Software Requirements Specification

Wheel's Deals

Mohnish Devadiga	**16**
Harshal Dange	**15**
Sahil Apte	**2**

Table of Contents

1. Introduction

This section gives a scope description and overview of everything included in this SRS document. Also, the purpose for this document is described and a list of abbreviations and definitions is provided.

1.1 Purpose

The purpose of this document is to give a detailed description of the requirements for the "Wheels Deals" website. It will illustrate the purpose and complete declaration for the development of system. It will also explain system constraints, interface and interactions with other external applications. This document is primarily intended to be proposed to a customer for its approval and a reference for developing the first version of the system for the development team.

1.2 Scope

The 'Wheels Deals' will help a buyer connect to a seller without going through a tedious procedure. It will sort the cars in the database using one's recommendations. The main advantage of using this web-site is that one can skip the boring process of finding a buyer.

sellers on web-site have to fill a form describing their car in details with specifications. So buyer get access to all the details of the cars and can buy it being tension free

From buyer's point of view , they just have to signup and choose the car they want to buy. Buyer get the facilities like sorting cars on basis of model, price & date. If the car is selected, they can directly contact to the seller. An administrator also uses the web site to administer the system and to verify all buyer & sellers to manage user information.

For privacy issue, one can get contact details of seller & buyer only when they are login. This cleared the threat of online fraud.

1.3 Definitions, acronyms, and abbreviations

	Table 1 - Definitions
Term	Definition
Seller	Someone who wants to sell his/her Vehicle using 'Wheel's Deals'

Admin/Administrator	System administrator who is given specific permission for managing and controlling the system.
Buyer	Someone who wants to buy a vehicle from someone who has showcased his/her vehicle on our web site.
Web-site	A web application which present special facilities for selling the Car

1.4 References

[1] IEEE Software Engineering Standards Committee, "IEEE Std 830-1998, IEEE Recommended

Practice for Software Requirements Specifications", October 20, 1998.

[2] Feldt R,"re_lecture5b_100914", unpublished.

[3]Davis M A, "Just Enough Requirements Management: Where Software Development Meets Marketing", New York, Dorset House Publishing, 2005.

[4]Karlsson J, "A Cost-Value Approach for Prioritizing Requirements", Norges Teknisk-Naturvitenskapelige Uni. 1997

1.5 Overview

The remainder of this document includes three chapters and appendixes. The second one provides an overview of the system functionality and system interaction with other systems. This chapter also introduces different types of stakeholders and their interaction with the system. Further, the chapter also mentions the system constraints and assumptions about the product.

The third chapter provides the requirements specification in detailed terms and a description of the different system interfaces. Different specification techniques are used in order to specify the requirements more precisely for different audiences.

The fourth chapter deals with the prioritization of the requirements. It includes a motivation for the chosen prioritization methods and discusses why other alternatives were not chosen. The Appendixes in the end of the document include the all results of the requirement prioritization and a release plan based on them.

2. Overall description

2.1 Product perspective

The three tiers in a three-tier architecture are:

1. **Presentation Tier**: Occupies the top level and displays information related to services available on a website. This tier communicates with other tiers by sending results to the browser and other tiers in the network.
2. **Application Tier**: Also called the middle tier, logic tier, business logic or logic tier, this tier is pulled from the presentation tier. It controls application functionality by performing detailed processing.
3. **Data Tier**: Houses database servers where information is stored and retrieved. Data in this tier is kept independent of application servers or business logic.
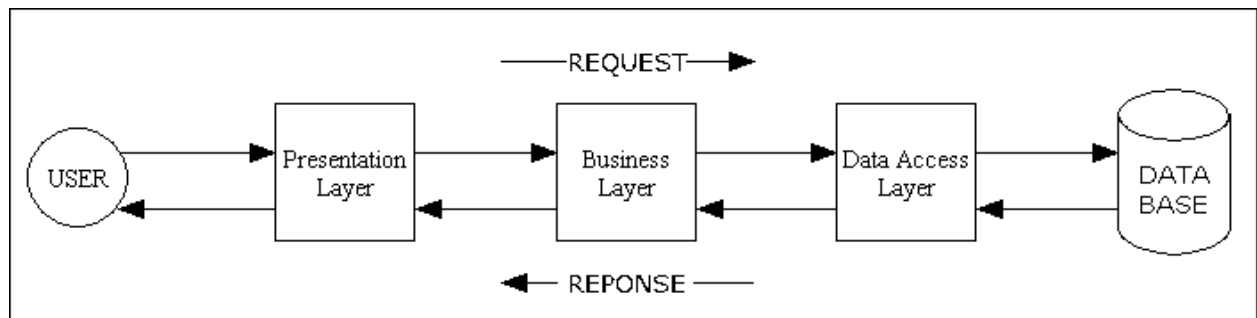
This system will consist of only one web site. The web site will be used to find vehicles and view information about them while the admin server will be used for managing the information about the vehicles and the system as a whole.

Since this is a data-centric product it will need somewhere to store the data. For that, a database will be used. Web site will communicate with the database, however in slightly different ways.The web-site will need to communicate to a database which is managed by the administrator to find the details of the seller. The database will provide the web-site with contact details of both the seller and the buyers.Web-site will also provide the recommended vehicles and top deals on vehicles.The functionality provided by the database will be embedded into the web site in order for the users to be able to use the functions in the website in a

seamlessly manner.

Client/Presentation Layer — Server/Application Layer — Database/ Data Layer
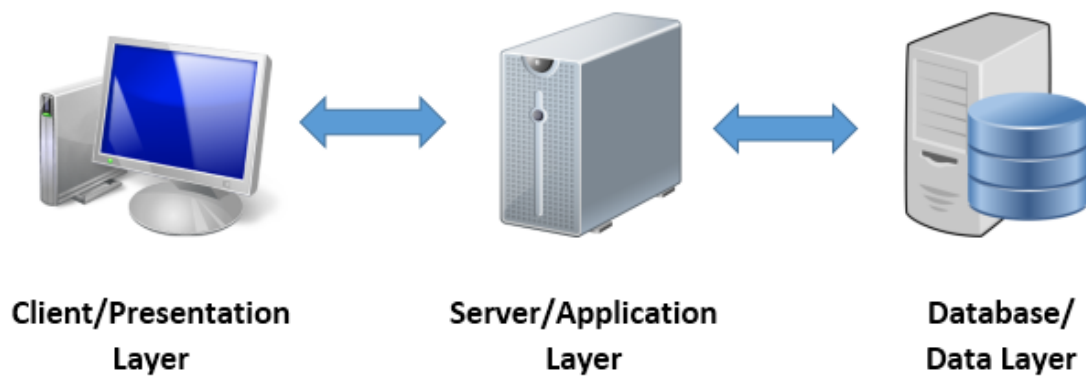
2.2 User Characteristics

There are three types of users that interact with the system: Seller who want to sell the vehicle, Buyers who wants to buy a vehicle of their wish and the third user is administrators. Each of these three types of users has different use of the system so each of them has their own requirements.

The Buyers can use the web-site to find a vehicle. This means that the buyer should be able to search for cars/bikes, choose a vehicle from that search and then navigate to it. In order for the sellers to get a relevant search result there are multiple criteria the sellers can specify and all results matches all of those.

The Sellers will also use the web-site to showcase their car/bike and get it sold for the best price possible. There they will input the information about their vehicle, for example a description of the vehicle & contact information.The sellers have to input maximum information related to the their vehicle to attract buyers.
The administrators also only interact with the web site. They are managing the overall system so there is no incorrect information within it. The administrator can manage the information for each vehicle as well as the options for both the participants, Buyers & Sellers.

2.3 Constraints

The Internet connection is a constraint for the registration. Since the application fetches data from the database over the Internet, it is crucial that there is an Internet connection for the application to function.

The web site will be constrained by the capacity of the database. Since the database is shared between both Buyers and Sellers, it may be forced to queue incoming requests and therefore increase the time it takes to fetch data.

2.4 Assumptions and dependencies

One assumption about the product is that it will always be used on mobile phones that have enough performance. If the phone does not have enough hardware resources available for the application, for example the users might have allocated them with other applications, there may be scenarios where the application does not work as intended or even at all.

3.1 External interface Requirements

This section provides a detailed description of all inputs into and outputs from the system. It also gives a description of the hardware, software and communication interfaces and provides basic prototypes of the user interface.

3.1.1 User interfaces

1. A first-time user of the website should register into the log-in modal when he/she opens the site. If the user has not registered, he/she should be able to do that on the login page.

1.Sign Up

2. If the user is not a first-time user, he/she should be able to see the home page which contains the hot deals of the month and a description about the website. The user chooses the type of search he/she wants to conduct.If the user wants to sell his/her vehicle, he/she has to enter the vehicle details in the form in the seller page.

2. Login

Every user should have a profile page where they can edit their e-mail address, phone number and password. Every registered user will have a users panel where he can place his favourite deals for further reference. He can even trace his previous orders and/or the vehicles he has sold on our website.

3. List View

The list view for the results is shown. When a user searches by price, this view should be the default one. The sorting header allows the user to sort the results according to price,brand name & model, production year, Kilometers driven, state & city,diesel type. Each result item includes information about the vehicles & Contact info of the seller,which provides a more detailed description of the vehicle. There is also a filtering option, where the user can choose to filter the results by increasing or decreasing the price or distance range. The list of vehicles will be sorted accordingly. On the same page, the user also gets a hell lot of recommendations which may

somewhat differ from his tailor-made list of sorted vehicles but can surely prove to be the best deal for him/her.

Brand name	Model	Price range	Year
Brand ▾	Model ▾	Price from - Price to	Year from - Year to

Mileage	Fuel type		
KM's driver - KM's driver	Fuel ▾		

4.Search

An administrator should also be able to log in to the web-site where he/she can administer the system.

3.1.2 Hardware requirements

Hardware Requirements

Processor   :   Pentium IV 2GHz and Above

RAM   :   2GB RAM

Monitor   :   15" Color Monitor

Keyboard

Mouse

3.1.3 Software Requirements

Operating System.   :   Windows XP/Vista/7/8/10 Or Linux Or Mac

Developing Tool   :   PHP/JavaScript

Database   :   SQL SERVER

Browser   :   Internet Explorer/Chrome/Firefox

3.1.4 Communications interfaces

The communication between the different parts of the system is important since they depend on each other. However, in what way the communication is achieved is not important for the system and is therefore handled by the underlying operating systems for the web site.

3.2 Functional requirements

This section includes the requirements that specify all the fundamental actions of the software system.

3.2.1 User Class 1 - The Buyer

3.2.1.1 Functional requirement 1.1

ID: FR1
TITLE: User registration
DESC: Given that a user has viewed our web site, then the user should be able to register through the web application. The user must provide e-mail, password and confirm the password. The user can choose to provide a regularly used phone number.

ID: FR2

TITLE: User Log-in
DESC:Considering that a user has registered, he should be able to log into his account to view his customized user-panel and favourite deals list. The user can get the data of sellers or can sell his/her own vehicle only if he/she has logged in.

ID:FR3
TITLE: Search result in a list view
DESC: The user should be able to retrieve the data according to his preferences. The vehicle posts should be sorted with respect to the buyers preferences. They can be sorted by price, model, production date, kms. Driven,etc.

ID: FR4
TITLE: Accepted input for price and destination search
DESC: Integers should be accepted as input when a user searches by price or destination. If the system receives an invalid input the user should be informed and prompted to insert an accepted input.

ID: FR5
TITLE: No match found
DESC: If no match is found the user should be informed but kept on the search page in order to get the possibility to conduct a new search right away.

ID: FR6
TITLE: Selecting the information link
DESC: A user should be able to select the information link, which is included on all result items. The link will direct the user to an information page, which includes a price of the vehicle, the maker name & model, fuel type,state,city, phone number, e-mail address, all images,Kms Driven and vehicle description..

3.2.2 User Class 2 - Seller

ID: FR7
TITLE: Create an account
DESC: In order to create an account a Seller
should register on the web-site

Scenario: Required information for registration

Given a user wants to sell the car, he has to upload 5 photos(Front,Back,Left,Right,Inside),
state, city, contact information, company, model, year of manufacture, type of fuel, kilometers
driven, expected price and some details for the vehicle

Scenario: Full information for registration

Given the seller does not have an account and wants to create an account, he/she has to register
on the web-site by providing email id and password.
Then the seller should be able to apply for verification

Scenario: Confirmed registration

Given the seller has applied for verification
And has not received a confirmation email after registration
When the restaurant owner receives a confirmation e-mail
Then the restaurant owner should be able to log in

3.2.3 User Class 3 - Administrator

3.2.3.1 Functional requirement 3.1

ID: FR8
TITLE: ADMINISTRATION
DESC: The Administration(Admin) gets all the information about the Statistics, Sales, Total Cars,
Total Car Sold view so as to take decisions about the current web-site.

ID: FR9
Feature: Administrator log in
In order to administer the system
An administrator Should be logged in to the web-site

Scenario: Successful log-in

Given the administrator wants to log in When the administrator logs in with an administrator
account Then the administrator should be logged in as an administrator

3.2.3.2 Functional requirement 3.2

ID: FR10

Feature: Verify Seller

In order to allow a seller & buyer to use the system , an administrator should be able to verify the seller & buyer

Scenario: Verify a seller

Given the administrator is logged in When the administrator verifies a seller , Then the administrator should be able to log in and the seller should be notified by a confirmation email

3.2.3.3 Functional requirement 3.3

ID: FR11

Feature: Manage vehicle

In order to have a list of available vehicles , An administrator Should be able to manage the vehicle list

Scenario: Add a new vehicle

Given the administrator is logged in
When the administrator adds a new vehicle
Then the new vehicle should be added to the list of available vehicles.

Scenario: Delete a vehicle sell post

Given the administrator is logged in
When the post becomes older than 6 months then administrator deletes the vehicle
Then the deleted vehicle should be removed from the list of available vehicles

3.3 Non-functional requirements

3.3.2 Usage of the search feature

ID: QR1

TITLE: Usage of the search feature
DESC: The different search options should be evident, simple and easy to understand.
RAT: In order to for a buyer to perform a search easily.
DEP: none

3.3.3 Usage of the result in the list view

ID: QR2

TITLE: Usage of the result in the list view

DESC: The results displayed in the list view should be user friendly and easy to understand. Selecting an element in the result list should only take one click.
RAT: In order to for a user to use the listview easily.
DEP: none

3.3.4 Usage of the information link

ID: QR3

TITLE: Usage of the information link
DESC: The information link should be prominent and it should be evident that it is a usable link. Selecting the information link should only take one click.
RAT: In order to for a user to use the information link easily.
DEP: none

3.3.5 Response time

ID: QR4

TAG: Response Time
GIST: The fastness of the search
SCALE: The response time of a search
METER: Measurements obtained from 1000 searches during testing.
MUST: No more than 4 seconds 100% of the time.
WISH: No more than 2 second 100% of the time.

3.4 Design constraints

This section includes the design constraints on the software caused by the hardware.

3.5 Software system attributes

The requirements in this section specify the required reliability, availability, security and maintainability of the software system.

3.5.1 Reliability

ID: QR5

TAG: System Reliability
GIST: The reliability of the system.
SCALE: The reliability that the system gives the right result on a search.
METER: Measurements obtained from 1000 searches during testing.
MUST: More than 98% of the searches.
PLAN: More than 99% of the searches.
WISH: 100% of the searches.

3.5.2 Availability

ID: QR6
TAG: System Availability
GIST: The availability of the system when it is used.
SCALE: The average system availability (not considering network failing).
METER: Measurements obtained from 1000 hours of usage during testing.
MUST: More than 98% of the time.
PLAN: More than 99% of the time.
WISH: 100% of the time.

3.5.3 Security

ID: QR7
TAG: Communication Security
GIST: Security of the communication between the system and server.
SCALE: The messages should be encrypted for log-in communications, so others cannot get user-name and password from those messages.
METER: Attempts to get user-name and password through obtained messages on 1000 log-in session during testing.
MUST: 100% of the Communication Messages in the communication of a login session should be encrypted.
User will not get the contact information of the sellers until they are logged in.

3.5.4 Maintainability

ID: QR8
TITLE: Application extendibility
DESC: The application should be easy to extend. The code should be written in a way that it favors
Implementation of new functions.
RAT: In order for future functions to be implemented easily to the application.
DEP: none

4. Prioritization and Release Plan

In order to get a view of how to divide the requirements into different releases and what requirements should be included in which release, a prioritization of the requirements is needed. This section discusses the choice of prioritization methods and gives a suggestion of how the release plan for these requirements could look like.

4.1 Choice of prioritization method

When prioritizing the requirements the ten most important ones were picked out first. This was done with a simple "1 to 10" ranking method, with one being "not important" and ten "very important". Based on the elicitation meetings, and the perceived ideas of

what was important to the different stakeholders, a number was set for each requirement. The numbers were then summed up for each requirement and the ten with the highest score were chosen to be prioritized with the cost value approach. The results, which are red-marked, can be seen in Appendix I and as shown, it turned out to be five functional requirements and five quality requirements. These requirements were then prioritized according to the cost value approach and the results can be viewed under Appendix II. The remaining requirements were prioritized according to the "Five-Way Priority Scheme" as shown in Appendix III. This method was chosen since it gives the different stakeholders the same importance and has an enough wide range for determining which requirement is more important than the other [3]. However, in this prioritization process, the development team was not included as a stakeholder since the different features were not considered to be as important to them as for the other stakeholders.

Appendix I: Prioritization table
Table 1 – List of ten most important requirements

Requirement Id	Harshal	Mohnish	Sahil	Total
FR1	**8**	**8**	**8**	**24**
FR2	**8**	**9**	**6**	**23**
FR3	**8**	**7**	**9**	**24**
FR4	8	8	6	22
FR5	4	5	3	12
FR6	6	6	6	18
FR7	**8**	**9**	**6**	**23**
FR8	7	7	7	21
FR9	**8**	**7**	**8**	**23**
FR10	5	6	5	16
FR11	6	7	6	19
QR1	5	5	6	16
QR2	6	7	6	19
QR3	5	6	5	16
QR4	6	5	6	17
QR5	**8**	**7**	**8**	**23**
QR6	7	8	6	21

QR7	8	7	9	24
QR8	8	8	8	24

Appendix II: Release Plan

Table 2 –Release plan

Requirement ID	Title	Release
FR1	Usage of the search feature	1
FR2	User Log-in	1
FR3	Search result in a listview	1
FR4	Accepted input for price and destination search	1
FR5	No match found	1
FR6	Selecting Link	1
FR7	Create an account	1
FR8	Administrator	1
FR9	Administrator log in	1
FR10	Verify Seller	1
FR11	Manage Vehicle	1
QR1	Search Feature	1
QR2	List View	1
QR3	Information link	1
QR4	Response time	1
QR5	System Reliability	1
QR6	Availability	1
QR7	Communication Security	1
QR8	Application extendibility	1