# Software Requirements Specification

# For

# Pharma ERP (Distributor)

Version 2.0

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1. Introduction

## Purpose

The purpose of the system is to provide automation for the process of pharmaceuticals management for the distributor. Pharma ERP captures activities performed by different roles in the pharmaceuticals distributor segment on a day-to-day basis and provides enhanced techniques for providing the required information. The document intends to shed light on the features and requirements of this system and provides detailed guidelines for its usage.

## Intended Audience and Reading Suggestions

The document is intended for developers, testers, project managers and all those eligible for using this software in the distributor segment. Section I of this SRS contains a general introduction of the system. Section II, which contains the overall description of the product will be beneficial to all readers. Section III and Section IV contains External Interface Requirements and System Features that will be helpful to developers and testers. Non-functional requirements and other requirements from Section V and VI will be highly useful for all the company staff.

## Product Scope

The scope of this project is limited to the activities performed by a small-scale distributor. The system is limited to a three-tier hierarchy for the functioning of the company, which includes the Chairman, CEO and others in the first tier, senior managers in the second tier and junior managers in the third tier. Professionals of the first tier will have complete access to the entire company’s activities; the privileges for the second tier will be limited to the management of their respective departments and the third tier members will have extremely limited privileges. Developers at Croods Consolidates Pvt. Ltd. will have administrator access.

## References

[1] Nancy Day, Software Requirements Specification and Analysis, Lecture 3, http://www.student.cs.uwaterloo.ca/cs445/Fall2005/Schedule/l3.pdf.

[2] Software Engineering Standards Committee of the IEEE Computer Society, IEEE Recommended Practice for Software Requirements Specifications, 1998.

[3] Software Requirement Specification (SRS), http://se.uwaterloo.ca/dberry/ATRE/srs.pdf.

[4] Wikipedia, the Free Encyclopedia, http://en.wikipedia.org/.

1. Overall Description

## Product Perspective

The system is an automated version of the distributor management system for the pharmaceuticals industry, which is traditionally done offline, and is intended to obliterate manual tasks, provide quality services and easy access to the user wherever they are, thus saving time and increasing customer satisfaction. The system will also contribute to saving paper and better maintenance of records by complete digitization of the user database.

## Product Functions

1. Tier1 professionals

* Members can avail subscription for the company’s account
* Members can add, remove or edit employee records; add a subscription account and control privileges for all employee accounts.
* Activities including personnel administration, leaves and attendance and payroll can be handled.
* Individual or group messages can be sent to employees.
* Task and deadline reminders can be set.
* Members can add or remove drug suppliers to the existing list of records.
* Members can place or approve pending requests for drug orders.
* New outlets can be created or existing outlet details can be viewed.
* Inventory stock management can be undertaken.
* Outlet-wise performance can be mapped.
* Members can add or remove new clients to the existing list of records.
* Members can pass orders for clients and track their delivery status.
* Cash inflow and outflow can be tracked and subsequent statistics be generated.
* Invoice for transactions can be generated in PDF format.
* Supplier-wise Drug details can be managed.
* Can make bill payments.
* Pricing can be coordinated.
* GST Calculations can be made.

2. Human Resource Professionals (Tier-2)

* Members can add, remove or modify records of employees and grant UserID for access to account, as well as control their privileges.
* Members can assign tasks and set deadlines for peers.
* One-to-one or group messaging facility included.
* Members can administer personnel, monitor attendance & leaves and payroll for each employee.

3. Outlet Managers (Tier-2)

* Can manage inventory stocks of outlets.
* Generate Invoices of orders.
* View stats regarding in and out of stocks.
* Members can add or remove drug suppliers to the existing list of records.
* Members can place or approve requests for drug orders.
* Members can add or remove new clients to existing list of records.
* One-to-one or group messaging facility included.

4. Finance managers (Tier-2)

* Manage cash flow of the company.
* Pricing coordination and handling of taxes.
* Members can pay outstanding bills.
* Generate invoices of orders.
* Profit management.
* Members can view stats regarding finances of the company.
* One-to-one or group messaging facility can be availed.

5. Tier-3 Professionals

* All tier three members will have only view and report privileges in their respective departments.
* One-to-one or group messaging facility can be availed.

6. Product Administrator

* Can register companies or revoke their access to accounts.
* Can manage subscription stats.
* Can view usage stats.
* Can communicate with subscribers.

## User Classes and Characteristics

The various user classes that will use this product are – Product Administrators, Company Heads which are Tier I users, Tier II users which are Senior managers in Human Resource, Finance or Outlet Departments, and Tier III users which comprise the junior managers. The Company Heads will have the widest scope amongst all subscribers, as the system will automate their daily operational requirements. Tier II managers will have full privileges of only their own departments and will be oblivious to all the other activities in the system. Tier III users’ scope will be limited to their own departments and will not be able to perform administrative functions – which will be solely reserved for professionals of the highest tier. The Product Administrator will be a part of the software development team and will be able to overlook the usage of all subscribers. She will also be able to revoke the rights of a particular user or group.

## Operating Environment

The software is optimally developed for Desktops. It is set to work correctly with browsers such as Google Chrome, Mozilla Firefox, Opera and Microsoft Edge. For optimum results, use any of these with cookies enabled. For usage on mobile devices, desktop version of this site will be available on any of these browsers. However, viewing will be affected.

## Design and Implementation Constraints

The various design and implementation constraints are –

1. Standards Compliance

* Report format:

The document in this file is an annotated outline for specifying software requirements, adapted from the IEEE Guide to Software Requirements Specification.

* Requires at-least 1GB on-board memory.
* Based completely on Windows functionality platform.
* The software should be portable and must be inaccessible to unauthorized users.

1. Regulatory Policies

* Copyright will be as per systems. All Rights Reserved. Except as permitted under the Indian jurisdiction copyright act. No part of this software may be reproduced or distributed in any form or by any means, without the prior written permission of the developing organization.
* Some ancillaries including documentation except the user manual will not be available to the customer until a prior execution of the application.
* All the other issues/disputes regarding the terms and conditions shall be liable to the Indian Jurisdiction.

## User Documentation

The Software Requirements Specifications manual would be sufficient for total understanding of the system.

## Assumptions and Dependencies

1. Assumptions:

* The application would be robust enough to handle heavy traffic without crashing.
* The application will be secure.

2. Dependencies:

* Power Source
* Systems (User Systems/servers)
* Communication Mediums (Wired/Wireless)
* Internet Connection

1. External Interface Requirements

## User Interfaces

The Interface must be simple and sleek. The user interface includes:

* Screen Formats/Organization:

The introductory screen will the default page of the systems. Users will be able to login/register via this page.

* Data Format:

The data entered by all users will be alphanumeric.

* End Messages:

Appropriate error messages will be displayed in accordance to situations.

* Download Facility:

Users will be able to download certain documents through available options.

## Hardware Interfaces

The system must support certain input and output devices. Their descriptions are as follows:

1. Monitor

* Source of Output.
* To display results.

1. Keyboard

* Source of Input.
* To accept data from the user.

## Software Interfaces

The main control panels and the operating system, which hosts the algorithms for calculating distributed travel and wait time information, support software interface. Additionally, the algorithms define and export system commands for main control panels, and communication mediums. For testing purposes, the software shall be capable of interfacing with software simulators on a PC computer using GUI applications of webpages. The various softwares that have been used for the development of the product are –

IntelliJ IDE with GlassFish server, Gradle, Chocolaty Package Manager as Development Environment. JDK 8.1 is used for developing Servlets and JSPs using the Model-View-Controller Framework. Persistence Layer has been created using Hibernate and MySQL. Front End has been created using HTML, CSS and Bootstrap. Jasper Reports and Apache PDF has been used for generating reports.

## Communications Interfaces

All system interfaces communicate in order to activate ordered requests. The communication mediums (wired or wireless) are the external interface that communicates with the control panel of the Pharma ERP system. This communication allows for failure messages, and requests to be sent and received by the main system.

1. System Features

## Registration and Login

4.1.1 Description and Priority

The system administrator has the right to register a new company as a subscriber. Once the company account is created, the administrator will create an account for the company head, who will be a Tier I manager and hence will have comprehensive rights

regarding the management of his company’s activities. The company head can then add employees into the system. Adding employees to the company database doesn’t automatically guarantee a subscription account with the system. To give employees access to the system, the company head or the senior Human Resource Manager can add a subscription account of that particular employee in the system. He will also have to set privileges for that employee. Upon creation of the account, the employee will be able to change her password. A facility to recover a user’s password is also provided in the event that he forgets her password.

4.1.2 Stimulus/Response Sequences

For new registration, company head will have to go to the register page and give in her company’s details and then her personal details. They will also require to choose a password for their account. Account verification will occur via security questions that will require user input. In the end of the registration process, users will be able to log into the system using their UserID and password, which will be verified by the system. If the account is inactive for more than 10 minutes, the session will expire and the user will be automatically logged out.

4.1.3 Functional Requirements

* REQ-1: Company Details and Company Head’s Credentials

*Input: Company Details, Company Head’s Details.*

*Output: Company ID, UserID & Password for Company Head.*

*Processing: Company Head will have to feed in the Company Details and his own*

*details the first time he registers the company on the site.*

* REQ-2: UserID

*Input (For Registration): Employee Details .*

*Output (For Registration): UserID and Password.*

*Processing: Company Head or HR manager can create accounts for others.*

*Input (For Login): UserID and Password*

*Output (For Login): Successful login*

*Processing: Valid UserID and Password will enable the user to access their account. In case the password is lost, it can be retrieved via the Forget Password link after a series of verification steps.*

## Place order to Supplier

4.2.1 Description and priority

Company Head or Outlet manager can place or approve an order for restocking inventory items. If supplier does not exist in the Company’s records, then the authority will have to create a new supplier record and after proper sifting through its existing inventory, will have to choose all the required items. Once the stock is delivered, payment will be automatically sanctioned and deductions will be made from the Company’s account post calculation of all the necessary taxes. Any junior employee can also request an order, but it will only be passed after approval from Company Head or Outlet Manager.

4.2.2 Stimulus/Response Sequences

User will have to request a place new order form and select appropriate supplier for the same. Once supplier info is available, User can select items from the manufacturer’s inventory. The order will be directly placed if it is by a Company Head or Outlet Manager, else will be queued until further approval. Once stocks are delivered, amount will be deducted and finance manager will be notified.

4.2.3 Functional Requirements

* REQ-1: Supplier Details

*Input: Supplier Name*

*Output: Supplier ID and its inventory*

*Processing: Based on the input, the system will search for matching results in the database and display the results on the screen. Users will be able to retrieve further information by clicking on one of the search result.*

* REQ-2: Stocks

*Input: Item type and Quantity*

*Output: Selection*

*Processing: The input will be matched with the supplier records and if it exists, appropriate details will be prepared.*

## Pass Client Order

* + 1. Description and priority

Clients, which include Retailers or Medical Representatives will be able to request for stocks according to their requirements. The Company Head, after due examination of existing stocks and their expiry information will pass the order. Once the order is passed, Inventory & Company Account information will be updated and Finance manager will be notified. Taxes and profit margins will also be duly calculated. If the products reach expiry, they will be removed from current stocks.

* + 1. Stimulus/Response Sequences

Users will have to click on Add Client tab and enter client details. After that, users will have to click on Create Order tab and select the client from the list of available clients. Inventory Items and their respective quantities will have to be added. Upon passage of order, an invoice will be generated in PDF format. After Payment by client is done, Company accounts will be updated and Finance Manager will be notified.

4.4.3 Functional Requirements

* REQ-1: Client Details

*Input: Required details of Client.*

*Output: Successful add acknowledgement.*

*Processing:*

*The system will have to check the validity of all the input details before further processing.*

* REQ-2: Item Details and Quantity

*Input: Required details of Item and its quantity.*

*Output: Successful add acknowledgement.*

*Processing:*

*The system will have to check the validity of all the input details before further processing.*

## Messaging and Task Reminders

* + 1. Description and priority

Users can engage in one-to-one and one-to-many messaging. Each user will have a unique UserID, which will be in an email format. Higher Tier managers can send Task Reminders to Lower Tier Managers and can specify deadlines in them. Reminders can be auto-generated as well, depending on the scenario, such as imminent expiry date of drug or other such examples.

* + 1. Stimulus/Response Sequences

Users can directly send messages to one or more users from their accounts. Auto-Generated Reminders will be sent in case of approaching deadlines or dates.

4.4.3 Functional Requirements

* REQ-1: Message support

*Input: Required message, UserID.*

*Output: Message will be sent to the intended user(s).*

*Processing: User will need to fill the above-mentioned details and the e-mail will be sent through mail server. Mail API will be used to build the service.*

## Generate Invoice/Record and Reports

* + 1. Description and priority

Invoices will be generated when stocks are delivered to intended clients post the approval of their order. Subsequent updation of Company Accounts will also be carried out when payment is made. Records are generated when a supplier delivers stocks to the company or when outstanding bills are paid. Timely reports can also be generated to view inflow and outflow of goods and cash.

* + 1. Stimulus/Response Sequences

Users can directly use the Generate Report tab to generate timely reports. Invoices can be generated from Transactions tab.

4.5.3 Functional Requirements

* REQ-1: Generate Report

*Input: Time Frame*

*Output: Downloadable report in PDF format.*

*Processing: Details will be fetched from the database and be used for generating the report.*

## Make Outstanding Payments

* + 1. Description and priority

Company Head or Finance Head will be able to make outstanding payments incurred to the company in the form of Maintenance Costs, Transportation Costs and many others. Reminders will be set for payments. Records will be directly generated on successful payment of costs. Company Accounts will be updated post payment. This facility is not available to Tier III members.

* + 1. Stimulus/Response Sequences

Users can directly go to the make payments tab and enter the required details to complete the task.

4.6.3 Functional Requirements

* REQ-1: Payment Details

*Input: Payment Details and Amount.*

*Output: Downloadable record in PDF Format.*

*Processing: User will need to fill the above-mentioned details and record will be generated post money deductions.*

## View Statistics

* + 1. Description and priority

Usage statistics will be visible to System Administrator and Company Head on their dashboards. Statistics will be different for both users, and it will gauge the overall activity of the system’s users in a particular time frame. Only Tier I and Tier II users will get this facility.

* + 1. Stimulus/Response Sequences

Statistics will be available automatically on the User’s dashboard.

1. Other Nonfunctional Requirements

## Performance Requirements

## The Pharma ERP System shall be built upon an internet connection of server. The processor must be capable of handling real-time functionality activated by the defined users and communication medium. In addition, the system must be safety-critical. All failures reported by the communication medium must be handled instantaneously to allow for user and system safety. The software shall have a response time variable of 5 seconds, based on signal or web based inputs, which if exceeded, the software shall recognize an error and take corrective action. Application shall show no visible deterioration in response time as the number of users increases.

## Safety Requirements

The product is 100% safe from the design point-of-view. However, mishandling of Unique ID and password may put the user in jeopardy.

## Security Requirements

* It must be ensured that access will be provided to the authorized persons through Email ID and password.
* Network security will be provided by the use of firewalls.
* Checks can be performed at regular intervals to ensure data integrity.

## Software Quality Attributes

1. Reliability

* Application shall be available 24 hours a day, 7 days a week
* Application shall always provide real time information about User/Admin/Application Itself
* Application shall be robust enough to have a high degree of fault tolerance. The system should not crash in case of invalid input and shall identify the invalid input and produce a suitable error message.
* Application shall be able to recover from hardware failures, power failures and other natural catastrophes and rollback the databases to their most recent valid state.

1. Usability

* Application shall provide an easy-to-use graphical interface similar to other existing systems so that the users do not have to learn a new style of interaction.
* The web interface should be intuitive and easily navigable. Users should be able to understand the menu and options provided.
* Any notification or error messages generated by application shall be clear, succinct, polite and free of jargon.

1. Availability

When in normal operating conditions, request by a user for a service shall be handled within seconds. Immediate feedback of the systems activities shall be communicated to the user by link page clicked. At peak system load, individual users at either the server in the security office, at the links or inside the banking system shall not experience any delay in the service response to their commands in a very short time. The system is available 100% for the user and is used 365 days round the clock.

1. Integrity

* Only system administer has the right to change system parameters. The system should be secure and must use encryption to protect the databases.
* Users need to be authenticated before having access to any personal data.

1. Maintainability

There shall be design documents describing the internal works of the software. There shall be an access on the control panel and servers for the purpose of upgrading the software or flashing any firmware.

1. Portability

There are no portability requirements.