# ABC’s Inventory Management System

## Project Vision

To improve ABC retail company’s inventory management system by digitizing it using appropriate technology.

## Introduction

ABC is a retail company that sells men’s clothing in two locations in New South Wales. The company is just 1 year old and has two stores and a warehouse in New South Wales. The company has been managing its stock manually through written records. However, due to increasing stock level and a demand for a better inventory management system for distribution and control of stock, the company requires a new digitized inventory management system. The company requires a system that allows users to view stock level in different locations, send stock, request stock and accept stock when they are received. A detailed description of the problem, stakeholders, requirements and so on are given below.

## Positioning

## Problem Statement

The problem affecting ABC is its manual hand-written inventory management system due to the increasing stock level that makes it difficult for the employees to monitor its movement, distribution and management. The following table describes the problem, its impacts and a possible solution:

|  |  |
| --- | --- |
| The problem of | Tracking product movement.  Stock theft.  Finding current products based on product information such as product code, product item code, location of the product, etc.  Check the quantity of the product in each location.  Re-viewing stock transfer records (report). |
| affects | Store staff  Ware house staff  Customer  Supplier  Company shareholders |
| the impact of which is | Not being able to track product movement.  Lack of detailed information about stock movement and stock theft.  Finding real time product level and product information in each location based product information such as product code, product item code, location, product name, etc. is time-consuming.  Difficulty in checking the quantity of each product in each location.  Difficulty in re-viewing the records of stock transfers. |
| a successful solution would be | Company getting detailed and precise information about the stock movement and stock theft.  Employees being able to look up current stock contents of the warehouse and each store and then request stock as required.  Employees being able to send stock digitally i.e. automatically make an update to the database when stock is sent.  Distribution of stock being much easier for the warehouse staff as they will know the quantity of each stock for each store.  Implementing a digitized inventory management system that would ensure easy management, monitoring, movement and distribution of stock thus saving time and cost. |

## Product Position Statement

The product intends to meet the demand for retail business in the marketplace. The implementation of the digital technology would facilitate easy movement of products ultimately boosting sales.

|  |  |
| --- | --- |
| For | customers |
| Who | to meet the increasing customer demand |
| The (product name) | men’s clothing |
| That | are of high quality  keep the product always available for selling  quickly serve the customer  track and check the quantity of each product in each location |

## Stakeholder Descriptions

## Stakeholder Summary

|  |  |  |
| --- | --- | --- |
| **Name** | **Description** | **Responsibilities** |
| Shareholders | People who won the company. | * Coordinate and oversee all the activities of the Company. |
| Financial Manager | This is a person who oversees financial activities. | * Ensures that the revenue generated is well utilized, keeps financial records, updates financial records. |
| Store Staff | Are the individuals who work in the stores. | * Search the products/ Scan the products’ barcode * Check the products’ information * Send the request to warehouse staffs to get the products * Check the records. * Frontline employees. |
| Warehouse Staff | Are the individuals who work in the warehouse and act as admin | * Receive the request from store staff * Send the products * Check the products’ information * Add new products, update products’ information * Delete products * Check the records * Add new staff account. |
| Project Manager | This is a person who oversees project activities. | * Actively Planning * Making Schedules and dividing task * Making sure everyone is working in accordance with the schedule * Conducting Meetings * Making sure the overall work of the team is of high standard * Leading the team * Reviewing final version of products and posting it to the submission document * Documentation * Programming (includes debugging and testing) |
| Developer | This is a person who oversees coding activities. | * Making sure codes are of appropriate standard * Making sure each team member is on schedule with their coding task * Reviewing code * Make sure there is proper collaboration of codes * Make sure the product is of high standard * Documentation * Programming (includes debugging and testing) |
| Documentation and Marketing | This is a person who oversees documenting and marketing activities. | * Making sure all the documentations are of appropriate standard * Preparing reports for each iteration * Preparing reports for meetings with the Sponsor * Making sure team members are on schedule with their documentation tasks * Reviewing documentations if required * Documentation * Programming (includes debugging and testing) * Marketing products and promotions. |
| Business Analyst | This is a person who oversees analyzing the business activities. | * Assisting with the business case * Planning and monitoring * Eliciting requirements * Translating and simplifying requirements. * Requirements analysis |
| Subject Matter Expert | This is a person who define the business processes, the business policies and the application requirements. | * Validate the requirements and deliverables that describe the product or service that project will produce * Provide input for design and construction of test cases and scenarios and may also validate executed test results. * Provide input into and create and execute user documentation and training material |
| Database Administrator | This is a person who oversees database management. | * Monitor performance and manage parameters to provide fast responses to front-end users. * Map out the conceptual design for a planned database. * Develop, manage and test back-up and recovery plans. * Consider both back-end organization of data and front-end accessibility for end-users. |
| Designer | This is a person who is in charge of designing the user interface of the application. | * Develop intuitive, usable, and engaging interactions and visual designs for system. * Break any design problem done into viable actionable chunks and solve them with clarity and precision. * Collaborate with cross-functional teams throughout the design process. |
| System Analyst | This is a person who is in charge of solving problems related to computer technology. | * Defines application problem by conferring with clients; evaluating procedures and processes. * Develops solution by preparing and evaluating alternative workflow solutions. * Ensures operation by training client personnel; providing support. |
| Tester | This is a person who is in charge of testing the bugs or issues of the system. | * Monitoring applications and software systems. * Writing and executing test scripts. * Running manual and automated tests. * Writing bug reports. * Reviewing documentation. * Designing test to mitigate risk. |

## User Environment

The working environment of the target user will be a PC running Windows OS where every activity and transaction is entered into the system. The employees can access to the system using the store computer or the warehouse computer. The target users are expected to be fluent with the windows environment. However, effective user manuals will be developed for end users to refer to if they have any confusions. External devices like scanners to scan bar codes and printers to print labels will also be included in the user environment. User manuals explaining how to use these devices will also be developed for users to refer to. The environmental constraint that can limit the implementation of this project is periodic licensing of the system and the operating system issued by the producer. Mobile apps are commonly in use currently and can be integrated with this new system in the future to ensure easier accessibility of the system’s features.

## Development Environments

The following are the development environments for the system:

* JDK 8 installed on respective platforms being use for development.
* IntelliJ IDEA Ultimate version. (This can be downloaded using your respective CSU student ID)
* Maven project for the development of server-side application.
* Jersey Dependency added on Maven project on server-side application and Jersey Client dependency added on JavaFX client application.
* Apache Tomcat version 8.0.52 as a web application.
* MySQL connector added as a dependency on Maven Project for database connection.
* MySQL workbench installed on respective platforms to establish database.
* Junit and Mockito dependency added for Unit and Integration testing on both client and server applications.
* Design documents using draw.io which is to be saved on a separate location to the repository. Finalized drawings to be then screenshotted and posted on the repository.

## Product Overview

## Needs and Features

|  |  |  |  |
| --- | --- | --- | --- |
| **Need** | **Priority** | **Features** | **Planned Release** |
| Find the product’s information through product code | 9 | User enters product item code or product code searching for the information of the product and the quantity in each location. | 29/05/2018 |
| Limit the people that can access the system. | 8 | Users enter their assigned username and password to get access to the system. Users are able to operate the system for their task after successful log in. | 12/06/2018 |
| Add product, update product’s information, delete the product from system | 8 | Add new products with all required details, update existing product details and delete product that is no longer produced and sold by authorized users (Warehouse Staff). | 01/07/2018 |
| Manage a stock cart which can then be used to send or request items to other locations. | 8 | User selects the items from the list of products which get saved in cart list. The cart list can be reviewed by the actor. The items listed in the cart can be modified and deleted. More items can also be added to the cart. |  |
| Request multiple products | 9 | Request stocks from other locations through a request/send cart. | 01/06/2018 |
| Send the information of the request to the other location | 8 | After the confirmation of the order, the request is sent to the other location notifying them with all product details and quantity of the products required. | 04/06/2018 |
| Send stock to other locations | 7 | Add items to request/send cart manually according to a request or otherwise to send stock to other locations automatically adjusting the stock levels. (A label is printed for the destination location to accept it in their system. Stock level are adjusted in the sending location. Stock levels on destination location will be adjusted once the label/ deliver has been accepted. Stock are double checked and sent to the requested store via a third-party delivery company.) | 18/06/2018 |
| Accept stock from the sending location | 7 | Accept the stock in the destination location by scanning the barcode in the label of the parcel which will adjust stock levels in the destination location. | 25/06/2018 |
| Allowing warehouse staff to add/ delete/ update new user accounts | 8 | Warehouse staff reviews the new applicant’s information and adds their account to the system. Update details of a staff when required and delete a staff when they no longer work in the company. | 20/07/2018 |
| Check the record of all requests. | 8 | Record all movements of stock in the database and allow users to generate a report when required. | 06/07/2018 |
| Check notification | 8 | Notify the staff on other location about stock requests | 09/06/2018 |

## Other Product Requirements

|  |  |  |
| --- | --- | --- |
| **Requirement** | **Priority** | **Planned Release** |
| User manuals | For guidance | Before operation |
| Labeling | Identification | During packaging |
| Online help | Efficiency | During placing of orders |
| Installation | Security & efficiency | During implementation |
| The system must have less than 3 seconds of processing time for any action. | Performance | During testing |
| Login requirements for the users | Security | During implementation |
| Warehouse staff should have more functionalities than store staff | Security | During implementation |
| The system should be available 24/7 and accessible from any location. | Availability | After deployment |
| The system can have at most 100 hours of downtime per year | Reliability | After deployment |
| The system must have a white or gray background while buttons and links should have black font color so that these elements are very clear | Usability | After system worked perfectly |
| The system must be able to handle 1000 requests per hour. | Capacity | During testing |