

## Software Requirements Specification (SRS) Template

Items that are intended to stay in as part of your document are in **bold**; explanatory comments are in *italic* text. Plain text is used where you might insert wording about your project.

The document in this file is an annotated outline for specifying software requirements, adapted from the IEEE Guide to Software Requirements Specifications (Std 830-1993).

Tailor this to your needs, removing explanatory comments as you go along. Where you decide to omit a section, keep the header, but insert a comment saying why you omit the data.

# **Auto Track System**

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## **Software Requirements Specification Document**

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# Software Requirements Specifications Document

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## **1. Introduction**

### **1.1 Purpose**

The purpose of this SRS is to illustrate a detailed description of the Auto Track System in detail. Specifically, it will include the functions and capabilities that Auto Track System will provide, such as what the system will do for the users, as well as the constraints it might encounter. It will also explain the interaction with other applications. This document is intended for approval from a customer and to be used as a reference for the following development of the system.

### **1.2 Scope**

The Auto Track System is an application used in the vintage record store. This system is designed to increase the efficiency of operation in a number of ways: it helps users to manage the sales and inventory information by either inputting data manually or scanning information with a bar code reader. Also, the system will pass customer requests to the user and maintain data in time. Users can search or modify information easily on the system. Users can also customize the threshold values for inventory and price so that the system will send reminders if the item reaches the restock point. Based on customers' purchase history, it will also push the "What You Might Like" newsletter to customers via emails.

### **1.3 Definitions, Acronyms, and Abbreviations.**

#### **1.3.1 Website to public**

Old is Gold has already a website for customers to search records according to record name, singer name and other information. The website also allows customers to make request to the shop to pre-order records and collect the goods when they come to the shop.

#### **1.3.2 SQL**

The system uses Structured Query Language to make queries to the database regarding information of inventory, orders and customers.

#### **1.3.3 GUI**

Graphical User Interface.

#### **1.3.4 RAM**

Random-access memory. It is used to discuss memory constraints for the system.

#### **1.3.5 HTTP/HTTPS**

The Hypertext Transfer Protocol and Hypertext Transfer Protocol Secure are the application protocols used in the system.

### **1.3.6 JDBC API**

The Java Database Connectivity is an application programming interfaces(API) the system used in managing the data stored in database.

### **1.3.7 java.net.socket class of J2SE**

A java class that provides the communication mechanism between two applications using TCP.

## **1.4 References**

Wieggers, K. E. (2003). *Software Requirements, Second Edition*. Redmond: Microsoft Press.

## **1.5 Overview**

The remaining part of this document will include another five sections. The second section will present the overview of the system functionalities. It will describe the component requirements, user characteristics, potential constraints, and the assumptions and dependencies.

The third section will describe a process task performed by this system using five use cases for the system. Then the stakeholders can justify whether they are within scope and what this system provides can satisfy their needs.

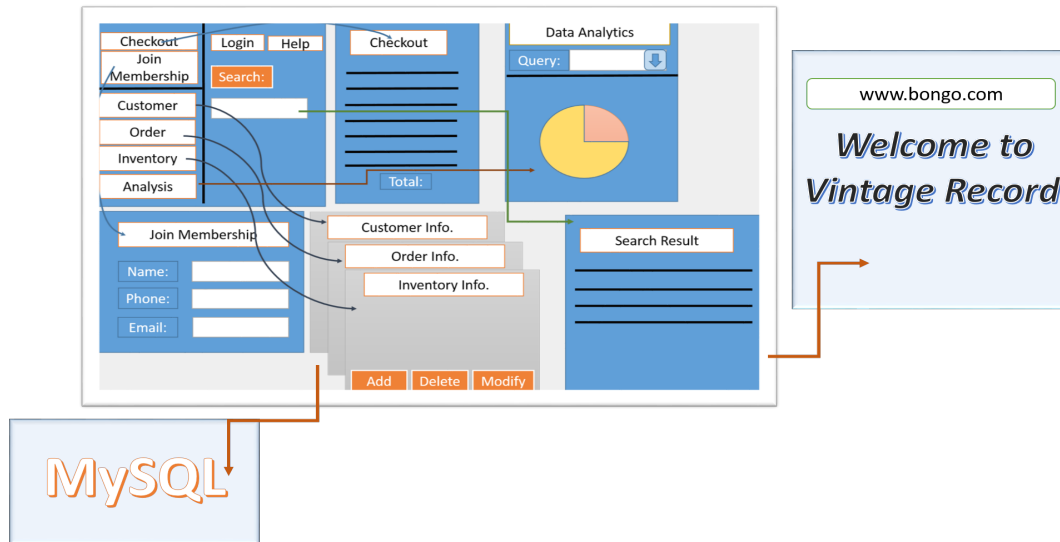
The fourth section is the change management process that will be used to implement changes into the project if any are identified by the customer.

The fifth section is the place for document approval signature.

The last section provides supplementary information about this SRS.

## 2. The Overall Description

### 2.1 Product Perspective



The Simplified Diagram of Auto Track System

The Auto Track System project is a new system that will replace the current manual process for ordering, managing inventory, pricing and tracking performance. The system is similar to other systems in the general features such as tracking consumers' records and making orders. This ordering system incorporates the main functions with other similar order processing system in the market. But this system will demonstrate more functions tailor to Bongo's shop pricing and customer relationship management in order to fit with client's needs. This project is intended to provide an easy-used GUI for records checking and connecting to MySQL for information storage as well as its company's external website for online order extraction.

#### 2.1.1 System Interfaces

The Auto Track System is programmed in Java and requires two major system interfaces for successful operation.

On one hand, the system interconnects with the MySQL database system, where all information of customer contacts, inventory, and sales is saved. The connection will be created via the Connection object using the JDBC API, and the DriverManager will help to connect with the database when it is called by the user in the program.

On the other hand, when the user wants to synchronize/update the online requests that are saved on the web server into local inventory information database, the Internet needs to be well connected. Then the system retrieves information of online request by applying the java.net.socket class of J2SE API and returns the updated order information on the interface of GUI.

### **2.1.2 Interfaces**

The system will use a Graphical User Interface. The interface will provide a very convenient way for users to access the system. All of the pages will share common headings and style with same elements. Functions that are supposed to be accessed frequently will be display in a sidebar on the left side of each page. Also, there will be a log-in, navigation, help and contact option placed on the top of each page. The copyright information will also be displayed at the bottom.

On the homepage, there will be a search panel in the middle for users to search records in stock. After users enter the title of the record or the singer name and then press the “Search” button, it will directly switch to the “Search” Interface where it will display all the available information for the record in stock. Then an option of “Checkout” will be provided and user can create a new order of the record selected.

On the side bar on the left side of each page, the first option is “Checkout”. In the Checkout section, users can scan the bar code for the item can select “confirm” and there will be an option pane popping out and allow the user to conduct payment.

Another option is “Customer” section. There are four basic buttons, “Create”, “Modify”, “View” and “Delete”. In this section, users can create, modify and delete the client information. User will be able to view the client history and know the categories for the client. Users can also get the contact information to clients and send contact emails. User can also generate preference for each customer based on purchasing/selling history and allow the user to click on Send button to send recommendation and advertisement email.

One option is “Inventory”. In the “Inventory” page, users can assess the inventory information by pressing the “View” button. The “Add/Delete” button will allow users to add or delete new item with bar code scanned. Also, “Analysis” will give users the option to check the inventory flow during certain period of time selected.

Another interface is “Order”. All of the orders will be displayed in chronological sequence. Information about order number, order date, customer information and order status will be displayed on screen. There are several queries to choose and users can view orders between selected period, or check the order information with order number. They can also create, modify or delete the order selected.

### **2.1.3 Hardware Interfaces**

The Auto Track System performs on a Java Application server. In order to provide a user interface for the order processing users, the Java Application server will need to connect to a web server and a database server which contains information about inventory and customers and other historic details in the shop. The end-user application will run on any platform that a web browser runs on.

#### **2.1.4 Software Interfaces**

The Auto Track System shall be able to allow different users to run on various web browser and content viewing tools including Mozilla FireFox, Internet Explorer, Google Chrome. As for database, the system use SQL Server 2014 as its database component. It uses Microsoft SQL 7 for managing inventory information, customer information and sufficient backup if necessary.

#### **2.1.5 Communications Interfaces**

This system will use HTTP and HTTPS protocols for internal users while the website to public will also make use of these protocols for customers sending requests.

#### **2.1.6 Memory Constraints**

The target market has between 256-512M of RAM, therefore the design footprint should not exceed 256M. This is subject to change if the need of customer increases as business expands.

#### **2.1.7 Operations**

In Old is Gold, the business goes through several operations including sales and purchases, inventory management as well as customer management. The shop summarizes sales revenue and expense every day after it closes. It is supposed to inspect the inventory, perform physical count and confirm the number of inventory with digital records every Friday. It will also manage customer relationship every week by generating customer preference and send emails to customers who has exposed obvious interests in specific categories of albums. The shop will stop all of the systems at midnight every 3 days with the aim of backing up the data.

#### **2.1.8 Site Adaptation Requirements**

The system is able to perform on any browser that can be run on any operating system so it does not need any adaptation to a particular platform. But new data tables generated shall be installed and integrated into the shop's database and combine with other original data.

### **2.2 Product Functions**

With the Auto Track System, no more disorganized data entries, flexible inventory and price control, and effective communication with customers will be achieved at the same time. The user will easily manage information about its business operation.

- Ease of information entry



Every time the user buys a new record, he just needs to record information by its bar code. The system can generate a bar code if the record does not have one.

Alternatively, the user can input the information manually.

- **Ease of managing inventory and sales**  
If any information about the records needs to be updated, the user can just search the relevant entry and make the modification. It also allows the user to check if certain items are in stock. All data will be stored in MySQL and be retrieved to present in the relevant interface of the system application.
- **Query summary**  
The interface provides a list of options for users to make a query. The system allows the user to sort the information by time, by record type, and by price range and select the specific part of information.
- **Data Visualization**  
The user can generate graphical reports based the information selected in the query. Moreover, the system can help to calculate revenue and cost of goods sold, and display the result graphically. This will display on the data analytics dashboard.
- **Inventory and Price Control**  
The user can set the upper or lower limit for inventory. If the actual value of the inventory reaches the threshold value, then the user will receive a reminder from the system. Besides, when the user decides to set a price for a record, the system will generate a recommended price based on similar records' price in the inventory.
- **Connection to the web server**  
The system will connect to the web server for data retriever. Every time customers make online requests, which will be sent to the server, the system will fetch information of customer requests from the server to the local database. The user can view all the requests from the system.
- **Advertisement to customers**  
This system can help the user keep in contact with customers and advertise its product. He can generate a "Recommendation To Buy" newsletter according to customers' purchase history and email to customers.

### **2.3 User Characteristics**

The major groups of users that interact with the Auto Track System includes the owner/manager of the shop, the staffs who sell products in the store, and the workers who manage the inventory, and the administrator of the system.

The owner/manager need to know how the system works in all angles. He will access all information and therefore needs to know to work in different interfaces of the software.

The staffs in the sales department normally will record which products that are sold to the system. What they need to know are how to use the bar code reader to record sales and check if the items are in stock in different interfaces. Only basic level of technical expertise is required.

The workers who manage inventory in the warehouse will update the inventory information and put the records in assigned locations. In most cases, they are only responsible for entering data and locating the products in the correct places. What they need to know are placing the products accordingly and mark down any changes to the system. Only basic level of technical expertise is required.

The administrator will manage the overall system and maintain the normal operation of system. This role requires a high level of technical expertise. The administrator will be able to modify the information and ensure no incorrect information. Moreover, the administrator manages the access privileges for users.

## **2.4 Constraints**

The user can run the Auto Track System to perform tasks under certain circumstances and some criteria must be met. Here are some potential constraints that limit the developer's options:

The network connection is one of constraints for the application. When the system fetches information of customer request or generate a recommended price for a record, it requires the network connection to transfer data.

The Auto Track System only can be run on the computer, but not applicable to mobile platforms or tablet platforms.

Another constraint of the system is the storage capacity of the database. As more and more data entries are added, the maximum capacity will be exceeded someday. Therefore, as the storage is approaching to be full, the administrator should expand the capacity or move the old data to another location.

## **2.5 Assumptions and Dependencies**

A number of assumptions and dependencies that may affect the system are specified here:

- One of the assumptions is that the system will be working on the web with normal performance. This web-based application shall have the compatibility for users to access successfully from different computers in the shop.
- Another assumption is that the technology standards and operation process do not change frequently and drastically.
- The system is Internet-based and Internet-enabled computers will be available in the shop to allow the staffs to access the system and get instant and synchronized

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information. If the system is offline, it will immediately update the information once it reconnects to the Internet.

- For normal performance, the system will also need to connect with the database in the shop, as well as the bar-code scanner and the printer to finish all the functions required.

## **2.6 Apportioning of Requirements.**

During the project implementation process, there are sometimes inevitable changes to the schedule. Therefore, we divide some requirements into different sections. Some of them may be delayed until future versions of the system. Basic requirements, including setting up an order, checkout and registering new customers, will be guaranteed to deliver at initial release, while some other requirements, such as generating customer preferences, will be developed in later versions.

## **3. Specific Requirements - Organized by Use Case**

This section will demonstrate all the software requirements in sufficient details to enable designers to design the system in order to satisfy the requirements. It also allows testers to test the system.

### **3.1 External Actor Descriptions**

#### **3.1.1 Human Actors**

- Owner of the store
- Staffs in the store
- Workers in the warehouse
- Administrator

#### **3.1.2 Hardware Actors**

- Computers
- Printer
- Scanner

#### **3.1.3 Software System Actors**

- Company Website that provides online shopping services
- MySQL

### **3.2 Use Case Descriptions**

#### **3.2.1 Use Case 1 - Process Sales (Brief Format)**

A customer selects a pile of records in the Bongo's record shop and comes for checkout. The cashier uses the bar code reader to scan the bar code of each record into the system and then the system presents the total charge. The customer pays the charge. The system automatically updates the inventory balance and sales record. The customer gets the printed receipt that includes item detail as well as the total payment and then leave the shop with the records. If this is the first time to shop in Bongo's record shop, customer will be invited to join membership and leave his or her email.

### **3.2.2 Use Case 2 - Record Inventory (Brief Format)**

New piles of records come to shop. The staffs in the warehouse enter the information of records into the system by scanning bar code or typing the information into the system. All items will be added to the goods purchase history interface. Then the system verifies whether there is same version of record in stock in the inventory history interface. If so, the amount of total copies will be updated. Otherwise, a new line is created to store the information in this interface.

### **3.2.3 Use Case 3 - Make Advertisements (Brief Format)**

The user goes into the advertisement interface. The system presents a list of customer contacts with their purchase history. The user chooses the targeted contacts that he wants to make advertisements to and then clicks the "Generate Recommendation" button. The system analyzes the customer's taste based on his or her purchase history and produces result according to what are in stock. After the result is created, the user previews the advertisement and then send it out via email.

### **3.2.4 Use Case 4 - Search an Album (Casual Format)**

A customer comes into a store and asks the staff in the shop whether there is an album called "*The Magic Whip*" in stock.

#### Main Success Scenario:

The staff enters the album name in the internal search engine of the system. Then the system displays the detailed information of the album - the name of the band, the year, and the location in the store. The staff goes to the location as indicated in the system and find the album for the customer. The customer happily pays for it and leaves with the album.

#### Alternative Flows:

- The staff enters the album name in the internal search engine of the system. Then the system displays the detailed information of the album - the name of the band, the year, and the location in the store. The staff goes to the location as shown in the system but cannot find the album. The staff might double check with the warehouse. If there is a copy in warehouse, then the staff goes to get one for the

customer. Otherwise, the staff tells the customer the album was out of stock and invites to come back later once the copies are refilled.

- The staff enters the album name in the internal search engine of the system. Then the system displays the album was out of stock. The staff apologizes to the customer that the album was not available but asks if he or she would like to leave the contact and will be notified once more copies come in.

### **3.2.5 Use Case 5 - Process sales and purchases (Fully Dressed Format)**

Primary actor: On-duty Manager

Stakeholders and Interests:

- On-duty Manager: wants to complete the order request and passes the good for the customer; wants to buy the records from the customer at a reasonable price.
- Customer: wants to get the purchase fast and sell the records at a good price
- Bongo's shop: wants to accurately complete the sales and purchase and record these transactions in the system

Preconditions:

- The On-duty Manager is authorized to set price for buying records from customers.
- The pile of records that the customer wants to sell are in good condition.

Success Guarantee:

Sales and purchase are recorded. Inventory is updated.

Main Success Scenario:

A customer made an order request online and got the order confirmation. On the next day, he comes to the shop on the next day with a pile of records that he wants to sell and the order confirmation. The on-duty manager checks for the order on the system and get the goods for the customer. Then the customer negotiates with the manager about the deal price. After a successful negotiation, the manager calculates the payment for the sales and the payment for the purchase. Then these two parties complete the transaction. The pile of records is given to the store and the order is passed to the customer.

Alternative Flows:

- When the manager checks the online request on the system, he could not find the record. The manager apologized for this problem and let the customer re-order at a discount.
- When the customer negotiates to sell the pile of records to the store, the system fails to produce a reference price for some of the records. Since the manager has no idea about the price for these records, he only purchased the records that he can determine the price for.

Exceptions:

- The system fails to record the sales or complete the sales.

Special Requirements: When the manager uses the system to obtain the reference price, the computer must connect to the Internet.

Open Issues:

- Can the cashier accept other currencies and record in the system except the local currency?
- Is any deferred payment allowed?

### **3.3 Performance Requirements**

Besides functional requirements, the project also requires certain performance.

#### **3.3.1 Performance Requirement - Browsing feature**

The system should at least accommodate 400 users during the peak usage time. The system can hold a session duration time of more than 10 minutes during the peak hour. Also, users are not experienced to have very much delay and slowness.

#### **3.3.2 Performance Requirement - Search feature**

Different search option should be clear and easy to understand. It should be very convenient to select the search option. The system is supposed to respond in less than 5 seconds with total search results displayed in a clear and relevant order.

#### **3.3.3 Performance Requirement - Order feature**

The system should be able to deal with the order within 7 seconds after the user submits the order. A record of order should be kept and display to users after successful submission.

#### **3.3.4 Performance Requirement - System sustainability feature**

The system should be able to notify the users if Internet connection is lost. Information should be kept before the Internet connection is lost. After the system is reconnected to Internet, it should automatically and immediately update and get information from external server.

#### **3.3.5 Performance Requirement - Communication feature**

In the Contact and Help session, the system should be able to send further notification to users if any specific inquiry from customers hasn't been answered for 24 hours.

### **3.4 Design Constraints**

#### **3.4.1 System development conventions**

The system will keep the same team of developers. The team will maintain the software and the coding standards and design notations shall be followed by other subcontractors.

#### **3.4.2 Hardware Limitations**

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The system operates on current server hardware using current network. There are also memory and processor restricting the system performance.

### 3.4.3 Security Constraints

The Auto Track System will run on Web application server that are outside the firewall. The web application server will communicate with internal server when there is user request for a new order or contact. It will cross the firewall and interact with the database. After receiving the request, the internal server will run query on the database and then return results to the external server for customers.

## 3.5 Software system attributes

This section will discuss several important quality attributes for the software system in both the users and developers' perspective.

### 3.5.1 Users' Perspective

- Availability

The system shall be at least 99.5% available on both weekdays and weekends between 6am to 12am. Also, it is required that the system be at least 99% available during the rest of the time. It should be able to perform well according to the requirements.

- Integrity

Users with different access privileges shall be able to conduct different functions but cannot cross the line and use functions needed higher authority.

- Reliability

The system should not allow more than 10 failures during a week. Also, there shall be no more than seven experimental runs out of 1000 can be lost because of software failures.

The system must get more than 98% of obtained results right on a search during testing. And it should also give more than 99% of inventory information updated and right on each query.

- Robustness

The system shall be able to recover all the changes made prior to the system failure. If the system fails and users haven't submitted the order, the system should be able to go back to the order with information updated one minute before the failure.

### 3.5.2 Developers' Perspective

- Maintainability

The system should be easy and convenient to correct a bug or make minor modification. A maintenance role should be assigned to a programmer who will modify the system whenever new categories of information added. There should be a maintenance programmer with at least six

months of experience to manage the system by modifying the code and testing the system. Moreover, the system should be easy to extend. The code should support implementation of new functions.

- Usability

The software system should provide sufficient functions for users to operate and finish the intended tasks. Users who have received training shall be able to submit an order, register a new customer and check inventory in stock within 5 minutes. User Interfaces should have a clear and friendly design for users to operate.

### **3.6 Functional requirements**

The section will discuss functional requirements to achieve certain tasks expected in the system in the order of importance.

#### **3.6.1 Run a query**

- a. Description

The system will only accept the valid query and search the records information highly consistent with query information in the database. Valid query includes album name, singer's name or name of the series or the publisher. After entering any of the four information, the system will search records with relevant information.

- b. Technical issues

The system must keep all the records availability updated and allow fuzzy search to a certain extent and make all relevant results display for users to choose.

- c. Risks

This requirement poses little risk.

- d. Dependencies with other requirements

The search engine shall be able to work well with the database and the query shall be able to do well in conducting efficient search.

#### **3.6.2 Display searching result**

- a. Description

The result of the query executed in the system shall be able to display to the user. If the query did not work successfully, an option pane will pop out indicating the reason for query failure. If the query can be executed, the system will switch to another interface and the search results will be displayed on screen as a table listing the search results in an order of relevance. User can then select the desired item.

- b. Technical issues

The system shall be able to save the original query and allow the user to modify query if necessary.

- c. Risks

The requirement poses little risks.



d. Dependencies with other requirements

This requirement will also link with the Help Section if errors occur.

### **3.6.3 Checkout**

a. Description

Users will be able to check out the item after locating the product and customers confirm they want to buy. Users can record the volume bought by customers. When entering the customer information, an option will be displayed to allow user to register new customer if the customer want to be a member. After the user selects checkout, the system will generate a file with a new order number and link with the printer to print out an order confirmation letter and display the total amount of payment. The file containing order information will be stored in the Order section.

b. Technical issues

The system should keep the order information in the database and customer information will be stored and analyzed.

c. Risks

This requirement poses little risk.

d. Dependencies with other requirements

The process requires integration with printer to print out the receipt and order confirmation letter.

### **3.6.4 Register a new customer**

a. Description

In the Customer section and checkout section, there will be an option to allow users to create a new account for every new customer. Information including name, email, interests and contacts will be stored in a row of the customer table and store customer purchasing/selling history in the future.

b. Technical issues

The system requires a database with sufficient storage for customer information to order to perform analysis and recommendation.

c. Risks

This requirement poses little risk.

d. Dependencies with other requirements

This requirement has no specific dependencies.

### **3.6.5 Add new inventory with price**

a. Description

The system shall be able to add new inventory. Information about new items including bar-code scanned, name of the record, singer, style, condition, publish date and volume will be provided for users to fill in a table. When users want to set the price, the system should provide referential prices by conducting a query and display all of the prices of records from different versions, the

price of records from the same singer. Then the system will accept the price entered by the user and keep it as the price for the new item.

b. Technical issues

This function requires the system to provide referential prices by searching records with the same name stored in the database.

c. Risks

The decision of setting the price is from users. The system cannot control the reasonableness of the price setting.

d. Dependencies with other requirements

Providing reasonable prices requires the system shall be able to connect with the Internet and conduct price searching.

### **3.6.6 Manage inventory**

a. Description

The system shall be able to store inventory information. Users can view the number of records in the system and check with the bar-codes. Also, the system will set a restock point for each item according to their volume. Whenever a specific kind of inventory reaches the restock point, the system will display notification in the Order section in the homepage to users and remind users to restock.

b. Technical issues

The system shall check number of copies for each individual record routinely in order to notify users to restock.

c. Risks

The process poses little risks.

d. Dependencies with other requirements

A routine inspection on inventory shall be conducted in order to ensure the physical count is consistent with inventory on record.

### **3.6.7 Manage customer requests**

a. Description

The system shall be able to record customer requests once they submit on the website to public. If the user is connecting to the Internet, the system will update the customer requests and display the number of request on the homepage in order to remind the users to respond the requests within 24 hours.

b. Technical issues

The website to public shall be linked to the system in order to catch the customer requests and display to users immediately.

c. Risks

The process poses little risks.

d. Dependencies with other requirements

It relies on the communication between the website to public and the system.

### **3.6.8 Track sales/purchasing**

a. Description

The system shall be able to keep the records of customers' purchasing /sales history and display according to the user's query. Also, the system shall be able to display the purchasing/selling trend given a period of time selected by users.

b. Technical issues

The system shall be able to run a query and display relevant results.

c. Risks

The process poses little risks here.

d. Dependencies with other requirements

There are no specific dependencies here.

### **3.6.9 Manage customer relationship**

a. Description

The system shall be able to display customers' interest and purchasing/sale history. Then the system will generate a preference tag for each customer according to the purchasing history. Users can decide whether to send recommendation email to customers based on their purchasing/sale history.

b. Technical issues

The system shall be able to store all of the customers purchasing/sale history and display them in chronological order.

c. Risks

The system will fail to categorize customers in the right group.

d. Dependencies with other requirements

To perform this task, the database should have enough storage to collect all of customers' purchasing/sales history.

### **3.6.10 Make advertising**

a. Description

The system shall be able to generate customers' preferences according to their purchasing/selling history. The system shall be able to generate an email and allows the users to decide to send emails to customers for recommendation.

b. Technical issues

The system shall be able to send email to customer after users choose the send option.

c. Risks

The process may have potential risks such as generating wrong preferences or failing to send emails.

d. Dependencies with other requirements

The system shall be able to link with the email system.

#### **4. Change Management Process**

In order to embed changes in the requirement and ensure they do not induce conflicts with the current system, the change management process will be performed with all activities and strategies will be carried out.

When the customer comes up with new modifications for the system, he can call up or email the team for a deeper communication. Once any modification is identified in the project, the team should get a full consensus about whether this change is practical. A conference call should be held to communicate with all employees that involve in the project. All involved parties should discuss about how to measure the feasibility of the modification under the existing constraints of the project and consider how to implement it into the current module of the project. An official approval should be obtained from the supervisor of the project. Then a change plan should be proposed to include the issues, such as at which part to incorporate the change, and strategies for implementations. It also lists out the potential sequential changes. Once the team has implemented the changes, a comprehensive testing should be conducted on the system. It should test whether the change can be compatible with the system and if the system can satisfy requests of customers after the modification. After the testing has passed, the change will be updated to the recommendation.

#### **5. Document Approvals**

Signature:

Date:

#### **6. Supporting Information**

The Appendices section serves purposes of providing deeper information about project background and summary of problems to be solved by the software. It shall not be considered as part of the requirements.

Supporting background information about the project:

- The client, Bongo Roberts, currently runs his shop mainly with his own manual record. He kept most of his inventory either in his head or in a notebook.

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- The client failed to locate the inventory and some of the inventory was stored in the shop but was forgotten by the client
- The shop didn't establish any customer relationship management strategy and it didn't build up loyal customers.
- When receiving a new item, the client sets the price based mostly on experience.
- The business is considered to be growing so an efficient inventory, sales and customer management system is highly needed.

Summary of problems to be solved by the software:

- Inventory should be clearly and transparently managed instead of being recorded manually by the client.
- Setting the price for each new item should be reasonable with referential prices from the inventory records but also allows flexibility for users to decide.
- All the historical records of purchases and sales shall be stored in the database and viewed conveniently instead of being stored in manual record.
- The software should collect customer requests and respond to them faster than now. It should send reminders to users if customer requests are still not handled.
- The system shall be able to improve current scenario of customer relationship management and maintain long-term contact with customers in order to build customer loyalty.