**Software Requirements**

**Specification**

**For**

**Warehouse Management System**

**Version 2.0 approved**

**Prepared by Mark Lee Yi Ern**

**Team 6  
 8th February 2018**

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# Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
| Lam How Wei | 07/02/2018 | First draft | 1.0 |
| Mark Lee Yi Ern | 09/02/2018 | Review and edit subjects from 3.0 till 5.0 | 2.0 |

# 1. Introduction

## 1.1 Purpose

<Identify the product whose software requirements are specified in this document, including the revision or release number. Describe the scope of the product that is covered by this SRS, particularly if this SRS describes only part of the system or a single subsystem.>

This purpose of this project is to produce a warehouse management system that comprise of an executable program. This product will assist the administrator, manager and operator of a warehouse organization to go about their daily operations digitally. This includes account management, stock management, stock review, stock tracking and stock taking.

## 1.2 Document Conventions

Main Section Titles   
Font: Times New Roman  
Face: Bold  
Size: 14

Sub Section Titles  
Font: Times New Roman  
Face: Bold  
Size: 14

Contents  
Font: Times New Roman  
Face: Normal  
Size: 12

## 1.3 Intended Audience and Reading Suggestions

This document is intended for developers, project managers, marketing staff, users, testers. It contains information on the product, its feature, purpose, goal and its functionality. Readers are strongly recommended to read the overall description section for the summarized details about the product. To get a gauge of the features this project intend to cover, read the requirement and non-requirement specification section.

## 1.4 Project Scope

This project aims to enables companies and their management to manage and keep track of the stocks, add stocks, update stocks accordingly and also use the information stored in the system for critical business and non-business decisions. This is greatly beneficial as more time would be saved from doing manual calculations and therefore improve productivity.

Security is important to prevent unauthorized access and only allow intended user to perform their permitted actions. A specialized menu will be displayed depending the user’s role in the organization, with each item on the menu covering a specific task the user is allowed to perform.

Project scope includes project management, workforce assignment, risk analysis & mitigation and project vision in two iterations of inception phase. Product design will then be the main focus in the three phases of elaboration phase. This include use case diagrams, component diagrams, class diagrams, activity workflow diagrams, identified key detailed use cases and its relative sequence diagrams.

# 2. Overall Description

## 2.1 Product Perspective

The warehouse management system consist of a program that is part of a system comprising of several databases. Program features available to the operator and manager will edit a formatted warehouse inventory database which stores details of stocks in each field separated by a colon “:”. Program features available to the administrator will edit a formatted account database which holds staff account information. All contents of the databases will be encrypted by the system for security measures.

## 2.2 Product Features Product features are further classified under three sub categories addressing mainly security, stock management and account management, refer to diagram 1.0.

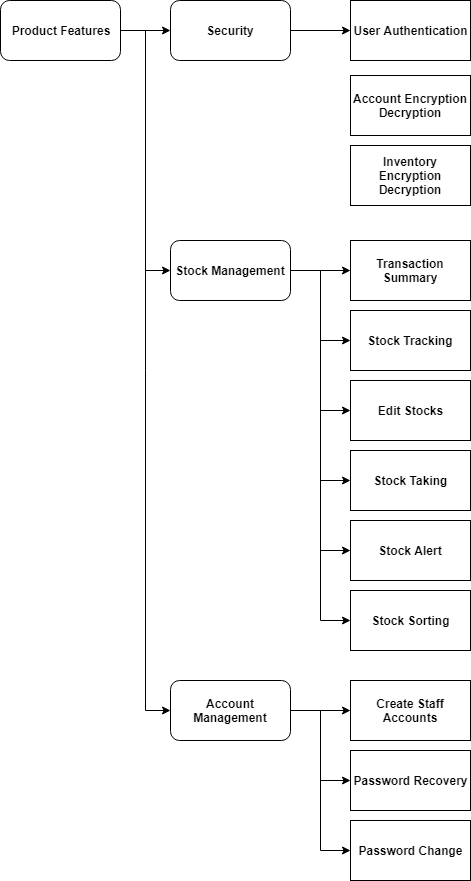


Figure 1.0

## 2.3 User Classes and Characteristics

User classes identified are operators, managers and administrators, with manager as the main intended user of this product. Managers are able to edit stocks, make stock orders, review transaction summary, and set stock alert threshold to assist in stock tracking. Warehouse operators are able to register incoming and outgoing stock quantity. The administrators are able to manage staff accounts, which includes adding new accounts and password recovery.

## 2.4 Operating Environment

Ubuntu 14.04.1 on Linux OS

## 2.5 Design and Implementation Constraints

Constraints identified includes the requirement to limiting the operating environment to Ubuntu 14.04.1 on Linux OS and also for program source code to be implemented in C++ language.

## 2.6 User Documentation

Product trainers will be assigned to be attached to organizations that patronize this product. Trainers will provide extensive tutorial lessons and program demonstration to organization staffs that are involved in usage of the product.

## 2.7 Assumptions and Dependencies

Product assumptions includes the main operating language of the organization to be English. Users are also assumed to key in information accurately during stocktaking as to prevent miscalculations.   
  
Product has dependency on the format of the databases. New databases to be incorporated are recommended to align with the format as of the original database provided with the release of the product to maintain consistency.

# 3. System Features

The following list of features below are necessary to allow the user to fulfill his daily operations.

## 3.1 User Authentication

### 3.1.1 Description and Priority

This feature allows only authorized user to enter the warehouse management system through a login process. User will be further classified into their roles and permitted features.   
  
Priority: High

### 3.1.2 Stimulus/Response Sequences

Stimulus: User enters his staff ID and password in the login menu.

Response: System will verify if ID and password is correct and will display the   
 permitted menu if success, and display error message if fail.

### 2.1.3 Functional Requirements

REQ-1: System to do verification by matching user input with accounts database.

REQ-2: Account will be locked if fail count reaches three.

### **3.2 Encrypt/Decrypt Databases** 3.1.1 Description and Priority

This an automated feature for the system to encrypt account database and stock database to prevent unauthorized view outside the system.  
  
Priority: High

### 3.1.2 Stimulus/Response Sequences

Stimulus: System automated

Response: Any text file databases will be encrypted

### 2.1.3 Functional Requirements

REQ-1: To encrypt text file database into binary file

## REQ-2: To decrypt binary file for reading in authorized usage

### **3.2 Stock Update** 3.1.1 Description and Priority

This feature allows   
  
Priority:

### 3.1.2 Stimulus/Response Sequences

Stimulus:

Response:

### 2.1.3 Functional Requirements

REQ-1:

REQ-2:

### **3.2 Stock Update** 3.1.1 Description and Priority

This feature allows   
  
Priority:

### 3.1.2 Stimulus/Response Sequences

Stimulus:

Response:

### 2.1.3 Functional Requirements

REQ-1:

REQ-2:

### **3.2 Stock Update** 3.1.1 Description and Priority

This feature allows   
  
Priority:

### 3.1.2 Stimulus/Response Sequences

Stimulus:

Response:

### 2.1.3 Functional Requirements

REQ-1:

REQ-2:

### **3.2 Stock Update** 3.1.1 Description and Priority

This feature allows   
  
Priority:

### 3.1.2 Stimulus/Response Sequences

Stimulus:

Response:

### 2.1.3 Functional Requirements

REQ-1:

REQ-2:

### **3.2 Stock Update** 3.1.1 Description and Priority

This feature allows   
  
Priority:

### 3.1.2 Stimulus/Response Sequences

Stimulus:

Response:

### 2.1.3 Functional Requirements

REQ-1:

REQ-2:

### **3.2 Stock Update** 3.1.1 Description and Priority

This feature allows   
  
Priority:

### 3.1.2 Stimulus/Response Sequences

Stimulus:

Response:

### 2.1.3 Functional Requirements

REQ-1:

REQ-2:

### **3.2 Stock Update** 3.1.1 Description and Priority

This feature allows   
  
Priority:

### 3.1.2 Stimulus/Response Sequences

Stimulus:

Response:

### 2.1.3 Functional Requirements

REQ-1:

REQ-2:

# 4. External Interface Requirements

## 4.1 User Interfaces

<Describe the logical characteristics of each interface between the software product and the users. This may include sample screen images, any GUI standards or product family style guides that are to be followed, screen layout constraints, standard buttons and functions (e.g., help) that will appear on every screen, keyboard shortcuts, error message display standards, and so on. Define the software components for which a user interface is needed. Details of the user interface design should be documented in a separate user interface specification.>

**4.1.1 Startup Menu**

1. Login
2. Reset Password
3. Change Password

Enter your choice:

**4.1.2 Login Menu**

Username:

Password:

**(If user have wrong user and password error message will show up)**

Sorry your user and password does not match!

You have 3 tries left!

**(If user enters wrong user and password after 3 tries the error message will show up)**

Sorry you have 0 tries left!

Your account has been locked. Please approach an admin staff to unlock it.

**4.1.3 After logging in successfully and the following main menu is displayed (Operator)**

Welcome to WM tool please select an option below.

1) Add or Update stock

2) Quit

Enter your option:

**4.1.4 After logging in successfully and the following main menu is displayed (Manager)**

Welcome to WM tool please select an option below.

1. Search Stock
2. Sort Stock
3. Stock Manager
4. Review Stock
5. Stock Alert
6. Quit

Enter your option:

**4.1.5 After logging in successfully and the following main menu is displayed (System Admin)**

Welcome to System Admin

1. Create New Account
2. Remove account
3. Account Recovery
4. Quit

Enter your option:

## 4.2 Hardware Interfaces

<Describe the logical and physical characteristics of each interface between the software product and the hardware components of the system. This may include the supported device types, the nature of the data and control interactions between the software and the hardware, and communication protocols to be used.>

The Software interacts with a keyboard where the user keys in information and it will be process by the software to execute its respective tasks depending on the information keyed in. The results will be displayed to the monitor from the software.

## 4.3 Software Interfaces

<Describe the connections between this product and other specific software components (name and version), including databases, operating systems, tools, libraries, and integrated commercial components. Identify the data items or messages coming into the system and going out and describe the purpose of each. Describe the services needed and the nature of communications. Refer to documents that describe detailed application programming interface protocols. Identify data that will be shared across software components. If the data sharing mechanism must be implemented in a specific way (for example, use of a global data area in a multitasking operating system), specify this as an implementation constraint.>

The software will be running on Ubuntu 14.04.1 on Linux OS and the program source code will be implemented in C++ language. The data we will be reading in will be in text format for the stock data and will create a binary file for encryption purpose.

## 4.4 Communications Interfaces

<Describe the requirements associated with any communications functions required by this product, including e-mail, web browser, network server communications protocols, electronic forms, and so on. Define any pertinent message formatting. Identify any communication standards that will be used, such as FTP or HTTP. Specify any communication security or encryption issues, data transfer rates, and synchronization mechanisms.>

During the reset password option, an email will be generated and sent with the new password to the registered email account of the user.

At the order stock option, the request to order additional stock will be sent by creating a electronic form and sending it to the supplier.

# 5. Other Nonfunctional Requirements

## 5.1 Performance Requirements

<If there are performance requirements for the product under various circumstances, state them here and explain their rationale, to help the developers understand the intent and make suitable design choices. Specify the timing relationships for real time systems. Make such requirements as specific as possible. You may need to state performance requirements for individual functional requirements or features.>

During operation of the program users must be able to load into a new menu within 1sec from the input. The search function should not take more then 5sec to display the results.

## 5.2 Safety Requirements

<Specify those requirements that are concerned with possible loss, damage, or harm that could result from the use of the product. Define any safeguards or actions that must be taken, as well as actions that must be prevented. Refer to any external policies or regulations that state safety issues that affect the product’s design or use. Define any safety certifications that must be satisfied.>

Stock data and user data might be affected. Both the data files must only be open for writing in new data and closed immediately after use. Checking for data validation before writing to the files to prevent corruption.

## 5.3 Security Requirements

<Specify any requirements regarding security or privacy issues surrounding use of the product or protection of the data used or created by the product. Define any user identity authentication requirements. Refer to any external policies or regulations containing security issues that affect the product. Define any security or privacy certifications that must be satisfied.>

Login authentication is required before accessing the system. Operators and Managers will only be able to access their personal user data and change their password, a login is required for authentication before doing so. Only the system admin will be able to change and edit user data after login. The user account will also be locked after 3 failed attempts in a row, only the system admin will be able to unlock the account.

## 5.4 Software Quality Attributes

<Specify any additional quality characteristics for the product that will be important to either the customers or the developers. Some to consider are: adaptability, availability, correctness, flexibility, interoperability, maintainability, portability, reliability, reusability, robustness, testability, and usability. Write these to be specific, quantitative, and verifiable when possible. At the least, clarify the relative preferences for various attributes, such as ease of use over ease of learning.>

The stock data must be of a text file and the contents must be in a specific format for the program to read it in correctly and store in the data.

# 6. Other Requirements

<Define any other requirements not covered elsewhere in the SRS. This might include database requirements, internationalization requirements, legal requirements, reuse objectives for the project, and so on. Add any new sections that are pertinent to the project.>

# Appendix A: Glossary

<Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. You may wish to build a separate glossary that spans multiple projects or the entire organization, and just include terms specific to a single project in each SRS.>

# Appendix B: Analysis Models

<Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams.>

# Appendix C: Issues List

< This is a dynamic list of the open requirements issues that remain to be resolved, including

TBDs, pending decisions, information that is needed, conflicts awaiting resolution, and the like.>