System Requirements Specification

for

Goods Transportation Manager System

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1. Introduction

This document describes the enterprise, software system functional and non-functional requirements for a goods shipping company model.

The purpose of this document is to define the requirements gathering process used to elicit requirements from the product stakeholders, to define the overall vision and goals of this new product, and to list those functional and non-functional requirements that are essential to the success of this product.

This document was prepared with the understanding that establishing the proper vision and business objectives of any new software product and the proper documentation of a consistent, robust, well understood, and complete set of functional and non-functional requirements is essential for product success.

2. Definitions

Source	The place from where the good is to be shipped
Destination	The place to where the good is to be shipped
Pick-up date	The date when the said good is to be delivered to the destination
Wallem Shipping Company	A name allotted to the goods shipping company
Tracking ID	A unique random 7 digit number generated by the company for every unique user that acts as a pin for that user whenever he wants to track his shipment
Bunker, automobile, foodstuff	If goods are transported in the bunker, then their volume in litres must be specified. 1 litre of bunker transportation is charged at Rs. 100. If some other goods consist of automobiles and foodstuffs, then their weight in kgs must be specified. 1 kg of automobile weight and foodstuff weight respectively is charged at Rs. 200 and Rs. 150.
Username, Password	Unique ID created by the user to operate the goods shipping software and place orders or track them
Service charge	It is 40% of the total cost of bunker, foodstuff and automobile transportation
Tax	It is 20% of the total cost of bunker, foodstuff and automobile transportation.
Total cost	It is the sum of bunker, automobile and foodstuff shipping costs as well as service charge and tax.

Confirm	The act of confirming a placed order.
Logout	When a user has logged in, and he wants to come out of the system, he presses the logout button
Source Address	It is the address to be inputted by the user from where the goods are to be shipped
Destination Address	It is the address to be inputted by the user to where the goods have to be shipped.

3. Requirements Process

The requirements elicitation process is an engineering process that produces a consensus document containing the enterprise, software system functional, and software system non-functional requirements as developed through constructive interactions among the various stakeholders of the planned product.

This engineering process consists of "elicitation" of requirements through technical discussions, "specification" of requirements through textual and diagrammatic models, and "validation" of those requirements through confirmation of the models through discussions and presentations of those models.

Broadly speaking, these requirements answer the why, what, and how of the planned product across the community of stakeholders of the planned product.

Representatives are selected from the various stakeholder organizations by their respective management to participate in the requirements elicitation process and to represent the organizational needs and wants of the organizations and groups they represent.

These organizational stakeholders are broadly categorized into 4 "worlds" – subject, user, developer, and system representing 1) the subject matter or domain experts of the goods shipping company model, 2) the customers and eventual users of the goods shipping company software, and 3) the software architects, designers, implementers, testers, and maintainers of the planned software system, resulting in 4) the stated requirements of the planned system.

3.1 Representatives

The representatives of the requirement elicitation of the project are:

Sahil Modak - "Developer" and "user" 'world'
Vineet Pande, Mehul Gada - "System representing" and "Subject" 'world'

3.2 Roles and Responsibilities

Sahil Modak, who is the developer and user world representative, elicited and satisfied the software development requirements of the project as well as the needs of the user.

Vineet Pande and Mehul Gada, who are the system representing and subject world representatives, listed down the system requirement specifications and complete anticipated working of the goods shipping company model for better working and sustenance of the project.

3.3 Process Requirements

The elicitation process requirements are to produce a requirements specification that documents the formal requirements of the planned product as specified by the stakeholders of the product and provides adequate guidance to the development organization to achieve a successful product in a time and resource effective manner.

Guidance for this process is provided in the IEEE standards listed in the “References” section of this document.

Given the diversity of interests and approaches possible it is assumed that an adequate consensus cannot be achieved for all aspects of any non-trivial engineering effort. It is expected that due diligence be employed to investigate alternatives and to negotiate any requirement or requirements in conflict.

Issues remaining unresolved at the end of the requirements elicitation process shall be resolved by senior management in consultation with technical leadership prior to the completion of the requirements elicitation phase.

4. Product Requirements

4.1 Enterprise Requirements

4.1.1 Vision Statement

The Wallem Goods Shipping Company model will provide convenient means of shipping goods from a selected source to a selected destination in a simple, fast and efficiently user-friendly manner.

4.1.2 Goals & Objectives

Goals and objectives related to the vision statement listed above:

- Presenting a user-friendly interface to the user so as to enable him to ship goods and place orders for shipping easily.
- Allowing the user to track the placed order effectively.
- Providing easy access to the system, i.e. logging in and logging out should be quite simple for most user groups
- Fast response time of the system, it should not lag or go slow in case of multi-user scenario, and data of one user should not be confused with other, i.e. ensuring data consistency and integrity.

4.1.3 Operational Scenario

First, a user shall be shown the login page. If the user is already registered, s/he will type in the username and password in the respective fields and press login button. Else, s/he would have to click the register button to make an account in order to proceed. Once the register button is clicked, one would have to enter details such as name, phone, email id, source address, username and password. This would create a registered account of the user. Then there are 3 buttons displayed on the bottom of the screen, which are Register, Reset and Back. The ‘register’ button creates an account of the user using the details entered by him/her. The ‘reset’ button clears all data entered in all the fields. The ‘back’ button causes the previous i.e. login page to reappear.

Once a user logs in, or gets registered for the first time, s/he is directed to the second page, which is the Menu page. Here the user is shown 4 buttons: ‘place order’, ‘track order’, ‘cancel’ and ‘logout’. If a user presses the place order button he is directed to the next page. If user presses track order button s/he will be prompted to enter his/her tracking ID(will be discussed further ahead).If user presses ‘cancel’, then s/he is directed to the previous login page. If user presses ‘logout’, then s/he is directed to the login page and is logged out.

Once user presses place order button the next page is generated, which is the place order page wherein s/he is asked the destination address of the shipment. The user selects the source states and destination states from a drop down list, and presses next button to go to the next page, or back, to back to the menu page.

When the next button is pressed, the goods page appears. Here there are displayed 3 types of goods types: bunker, automobiles and foodstuffs. For transporting 1 litre of bunker goods it requires Rs. 100. For 1 kg of automobile and foodstuffs goods it

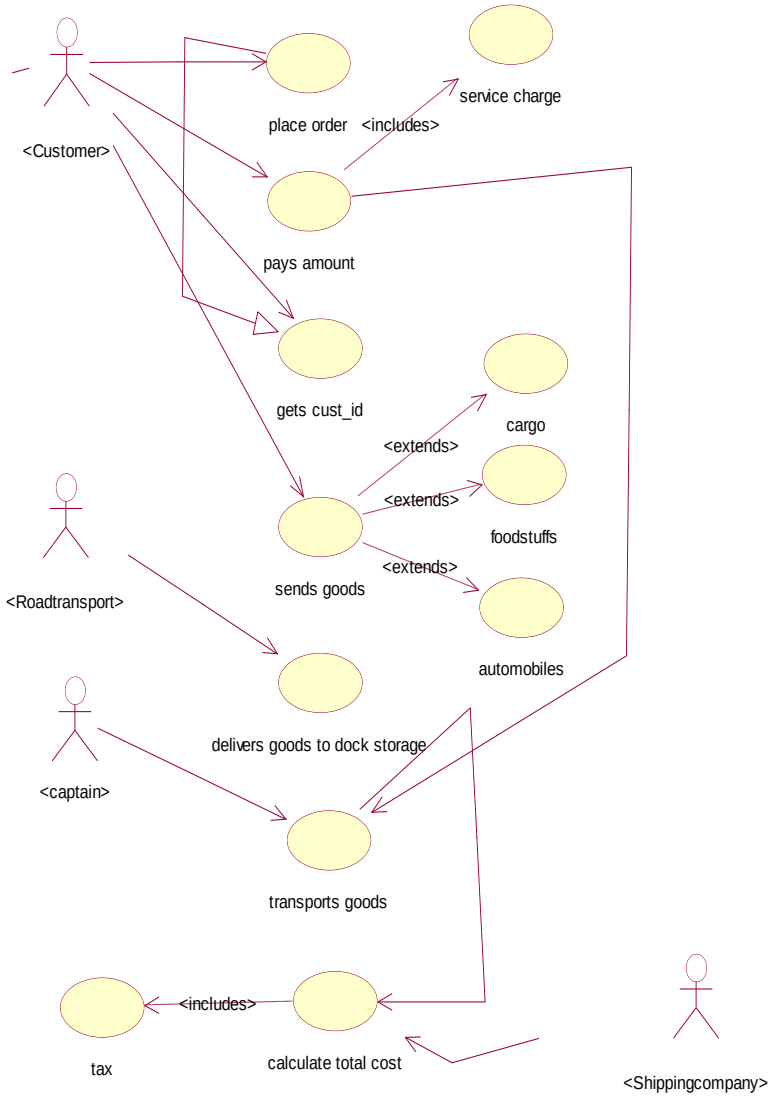
requires Rs. 200 and Rs. 150 respectively. The total quantity of bunker, automobile and foodstuffs is chosen by the user via the drop down lists and then the next button is pressed to go on to the next page. By pressing the back button, as usual, user goes to the previous page.

The next page is the order summary page. Here the total costs of transportation of bunker goods, automobile goods and foodstuffs is added(as per the rates mentioned previously). Also a 40% service charge and another 20% tax is computed upon this total cost and is added over and above it, and is displayed at the bottom of the page as the 'total cost' which is the actual amount payable. Pressing the 'checkout' button leads us to the next page, and pressing the 'back' button leads us to the previous page. The next page is the tracking order page of bunker, foodstuff and automobile transportation. A unique 7 digit random number is created for every order successfully placed and this number is displayed on the screen, for eg. 6145701. This number can then be noted down by the user. This number can be used by the user to track the order placed. So as to track the order placed, the user can make use of the aforementioned 'track order' button on the menu page. Whenever the user wants to track the order placed, s/he can log in by entering his/her username and password on the login page, which would lead her to the menu page. Then, on clicking the 'track order' button, the system will ask for the tracking ID which when entered would display the current status of the order. On clicking logout button , user will be logged out and on clicking place order button, the user will be taken back to the place order page so as to allow him to place another order.
Finally, along with a tracking ID being allotted to the user, a message is also shown on the track order page stating that the goods have been authorized for shipment and payment would be taken in 'cash on delivery' basis.

4.1.4 UML Diagrams

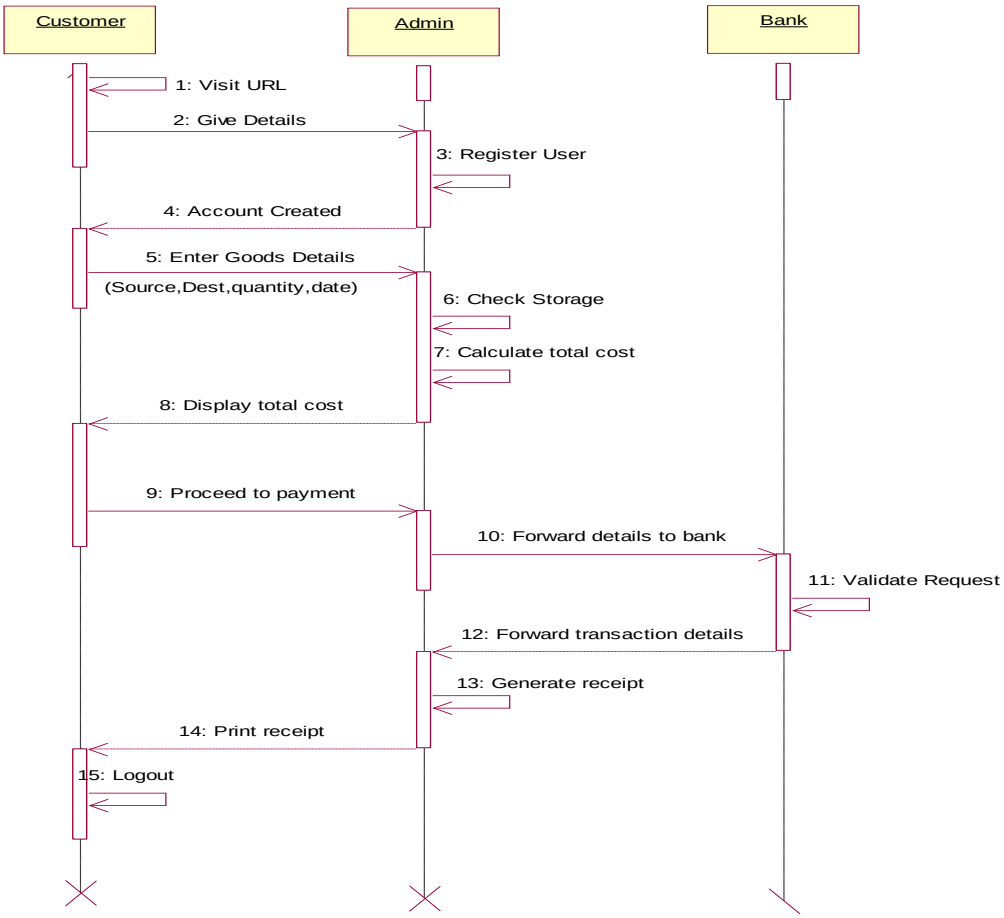
Below listed are some UML diagrams illustrating every aspect of the project (although some of them might not be included in the project owing to simplicity constraints), which are self-explanatory.

4.1.4.1 Use Case Diagram



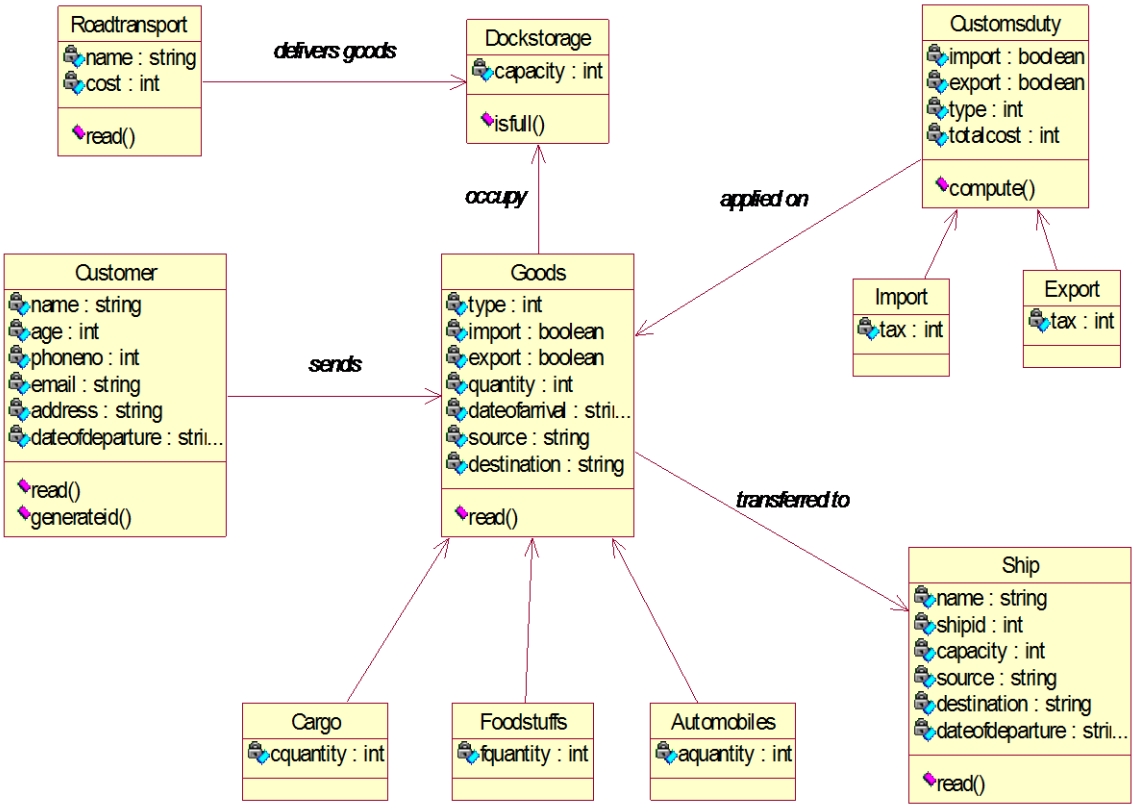
The above use case diagram consists of 4 actors,viz, customer, road transport, captain and shipping company. The customer can either place an order, pay the amount,track a placed order or cancel a placed order. The road transport delivers the goods to be delivered to dock storage if storage is available. The goods are then transported from source to destination.

4.1.4.2 Sequence Diagram



The customer will initially visit the URL and give his/her details if not a registered user. The admin will then create an account. The customer then enters goods details. The admin then checks storage availability and checks storage cost if storage is available. The customer then proceeds to payment . The admin then forwards transaction details to bank. The admin creates a receipt after the bank validation. The customer then prints the receipt.

4.1.4.3 Class Diagram



The customer initially requests for goods to be delivered from source to destination. The goods are then transferred to dock storage via road transport if storage is available. These goods are then shifted on to the ship. Based on the quantity of goods, service charge and custom duty is applied.

4.2 Software System Non-Functional Requirements

The non-functional requirements of the goods shipping company model can be:

4.2.1 Reliability

The shipping system should be fair and should allow the user to willfully place orders for delivering goods, such that there should be a feeling of trust and reliability on the software mechanism.

4.2.2 Performance

The system should not crash when a large number of users are logged onto it. It should be robust and high performance. It should be able to execute tasks such as placing orders, issuing tracking IDs and registering users with multiple users using it at the same time. It should not lag while doing these tasks.

4.2.3 User friendliness

The user interface of the system should be easily usable by non-experts. Even non-technical users should be able to operate the system flawlessly.

4.2.4 Flexibility

Issued orders should be able to be cancelled quickly, new orders should be able to be placed again, and logged in users should be able to logout quickly and vice versa; such that their data is wiped out efficiently and rewritten again equally efficiently without there being bugs or snags.

4.2.5 Security

Privacy rules should be enforced. One user's data should not be able to be made available to another user. Integrity constraints should be enforced. Hacking should be controlled using password protection and rules.

4.3 Requirements Traceability

The traceability, constant up gradation of system by searching for newer requirements that would benefit the system would be done by the system representing nad subject world representatives of the system at regular, short intervals of time, so that system does not become outdated.

APPENDIX – Preliminary Design (Mockup)

This is a login page for a user who is already been registered.

This page is used to register a user and to create a unique username and password for the same.

This page is displayed after the user logins to his/her profile. It is used to display a Menu through which a customer can either place, cancel or track his/her order.

This is the page displayed when the customer wishes to place an order. The goods source and destination along with a proper address are taken from the customer.

This page accepts the goods details from the customer. It also checks whether a particular pickup date entered by the user is available or not depending on the storage.

This page displays the proper bill including the service charge and tax. It also enables a popup for the customer to confirm the order.

Once the order has been placed, a unique tracking ID is generated to keep a track of the order and cancel the same.

This page is displayed whenever the customer wishes to track or cancel his/her order. The customer has to enter a valid tracking ID on this page.

This page displays the required information of an order depending on the tracking ID. A customer can also cancel his/her order through this page.

This page is displayed when the customer has cancelled his/her order.