

System Requirements Specification

for

VK Steels Distributor System

Project by

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In partial fulfillment of the requirement to make an SOOAD project for term work.

Under the guidance of: Prof. Amit Angaitkar

Date of Submission_____

Signature_____

Table of Contents

1. Introduction

2. Definitions

3. Requirements Process

- 3.1 Representatives
- 3.2 Roles and Responsibilities
- 3.3 Process Requirements

4. Product Requirements

- 4.1 Enterprise Requirements
 - 4.1.1 Vision Statement
 - 4.1.2 Goals and Objectives
 - 4.1.3 Operational Scenario
 - 4.1.4 UML Diagrams
 - 4.1.4.1 Use case diagram
 - 4.1.4.2 Sequence diagram
 - 4.1.4.3 Class diagram
 - 4.1.5 Enterprise functional requirements
 - 4.1.6 Enterprise non functional requirements
- 4.2 Software non functional requirements
 - 4.2.1 Reliability
 - 4.2.2 Performance
 - 4.2.3 User-friendliness
 - 4.2.4 Flexibility
 - 4.2.5 Security
- 4.3 Requirements traceability

1. Introduction

This document describes the enterprise, software system functional and non-functional requirements for a distributor.

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

Manufacturer	The person who manufactures the material
Client	The person who orders the material
Deadline	The date before which the ordered materials are to be delivered to the destination
V.K.STEELS	Name of the distributor company
Invoice number	A unique random 7 digit number generated by the company for every unique order in order to print an invoice bill
Workers, trucks	This tells the cost of transportation of goods via trucks and the number of workers needed for loading/unloading goods into/from the truck
Username, Password	Unique ID given to the user to operate the distributor software to place orders and maintain the sales/purchase database
VAT	It is 5% of the selling price.
Total cost	It is the sum of cost of the order placed and the VAT and other taxes
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
Client Address	It is the address of the Client

VAT TIN	The Tax Payer's Identification Number (TIN) is new unique registration number that is used for identification of dealers registered under VAT
Manufacturer Address	It is the address of the manufacturer

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 distributor system model, 2) the customers and eventual users of the distributor system 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:

Aishwarya Ramachandran-	“Developer” and “user” ‘world’
Vighnesh Venkatakrishnan-	“System representing” and “Subject” ‘world’

3.2 Roles and Responsibilities

Aishwarya Ramachandran, 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.

Vighnesh Venkatakrishnan, who is the system representing and subject world representatives, listed down the system requirement specifications and complete anticipated working of the distributor system 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 V.K.Steels Company model will provide convenient means of delivering materials to a selected client 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 deliver material, place orders, compute taxes and maintain databases easily.
- Providing easy access to the system, i.e. logging in and logging out should be quite simple for the user.
- Fast response time of the system, it should not lag or go slow while accessing databases or generating invoice bills
- Ensuring data consistency and integrity.

4.1.3 Operational Scenario

First, the distributor shall be shown the login page. He will type in the username and password in the respective fields and press login button. If the password or UserName is incorrect the distributor would be asked to reenter the same.

Once a user logs in, 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.

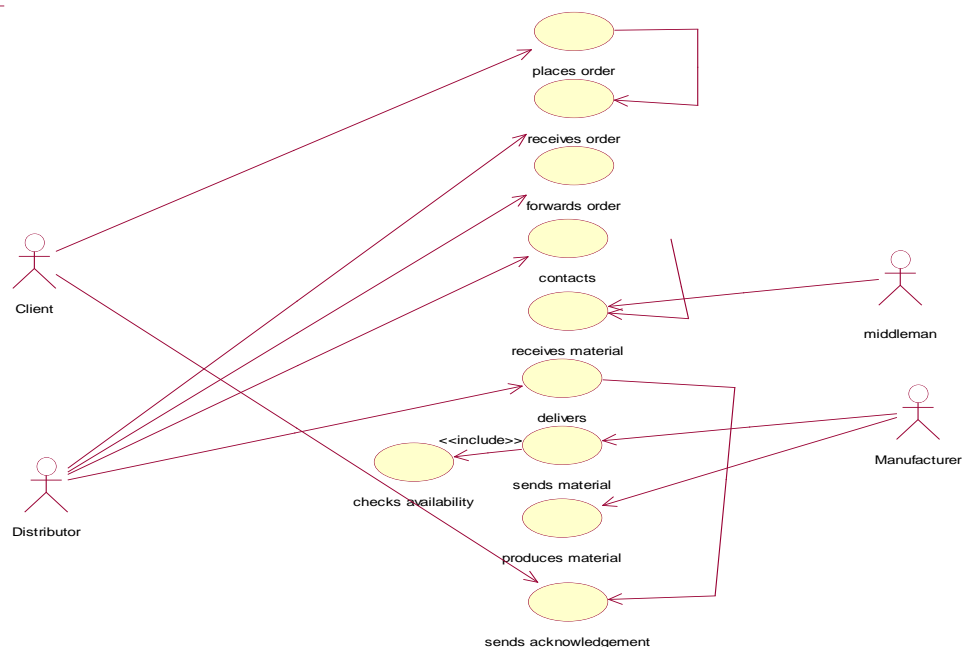
The next page is the order summary page. Here the total costs of transportation of bunker goods, automobile goods and foodstuffs is added (as per the rates mentioned previously). Also a 40% service charge and another 20% tax is computed upon this total cost and is added over and above it, and is displayed 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

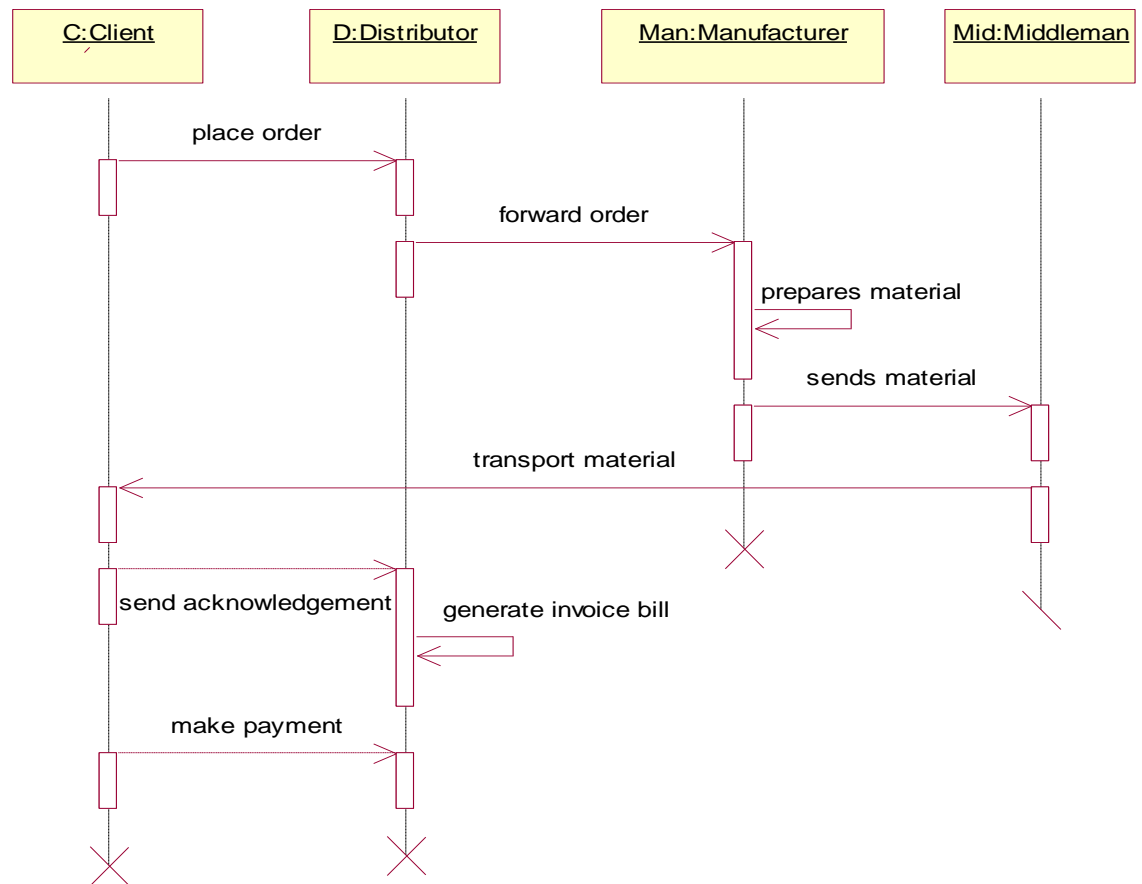
Below listed are some UML diagrams illustrating every aspect of the project (although some of them might not be included in the project owing to simplicity constraints), which are self-explanatory.

4.1.4.1 Use Case Diagram



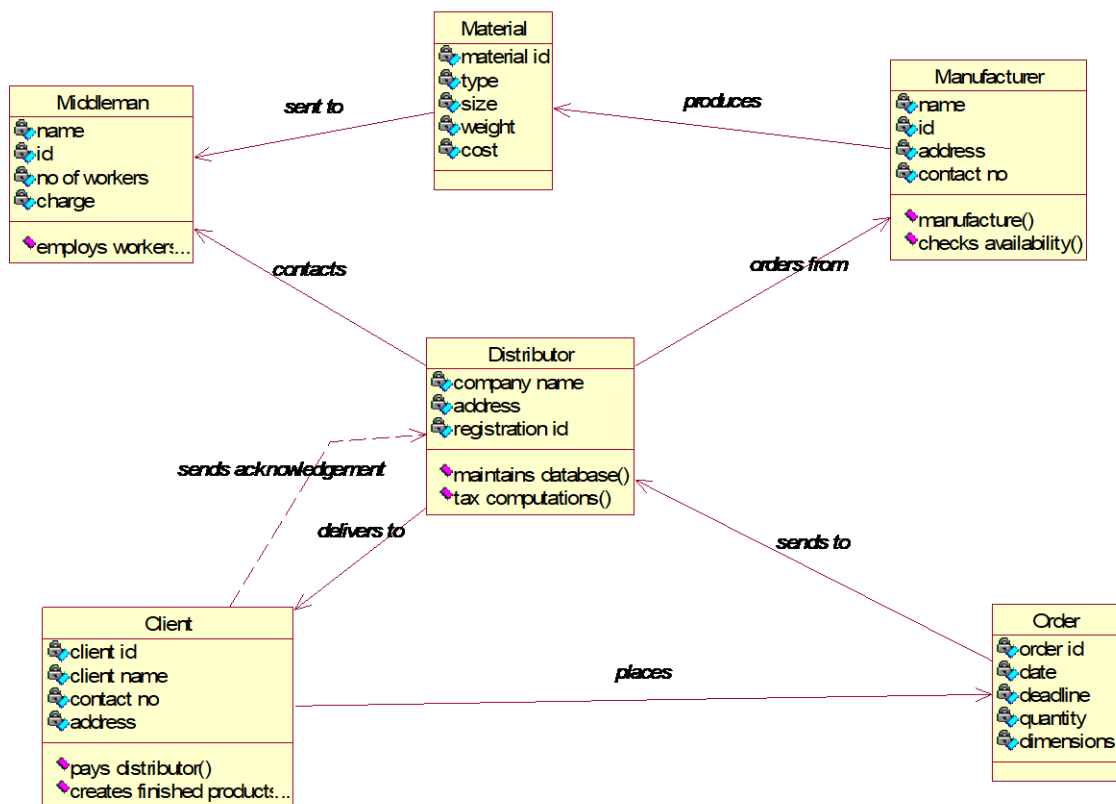
The above use case diagram consists of 4 actors, viz, client, distributor, manufacturer and middleman. The client can either place an order to the distributor, pay the amount/send acknowledgement of the received material or cancel a placed order. The distributor buys the materials from the manufacturer. The manufacturer manufactures the material and the middleman transports the materials from source to destination.

4.1.4.2 Sequence Diagram



The client will initially place an order. The distributor then enters the client details and order details as input to the software. The distributor then contacts the manufacturer to check availability of the material and contacts the middleman to transport the material to the client. Once the client receives the materials, he sends an acknowledgement to the distributor. The distributor then prints the Invoice Bill and the client makes the payment.

4.1.4.3 Class Diagram



The client initially places an order to the distributor. The distributor forwards the order to the manufacturer and checks the availability of the materials with the manufacturer. The transportation of the goods from source to destination is done by the middleman. The client sends an acknowledgement to the Distributor on receiving the material. The distributor then generates an invoice bill and payment is made by the Client.

4.2 Software System Non-Functional Requirements

The non-functional requirements of the distributor system model can be:

4.2.1 Reliability

The distributor system should be fair and should allow the user to willfully place orders for delivering materials and also compute taxes, 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 orders are placed onto it. It should be robust and high performance. It should be able to execute tasks such as placing orders, issuing Invoice No, and placing orders. 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 user should be able to logout/login quickly; such that their data is wiped out efficiently and rewritten again equally efficiently without there being bugs or snags.

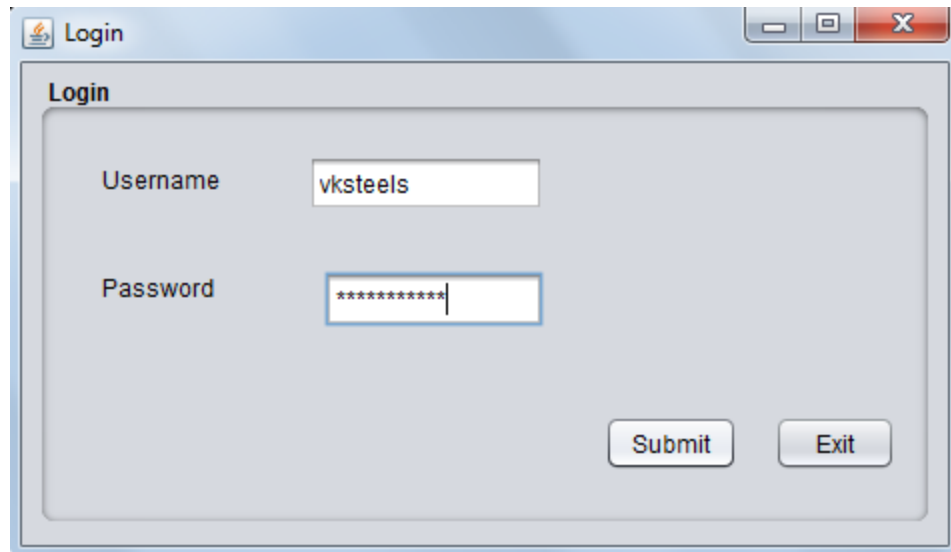
4.2.5 Security

Privacy rules should be enforced. Users data should not be able to be made available to others. Integrity constraints should be enforced. Hacking should be controlled using password protection and rules.

4.3 Requirements Traceability

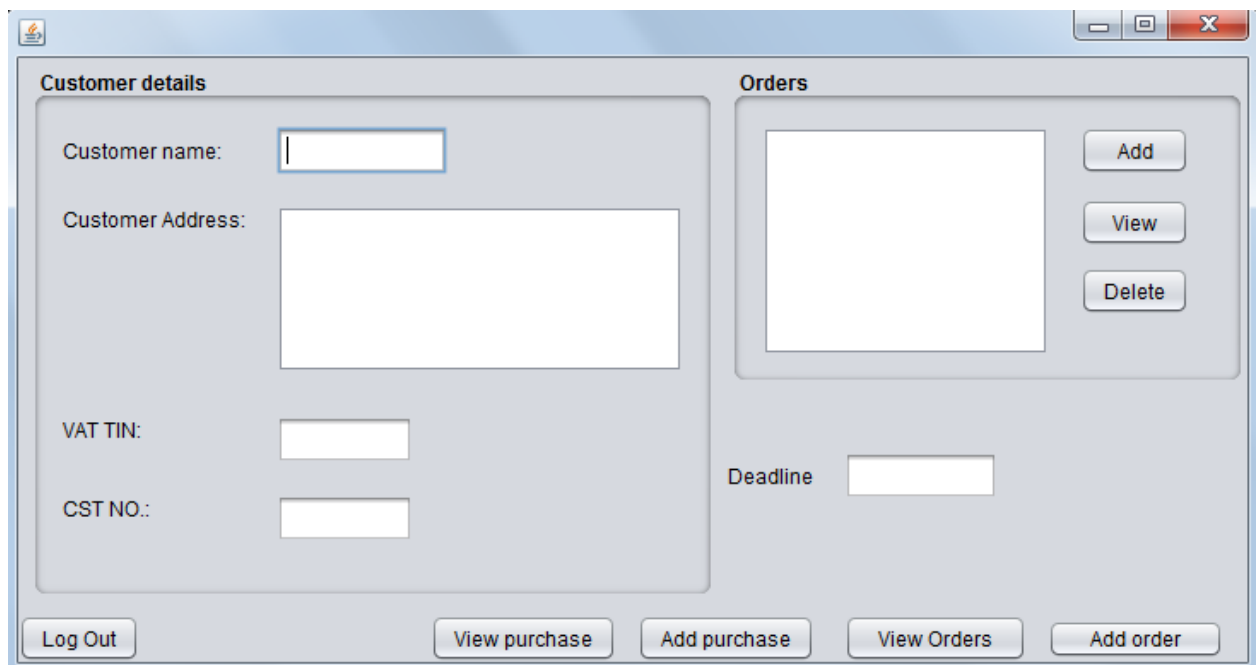
The traceability, constant upgradation of system by searching for newer requirements that would benefit the system would be done by the system representing and subject world representatives of the system at regular, short intervals of time, so that system does not become outdated.

APPENDIX – Preliminary Design (Mockup)



A screenshot of a 'Login' window. The window has a title bar with a small icon and the text 'Login'. Inside, there is a 'Login' label. Below it, there are two input fields: 'Username' with the text 'vksteels' and 'Password' with masked characters '*****'. At the bottom right, there are two buttons: 'Submit' and 'Exit'.

The distributor will have to enter his username and password and click on the submit button in order to login to the system. The system prompts the distributor if the username or password is incorrect.



A screenshot of a window titled 'Customer details' and 'Orders'. The 'Customer details' section on the left contains four input fields: 'Customer name:', 'Customer Address:', 'VAT TIN:', and 'CST NO.:'. The 'Orders' section on the right contains a large empty box, three buttons ('Add', 'View', 'Delete'), and a 'Deadline' input field. At the bottom, there is a row of five buttons: 'Log Out', 'View purchase', 'Add purchase', 'View Orders', and 'Add order'.

This page is displayed after the distributor logs in to his profile. It is used to display a Menu through which he can add a client's details and the items ordered by him. If the client details are already stored in the database then they will automatically be added in the textboxes once the same clients name is typed and the distributor presses the Enter Key.

Details

No. and kind of packages:

Description

Quantity(Kg)

Rate

Ok Cancel

This is the page displayed when the client wishes to place an order by clicking on the add button in the orders panel. The no and kind of the package, description of the material, its quantity and rate are confirmed with the client and added by the distributor.

Details

No. and kind of packages: 2

Description steel

Quantity(Kg) 25

Rate 500.0

Ok Cancel

Orders

Order 1

Order 2

Add

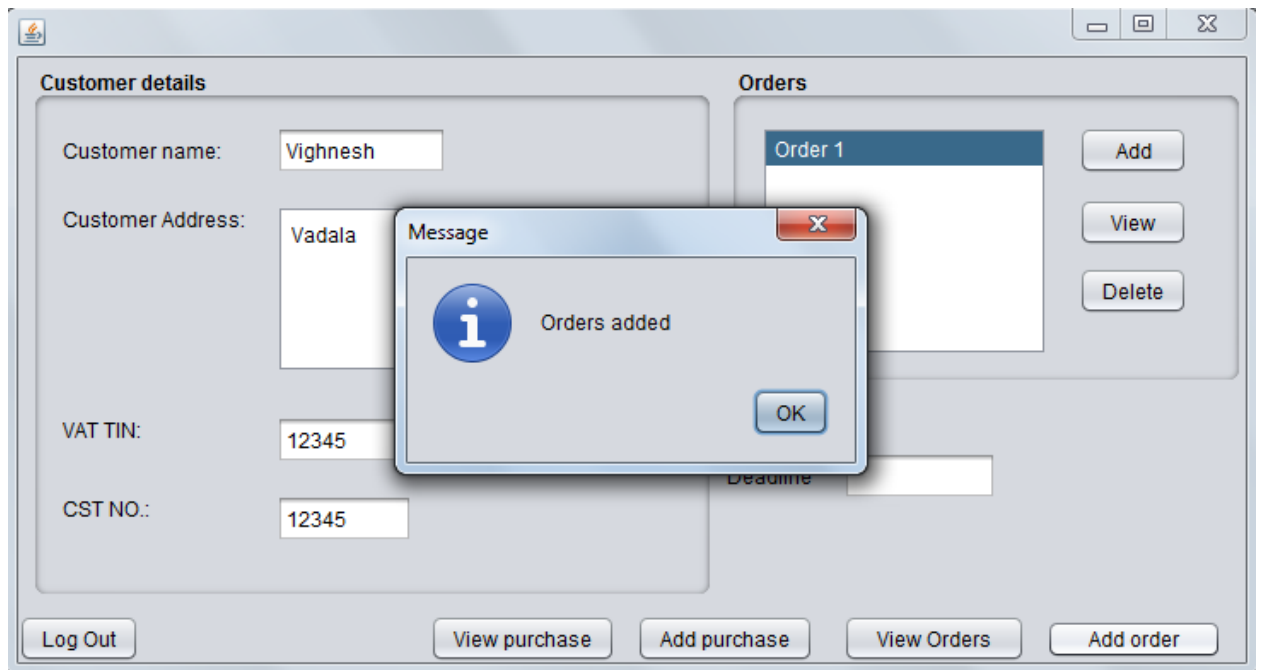
View

Delete

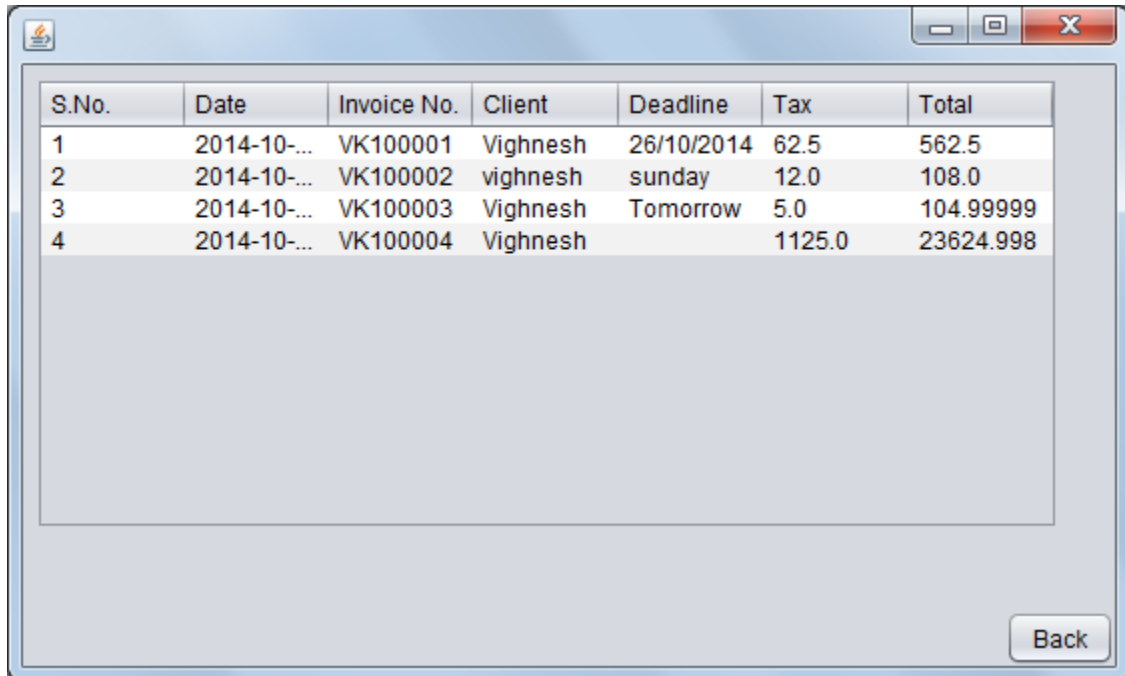
Deadline

Log Out View purchase Add purchase View Orders Add order

This smaller page on the left hand side pops out if the distributor clicks on the view button in the orders panel. It is also possible to delete an order by clicking on the delete button. The deadline before which the order has to be transported to the client has also to be specified. When the Log Out button is pressed, the user should be logged out of the system i.e. the login page must reappear.



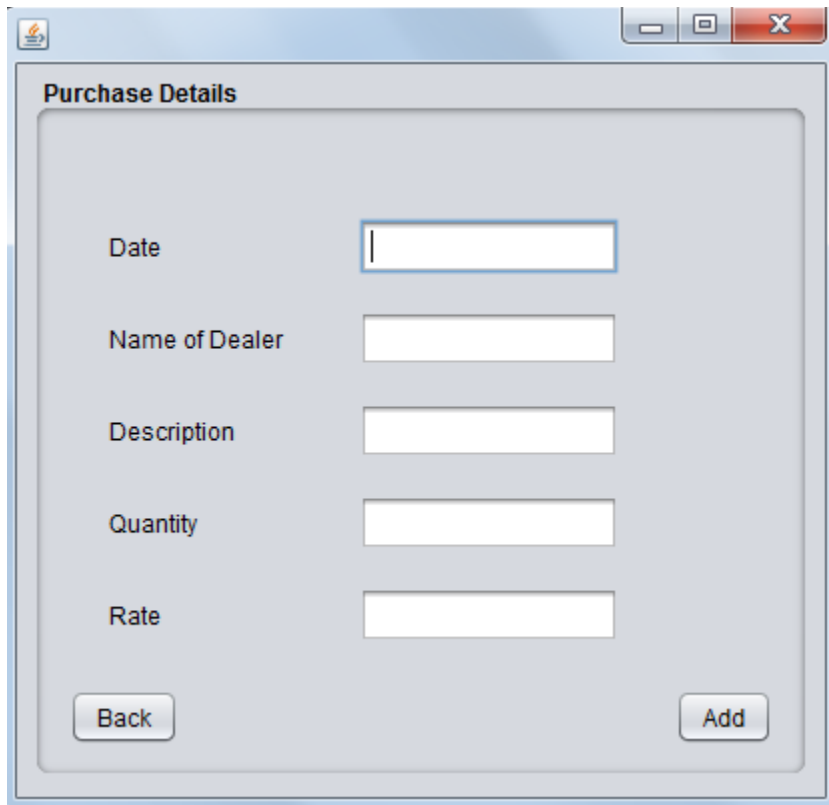
This message pops up when you click on the add order button which indicates that the order has been added to the sales database.



S.No.	Date	Invoice No.	Client	Deadline	Tax	Total
1	2014-10-...	VK100001	Vighnesh	26/10/2014	62.5	562.5
2	2014-10-...	VK100002	vighnesh	sunday	12.0	108.0
3	2014-10-...	VK100003	Vighnesh	Tomorrow	5.0	104.99999
4	2014-10-...	VK100004	Vighnesh		1125.0	23624.998

Back

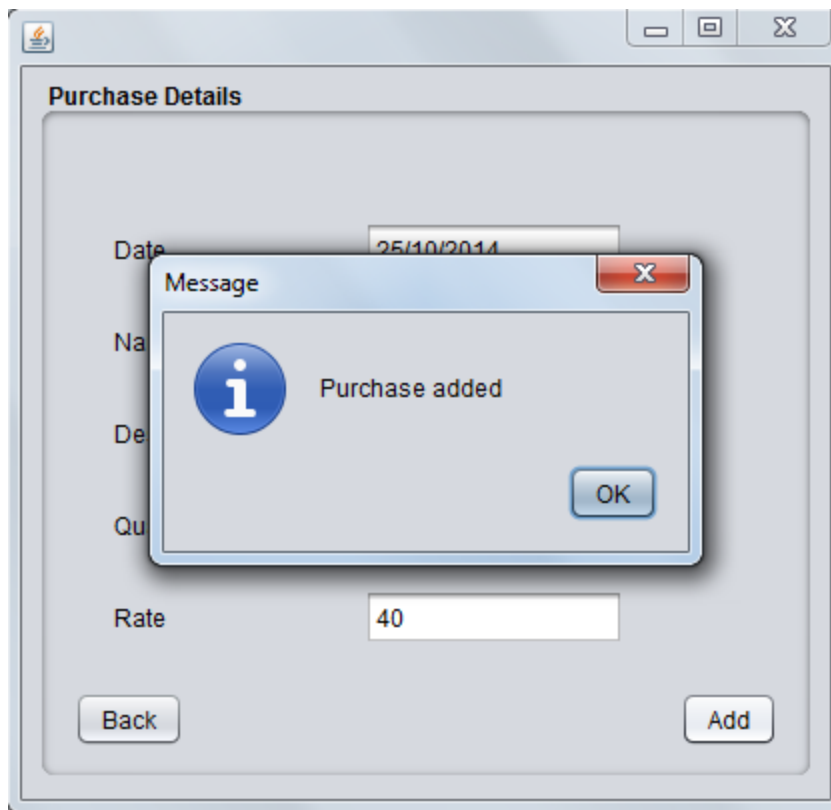
We can view the entire sales database by clicking on the view orders button. We will find that the Invoice Number is being generated automatically and the taxes are also being added to the total cost (rate x quantity x tax). All these computations are done by the system. We can return to the Main Page by clicking on the Back button.



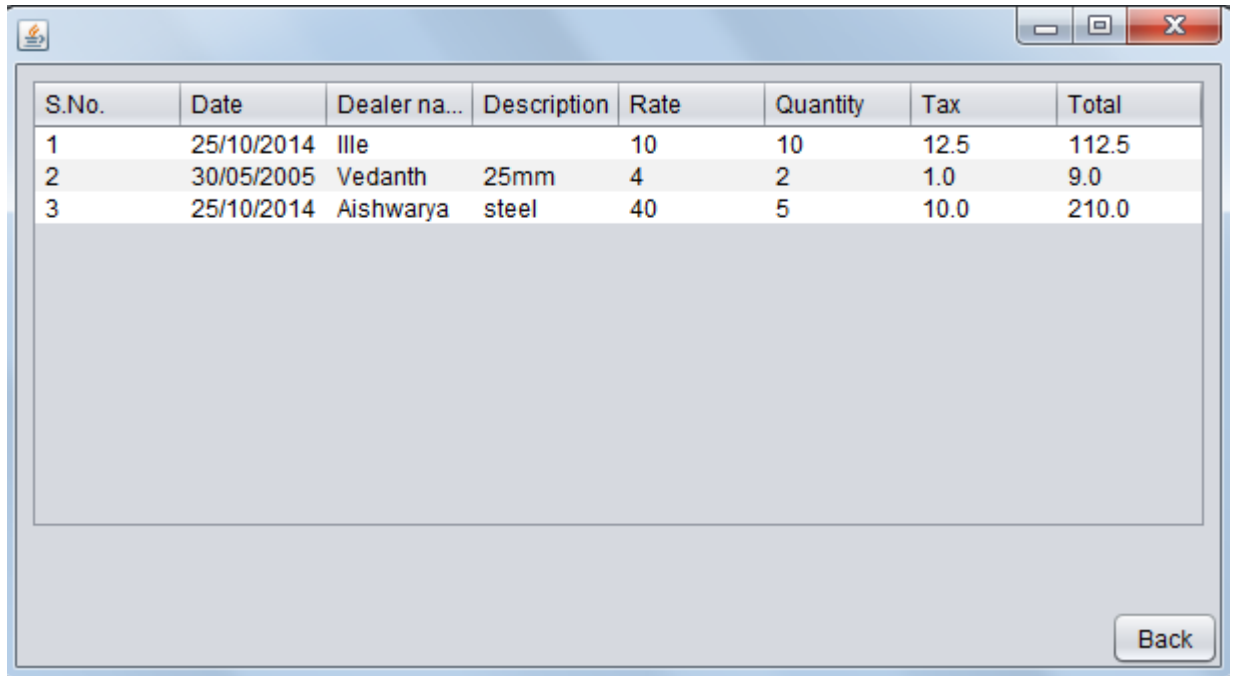
The image shows a software window titled "Purchase Details". It contains five text input fields for "Date", "Name of Dealer", "Description", "Quantity", and "Rate". The "Date" field is currently active, indicated by a blue border and a vertical cursor. At the bottom of the window, there are two buttons: "Back" on the left and "Add" on the right. The window has a standard Windows-style title bar with minimize, maximize, and close buttons.

Purchase Details	
Date	<input type="text"/>
Name of Dealer	<input type="text"/>
Description	<input type="text"/>
Quantity	<input type="text"/>
Rate	<input type="text"/>
<div>Back Add</div>	

This page is displayed whenever the customer clicks on Add Purchase button in the Main Menu. It is used to maintain a purchase database. We click on Add button after entering all the required details in order to add them into the purchase database. We can click on the Back button in order to return to the Main Menu.



This dialog box appears when we click on the add button which indicates that a purchase has been added to the purchase register. We return to the Main Page on clicking OK.



S.No.	Date	Dealer na...	Description	Rate	Quantity	Tax	Total
1	25/10/2014	Ille		10	10	12.5	112.5
2	30/05/2005	Vedanth	25mm	4	2	1.0	9.0
3	25/10/2014	Aishwarya	steel	40	5	10.0	210.0

Back

This page is displayed when the customer clicks on View Purchase button in the Main Menu. The customer can access and read the entire purchase database in this page. He will also see the total amount after the addition of taxes. These computations are done by the system.