability to hail a taxi. This includes apps such as Uber, Haxi, and Hailo, among others. Uber and Haxi provide user’s with the option to share a ride, however, what makes **\*INSERT NAME HERE\*** differ is that this application is provided by an actual taxi company, rather than a private, unqualified driver. With the addition of innovative features such as speed dating, the application will have an edge over the competition. //google maps

1. If the product is independent and totally self-contained, it should be stated here
2. If the SRS defines a product that is a component of a larger system, as frequently occurs, then this subsection should relate the requirements of that larger system to functionality of the software and should identify interfaces between that system and the software
3. A block diagram showing the major components of the larger system, interconnections, and external interfaces can be helpful
   1. Product Functions
4. Provide a summary of the major functions that the software will perform.

Example: An SRS for an accounting program may use this part to address customer account maintenance, customer statement, and invoice preparation without mentioning the vast amount of detail that each of those functions requires.

This application shall allow the user to to hail a cab and carpool with other users of the application. When they start the app they are able to either select an already existing carpool session or create a new one. The software then directs the taxi to the user’s location and to any subsequent carpools.

1. Functions should be organized in a way that makes the list of functions understandable to the customer or to anyone else reading the document for the rst time
2. Textual or graphical methods can be used to show the di erent functions and their relationships

Such a diagram is not intended to show a design of a product, but simply shows the logical relation-ships among variables

* 1. User Characteristics

1. Describe those general characteristics of the intended users of the product including educational level, experience, and technical expertise

The intended user is persons over 18 who owns and understand how to use an android device. The user should be able to know how to download and install the application through the various means of distribution (i.e. Google Play store). //Living in hamilton

1. Do not state specific requirements, but rather provide the reasons why certain speci c requirements are later specifed
   1. Constraints

a) Provide a general description of any other items that will limit the developer's options

Various constraints exist which limit the developer’s options; such as time constraints and operating system constraints. The deadline for the product is December 3, 2014, all aspects of this project must be complete by that time. Another constraint is that the product must be developed for the android operating system.

The taxi company should not be losing money when offering the taxi car app.

1. Assumptions and Dependencies
2. User has already downloaded the application
3. User is using the android OS, and at least up to version 4.0
4. All taxi’s will have GPS such that the dispatcher will know the location of all taxis registers with the software in real time
5. Fixed rates for the taxi fees are provided to use
6. Users who wish to carpool are going to the same destination
7. Individuals first have the option to choose current offers of taxi carpools and if no offer fits their need, only then do they have the option to make an offer for a taxi carpool
8. Making on taxi carpool offer is equivalent to riding in a taxi by oneself, until two parties agree that they wish that carpool together.
9. Individual who provides the taxi id (person who offers the taxi) is the person to be picked up first
10. Taxi Carpooling is a time-sensitive event meaning that users cannot book ahead for a taxi carpool. *The app only applies to users who want to request a taxi pickup as soon as possible.* Users are given a limited time frame to create the carpool group: from when the offer was created to the point where the taxi picks up the person who offered the carpool
11. The application only works within the Greater Hamilton Area.
12. Example: An assumption may be that a specific operating system will be available on the hardware designated for the software product. If, in fact, the operating system is not available, the SRS would then have to change accordingly.
    1. Apportioning of Requirements

a) Identify requirements that may be delayed until future versions of the system

Functional Requirements

This section of the SRS should contain all of the software requirements to a level of detail sufficient to enable designers to design a system to satisfy those requirements, and testers to test that the system satis es those requirements. Throughout this section, every stated requirement should be externally perceivable by users, operators, or other external systems. These requirements should include at a minimum a description of every input (stimulus) into the system, every output (response) from the system, and all functions performed by the system in response to an input or in support of an output.

You normally have two options for organizing your functional requirements:

1. Organize first by business events, then by viewpoints
2. Organize first by viewpoints, then by business events

Choose the one which makes the most sense.

For example, if you wish to organization by business events:

BE1. User Creates New Account

VP1.1 User

1. User enters information into form.
2. User hits the Create New Account button.

VP1.2 Dispatcher

1. Dispatcher stores user information
2. Dispatcher sends confirmation message to user.

VP1.3 Taxi

1. N/A

VP1.4 Legal

1. End-User License Agreement

VP1.5 Company

1. N/A

VP1.6 Security

1. Security encrypts the account information sent by user
2. Security decrypts for the dispatcher

VP1.7 Economics

1. N/A

BE2. User logs in

VP2.1 User

1. User enters his account information.
2. User hits log-in button

VP2.2 Dispatcher

1. Dispatcher checks if the entered information matches stored information.
2. Dispatcher either allows the user to log in or asks the user to try again.

VP2.3 Taxi

1. N/A

VP2.4 Legal

1. N/A

VP2.5 Company

1. N/A

VP2.6 Security

1. Security encrypts the account information sent by user
2. Security decrypts for the dispatcher

VP2.7 Economic

1. N/A

BE3. User enters start location, destination, amount of passengers.

VP3.1 User

1. Can choose between using the phone GPS or manually inputting the address.
2. User provides how many passengers are with them.
3. User sends locations to dispatcher
4. User is provided with list of offers - He/She chooses on current offers or scrolls down to the bottom to make a new offer if no current offer is suitable.

VP3.2 Dispatcher

1. Receives User information
2. Calculate Taxi Fare for current user - without taxi carpool
3. Calculate Taxi Fare for current user - with taxi carpool - currently existing offers
4. Comparison between Taxi carpool and without Taxi Carpool information is made
5. Populates a list with current offers which can be sorted by their respective benefits (Cost, time, distance, other user profiles)

VP3.3 Taxi

N/A

VP3.4 Legal

N/A

VP3.5 Company

VP3.6 Security

1. Security encrypts the information sent by user.
2. Security decrypts for the dispatcher

VP3.7 Economic

1. User must pay less for the carpooling than if they had requested a taxi alone.

BE4. User selects an offer provided by the dispatcher

VP2.1 User

1. Chooses an offer based on profile and time/distance/cost.

VP2.2 Dispatcher

1. Sends offer request to the user offering the taxi carpool.
2. Sends a confirmation or rejection to the requesting user based on the other user’s response.
3. If it was a confirmation, the dispatcher must update the taxi route info to pick up the requesting user.

VP2.3 Taxi

1. Taxi receives new route information.

VP2.4 Legal

N/A

VP2.5 Company

N/A

VP2.6 Security

1. Security encrypts the information sent by user.
2. Security decrypts for the dispatcher

VP2.7 Economic

N/A

BE5. User makes a carpool offers

VP2.1 User

1. User waits for requests and accepts or rejects them based on profile and time/distance/cost changes.

VP2.2 Dispatcher

1. Sends offering user’s start location to the taxi cab, creating a carpool group for that taxi ID.
2. Sends requests and confirmation/rejection messages between the offering user and the requesting users.
3. Prepares a taxi cab route as the new users are accepted into the carpool group (Users who have been confirmed by the offering user.)
4. Updates the final time/distance/cost information each time the carpool group changes.
5. Once the dispatcher receives a confirmation of pickup of the offering user, it updates the taxi cab route to pick up each user and then head to the final destination.

VP2.3 Taxi

1. As soon as the offering user creates the offer, the taxi is given the start location of the offering user. The taxi confirms that it is going to go to pick them up, giving the dispatcher their taxi ID.
2. When the taxi picks up the offering user, they send a message to the dispatcher to request the final route. This final route goes to all users in the final carpool group and then to their destination.

VP2.4 Legal

VP2.5 Company

VP2.6 Security

VP2.7 Economic

BE6. User or Users arrives at final destination

VP2.1 User

1. User is given a rating form for the taxi and the users they carpooled with upon arriving at the destination.

VP2.2 Dispatcher

1. Upon receiving confirmation of the taxi’s arrival, send rating forms to all of the participating users and the amount of the fare they are responsible for paying.
2. VP2.3 Taxi
3. Sends a message to the dispatcher that the taxi has arrived at the destination and requests payment from the users according to what the dispatcher has calculated.

VP2.4 Legal

VP2.5 Company

VP2.6 Security

1. Security encrypts the information sent by user.
2. Security decrypts for the dispatcher

VP2.7 Economic

BE7. User cancels taxi request/offer

VP2.1 User

1. The user sends a request of termination to the dispatcher for their carpooling session
2. The user receives a notification about the success of the termination
3. The user gets about the number of cancellations that they have done

VP2.2 Dispatcher

1. The dispatcher receives the user’s request of termination
2. The dispatcher terminates the current carpooling sessions that the user is involved in
3. The dispatcher notifies the taxi about the termination of the carpool session
4. The dispatcher notifies the user about the success of the cancellation and their current number of cancellations(Number of cancellation will be determined later)

VP2.3 Taxi

1. The taxi is notified about the carpool session being terminated and waits new instructions

VP2.4 Legal

VP2.5 Company

VP2.6 Security

1. Security encrypts the information sent by user.
2. Security decrypts for the dispatcher

VP2.7 Economic

BE8. User changes personal information

VP2.1 User

1. User clicks, on edit profile information button.
2. Provides a form, where the user can place his or her new personal information.
3. User clicks on send, sending the new information to the dispatcher.

VP2.2 Dispatcher

1. User’s personal information is received by the dispatcher
2. Dispatcher stores information
3. Dispatcher sends

VP2.3 Taxi

VP2.4 Legal

VP2.5 Company

VP2.6 Security

1. Security encrypts the information sent by user.
2. Security decrypts for the dispatcher

VP2.7 Economic

1. Clicks an offer
   1. sends to dispatcher
   2. other person confirms
   3. sends back and forth
   4. If no accept then user is sent to list offer
   5. Similar facebook friend accept process
   6. provide estimated time of arrival
   7. After both parties confirm - user is done and waits
2. Creates an offer
   1. dispatcher needs to tell which car is on the way
   2. taxi needs to be told where he is
   3. nearest idle taxi-send id taxi of phone - taxi id is going to pick up this person
   4. TAXI ID SHIT - TELL WE NO DO
3. User arrives at final destination
   1. taxi cab is near final destination
   2. tells dispatcher - sends form to everyone
   3. user and driver now can write review
   4. goes back to the beginning of app
4. User Cancels
   1. Route changes
   2. User asshole rating goes up
   3. cancel limits, also ip bans

Non-Functional Requirements

4.1 Look and Feel Requirements

1. Appearance Requirements

LF1. The layout/interface will resemble and contain the map elements similar to Google Maps

1. Style Requirements

LF2. The style of the application shall match and appear suitable for an android operating system

4.2 Usability and Humanity Requirements

1. Ease of Use Requirements

UH1. The application should be require an absolute maximum of 15 minutes to complete the task of booking of taxi carpool.

1. Personalization and Internationalization Requirements

UH1. Users will be required to make a user profile, containing their name, date of birth, email, and gender.

UH2. Displayed on a user profile is only the name, age, a user rating,e-mail, and gender. Any other details such as phone number, address, and location are optional to display on the user profile

UH3. An extension of this user profile, is the Taxi Carpooling Speed Dating Compatibility measurement.

1. Learning Requirements

UH1. It shall take the user only five minutes to learn how to book a taxi carpool

1. Understandability and Politeness Requirements

UH1. The Application shall be politically correct and respect gender equality

1. Accessibility Requirements

UH1. The application’s source code shall be available on an open-source online repositories such as Github

4.3 Performance Requirements

1. Speed and Latency Requirements

PR1. Communication messages between the application and the dispatcher should take no longer than 100 seconds.

1. Safety-Critical Requirements   
   N/A

1. Precision or Accuracy Requirements

PR1. Decimal values for fares and fees will be rounded down a nickel and to an accuracy of two decimal points

1. Reliability and Availability Requirements

PR1. The availability of the taxi app will only work within the Hamilton area. i.e The carpool app can only pick up people in Hamilton.

1. Robustness or Fault-Tolerance Requirements

PR1. The user’s selections will be saved, allowing for temporary loss of connection

1. Capacity Requirements

PR1. The dispatcher shall be able to handle at the very least five people at the same time using the app

1. Scalability or Extensibility Requirements

PR1. The app shall come out with additional updates. i.e the innovative features

1. Longevity Requirements

PR1.

1. Operational and Environmental Requirements
2. Expected Physical Environment

OE1. The app will be designed to appear appropriate for and be usable in a mobile-environment

1. Requirements for Interfacing with Adjacent Systems

OE1.

1. Productization Requirements

OE1. The product will be usable on phones using the supported android operating system

1. Release Requirements

OE1. The product shall be released on time, with early builds being available before then

1. Maintainability and Support Requirements
2. Maintenance Requirements

MS1. Maintenance reports will come up on a monthly basis. These reports will indicate an reported bug fixes, updates and news.

1. Supportability Requirements

MS1. The application software shall run on the android operating system and at the very least run on version 4.0 of the android operating system.

1. Adaptability Requirements

MS1. Modularity will allow for ease of adaption and configuration for different platforms

1. Security Requirements
2. Access Requirements

SR1. All users of the application, those that sign-up for the application, will be able to see personal information of other users of the application.

1. Integrity Requirements

SR1. The product shall ensure that information transferred between the application, the dispatcher, and the taxi is indeed the corresponding data in which each elements sends.

1. Privacy Requirements

SR1. The Users of the application will have to sign an End Users License Agreement indicating that he or she has agreed to providing his or her personal information and location to the public.

1. Audit Requirements

SR2. The system will produce logs and status updates of user information and sent messages on a daily basis.

SR1. The security status and logs of the user’s private information shall be available on request.

1. Immunity Requirements

SR1.

1. Cultural and Political Requirements
2. Cultural Requirements

CP1. The product shall use British spelling.

1. Political Requirements

CP1.The product shall be politically correct and respect gender equality laws

1. Legal Requirements
2. Compliance Requirements

LR1. The product shall explain the possible risks associated with it and ask for the user’s consent via an End-User License Agreement

1. Standards Requirements

LR1. The product shall follow wireless encryption standards to protect the user’s information.

1. Division of Labour

Include a Division of Labour sheet which indicates the contributions of each team member. This sheet must be signed by all team members.

IMPORTANT NOTES

Be sure to include all sections of the template in your document regardless whether you have something to write for each or not

{ If you do not have anything to write in a section, indicate this by the N/A, void, none, etc.

Uniquely number each of your requirements for easy identification and cross-referencing

Highlight terms that are de ned in Section 1.3 (Definitions, Acronyms, and Abbreviations) with bold, italic or underline

For Deliverable 1, please highlight, in some fashion, all (you may have more than one) creative and innovative features. Your creative and innovative features will generally be described in Section 2.2 (Product Functions), but it will depend on the type of creative or innovative features you are including.

**Business Events Summary List**

1. Clicks an offer
   1. sends to dispatcher
   2. other person confirms
   3. sends back and forth
   4. If no accept then user is sent to list offer
   5. Similarfacebook friend accept process
   6. provide estimated time of arrival
   7. After both parties confirm - user is done and waits
2. Creates an offer
   1. dispatcher needs to tell which car is on the way
   2. taxi needs to be told where he is
   3. nearest idle taxi-send id taxi of phone - taxi id is going to pick up this person
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3. User arrives at final destination
   1. taxi cab is near final destination
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   3. user and driver now can write review
   4. goes back to the beginning of app
4. User Cancels
   1. Route changes
   2. User asshole rating goes up
   3. cancel limits, also ip bans

\*Pay wall - prevent trolls

Innovative feature

1. Taxi Speed Dating -
   1. Extended forms and additional algorithms
   2. is a taxi cab speed dating, separate form mode for speed dating longer more detailed form, second car pooling mode, taking the information from the form creates a comptability, note individuals do not get the option to bring another person to the carpool
2. Chatting lobbies