**Software Requirement Specification**

**For**

**Travelie**

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1. Introduction

***1.1 Purpose***

This document is the Software Requirement Specification for **Travelie*.*** The ultimate goal of this is to develop an easy and interactive web-app to provide travel solutions for the Students and Staff of GIKI. This documentation will cover the whole proposed system.

***1.2 Project Scope***

Our web app, Travelie, will allow consumers to submit a trip request for immediate or later-scheduled local van pickups from GIK Institute to almost anywhere in Pakistan. Our main consumers/users are students and staff of GIK Institute.

When a user will submit a request along with desired time and place, the request will be displayed on our web app till the departure time of van. Meanwhile, if some other student also wishes to travel at that time can also reserve a seat in that van through our web app. As more and more people will reserve a seat in one specified van, the travel cost per head will be automatically updated. Other such features will also be added incrementally.

Estimated travel time, fare per head, driver details, vehicle type and license number will also be shown along any request.

***1.3 Intended Audience and Document Overview***

This document is intended for Team Travelie as well as Faculty, students, and teaching assistants associated with CS325. This document will have information that may be deemed pertinent for each member of the intended audience, but it is likely that certain sections will be of more interest to each type of audience member. Those interested in the functionality of the software should read section 2 (Overall Description) in order to learn more about the capabilities of the software. Those interested in the internal workings of the software should read section 3 (Specific Requirements). Finally, those interested in the development process should read through the entirety of this document.

***1.4 Definitions, Acronyms and Abbreviations***

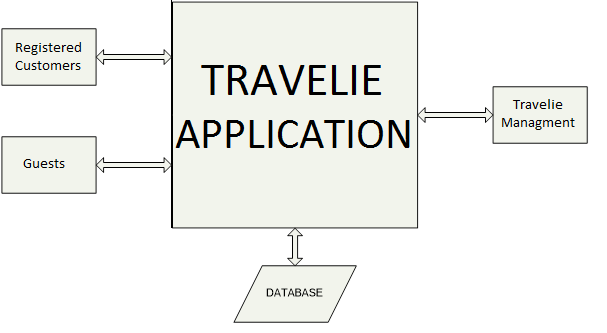
* API – Application Programming Interface
* Web-app – Web application
* CS – Computer Science
* JRE – Java Runtime Environment
* JDK –Java Development Kit
* DPM – Distributed Power Management
* DRS – Distributed Resource Scheduler
* GUI – Graphical User Interface
* RAM – Random Access Memory
* SRS – Software Requirements Specifications

***1.5 References and Acknowledgments***

1. Design, Implementation, and Lessons Learned from the book: SOFTWARE ENGINEERING (Ninth Edition) by Ian Sommerville.
2. <https://ifs.host.cs.st-andrews.ac.uk/Books/SE9/index.html> (Access date: October 10, 2016)

2. Overall Description

***2.1 Product Perspective***



***2.2. Product Functions***

***Main features of the system are listed below.***

* Online Ticket Reservation:

Customers can reserve their tickets online using our web-app. They can either use customer log-in or reserve seat using guest log-in.

* Travelling-class:

There are 2 travelling classes. 1st one has AC facility while the other is economy class (without AC).

* Countdown timer till next departure:

Our web-app will continuously show a countdown timer till the next departure. This timer will keep on getting updated after each van departure.

* Dynamic ticket price:

As the number of people who will reserve ticket for one specific van will increase, the overall cost per head will decrease.

* Customer Registration:

Our regular customers can get themselves registered for numerous discounts, offers and auto online form filling.

* Guest Login:

New customers and people who do not use Travelie on regular basis can also avail this facility using our guest login system.

* Phone verification:

To prevent fake registrations and any inconvenience to users, a text message with a random code will be sent to user’s mobile. He will have to enter that code within 2 minutes, else his seat will not be reserved.

***2.3 User Classes and Characteristics***

***Guest Users***

Standard users are guest users. The user who is to reserve a ticket would find the appropriate bus (required time, travel-class and location) at the reservation section and reserve a seat. If the user doesn’t find the required bus, he can post a new bus request and then wait till the requirement of minimum travelers is fulfilled. The user request is then phone verified and the booking process completes.

***Registered Customers***

Registered customers enjoy more privileges. The process to book a ticket is the same as that of a guest user. However, they have an extra option of entering the promo code to avail discount offers.

***Administrator Users***

Administrator users are the Travelie management and staff. They will have all the privileges and can change anything on the website. They are to update the information. For example there is change in ticket prices or a bus cancellation or time delay; it would be the staff that is to update the information.

***2.4 Development Environment***

### We will be using GitHub for our repository. The code will be developed on our personal computers and deployed on the remote server hosted at [HostGator](http://www.hostgator.com/).

***2.5. Design and Implementation Constraints***

* The design is only a small scale prototype of the large scale systems that can be built using it
* Some features of the design later direct to manual functions such as getting to the bus location and asking the driver to wait if the customer is late.

***2.6 User Documentation***

A user manual explaining what the functionality and usage of the visualization software will be required. Additionally, the team developing the software would potentially need to be available in case of questions or problems with the software once it starts being used by other users/administrators. This will make it easier for other people to understand and continue development on our product if needed.

***2.7 Assumptions and Dependencies***

We're assuming there are only two types of travel-class. Additionally, Customers and bus drivers will be on-time.

3. Functional Requirements

The user will select date, time, destination and number of seats from drop-down menus to get himself a seat registered. If, in case, the user enters a wrong time or a date which has already passed, a pop-up message will appear on screen indicating customer about the mistake.

In case of seat selection, if a user selects seats more than which are available in van, again, a pop-up message will appear with information related to maximum number of free seats available in that van.

Our system does not allow users to enter any random city of Pakistan. But instead, users can choose cities only from a drop-down menu list.

When the user has successfully filled in details, he will be redirected to another page for seat confirmation. At this point, he will enter his personal details such as Name, Registration number, CNIC and phone number. A text message with a code will be sent to user. He will have 2 minutes to enter the code in our web-app to confirm his registration. Failing to do so, will result in a cancellation of booking. The user will have to repeat the whole process again.

For inputs from Desktop devices, only a mouse is enough. And for touch devices, no external input device is required.

User can also print his ticket if he has a printer available to him.

Same user cannot register for two destinations on same day within 6 hours.

Van schedules with destination, time, date and seats will always be displayed on web-app.

Registered customers will have to login using their registration number and a password. This will allow user to see his travel history and book seats with ease. His details will be automatically filled.

4. Non-Functional Requirements

**Hardware Requirement:**

* Disk space: 100 MB
* Memory: 512 MB
* Internet connection

**Software Requirements:**

* Apache Tomcat, but this website would work fine under any web server that supports Java web applications, such as NGINX. The general advice is to use the newest version possible of your chosen web server.
* Latest version of JRE installed
* A working databases server: MYSQL

**Operating System:**

* It can work on any Operating System that supports an internet browser.

***4.1 Product Requirements***

***4.1.1 Efficiency Requirements***

Performance is key requirement in our system. The website will be updated dynamically as soon as the user completes the booking process. The processing of the booking should not take more than 200 milliseconds on a 1 mbps internet connection.

***4.1.2 Dependability Requirements***

Concurrent booking should not interrupt any other process or activity on the web. Downtime within normal working hours should not exceed 10 minutes in any one day.

***4.1.3 Security Requirements***

Viewing the other guests’ information is an issue of confidentiality. This should be allowed only to the authorized staff. And also the new updates must be sent from an authorized staff in charge. Therefore the filtering part of our system should be made in order to affect those constraints. By considering these issues, we will categorize the accounts.

***4.2 Organizational Requirements***

Registered users of Travelie shall authenticate themselves using their GIKI ID number and their CNIC number. They should have no bad-conduct profile with the GIKI management.

***4.3 External Requirements***

* The system shall implement customer privacy provisions as set out in the Pakistan Law.
* In case, it operates outside Pakistan, then it will strictly abide by the law of that country.
* Travelie management would do a basic background check for every customer(both registered and guests) and in case, they happen to find a state offender or any unsettled criminal for that purpose, they shall immediately contact and inform the appropriate government agency.