

Software Design Document

For

Inventory and Client Managing Sales System

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Table of Contents

Table of Contents.....	2
1.0 Scope.....	3
1.1 Identification.....	3
1.2 System Overview.....	3
1.3 Document Overview.....	3
2.0 Top Level Design.....	4
2.1 .NET, C# and Microsoft Access Databases.....	4
2.2 Database management algorithm.....	4
2.3 Sales application algorithm.....	4
3.0 Detailed Design.....	6
3.1 Database Design.....	6
3.1.1 Items Database.....	6
3.1.2 Clients Database.....	6
3.2 Client Manager GUI.....	7
3.2.1 Client Manager GUI.....	7
3.2.2 Item Manager GUI.....	7
3.2.3 Sale Application GUI.....	8
4. References.....	9
4.1 Websites.....	9
4.2 Books and Documentation.....	9

1.0 Scope

1.1 Identification

The purpose of the Software Design Document is to describe the process of designing the Item and Client Managing Sales System. This system will be divided down into three portions, the item management portion, the client management portion and the sales application portion. Each of these three things will be split up into different developmental components, and designed so that implementation and construction will become much more simplified. This document will serve as a recipe book in which ingredients (components) can be cooked (interfaced) together to form a delicious (well designed) meal (application). Any changes that need to be made to the application will be noted in future revisions of the Software Design Document.

1.2 System Overview

The ICMSS is an easy to use application that can be used with any retail system. Through simple and intuitive interfaces, users can modify item and client profiles that are stored on a local or remote database (via web connection). The sales application portion of the program can create, save and print invoices with ease, allowing for different types of payment options. In addition to a local computer version of the sales application, a web version will also be available that will allow for customers to create shopping lists, submit orders, and recall past orders that were placed.

The four functional areas of the Item and Client Managing Sales system are:

- 1) The item database and interface
- 2) The client database and interface
- 3) The local computer sales application
- 4) The sales web application

The ICMSS will be developed using the Windows .NET architecture. This new programming environment features the new C# programming language which has inherited the best aspects of Java, C++ and other modern day programming languages. Using .NET allows us to easily port the local computer applications to the web for even greater flexibility within the application.

1.3 Document Overview

The rest of this document will serve as a guide to how the ICMSS should be implemented. Abstract descriptions will be used to summarize the functionality of each subsystem, but more in depth descriptions will be used to characterize how the modules will be created.

2.0 Top Level Design

2.1 .NET, C# and Microsoft Access Databases

With the .NET framework, Microsoft has created an environment which programs can be quickly and easily developed through the use of language integration, common component sharing and a convenient Integrated Development Environment. Based on the Windows platform, the .NET framework allows us to also easily deploy Windows, as well as web applications through its object oriented C# programming language. With a background in other modern day programming languages, such as Java and C++, the transition to C# for this project comes naturally. C# allows for easy development of the user interfaces, and also provides for the hooks needed to communicate with the Access client and item databases. Once the Windows application is complete, the ICMSS will be ported to a web application (easily done within C# and the .NET framework), which can be used to place orders online.

2.2 Database management algorithm

The Item and Customer Managing Sales System consists of two main databases, the item, and the client databases. In order to be able to manage them, the C# application must be able to interact with the Access databases. The steps below show how this is done.

- 1) Enable access to databases through Access database adapter within the C# application.
- 2) Create the Modify, Add and Remove functions for the database adapter.
- 3) Create a way to display information within the database in a grid form.
- 4) Allow users to select items from within the grid, and automatically fill out field items.
- 5) Allow users to enter new information into fields.
- 6) Using the fields, the user can add, update and remove items from the database.

On the Windows application, these databases are stored on the local computer and can be modified using the included management interfaces. They can be modified dynamically while using the program. When using the web application, this database is stored on the web site storage space, but is no longer writeable. Making it read only helps protect it from possible integrity issues from being used by multiple users.

2.3 Sales application algorithm

The crux of the ICMSS is the sales application that is used to keep track of purchases of items, by the different clients. Here are the steps for using the sales application:

- 1) Launch application.
- 2) Select the correct client.
- 3) Scan the item's Universal Product Code.
- 4) Enter in the quantity of the item
- 5) Repeat steps 3 and 4 as needed

6) Save or print the invoice.

3.0 Detailed Design

3.1 Database Design

3.1.1 Items Database

The primary key in the items database is just an integer number. Other properties within the items database include the price, the UPC, and an item name. The item manager can use any of these properties to do lookups within the database. Given a name, the manager will find the corresponding item, and then allow for the user to modify the price or any other attribute.

ProductID	ProductName	UPCNumber	UnitPrice
1	Soda	12345	0.99
2	Candy	23456	0.75
3	Muffins	3456	1.25
4	Water	34653	0.99
5	Chips	745634	0.75

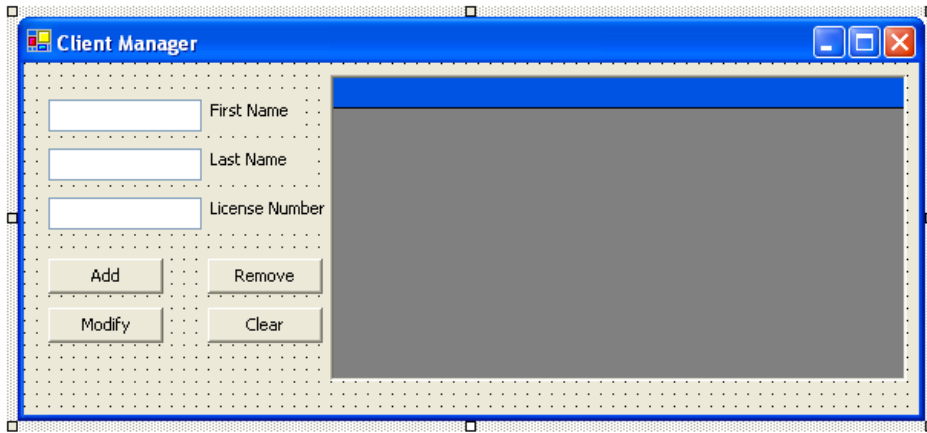
3.1.2 Clients Database

The primary key for the items database will be some sort of customer identification number. Also included in the clients database will be fields for the name, and a license number field.

CustomerID	ContactLastName	ContactFirstName	LicenseNumber
1	Ho	Henry	12345
2	Ho	Harrison	12345
3	Ho	Howard	123454
4	Ho	Hagen	32456
5	Ho	Harry	63456
6	Datta	Arun	67454

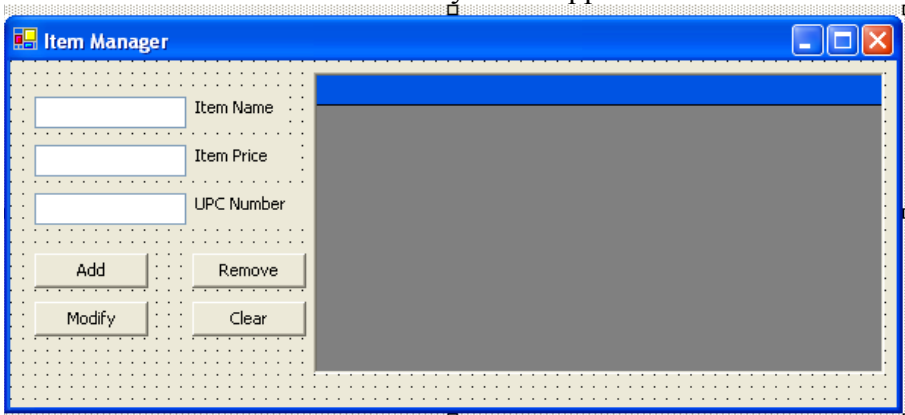
3.2.1 Client Manager GUI

The user interface for the client manager is simple and clean. The user can select client from the data grid on the right, the fields will then automatically get filled in, allowing the user to manipulate the information as necessary. Once done, the user can click modify to change the information within the current item, add, to add the new client to a different line, or remove the selected client completely.



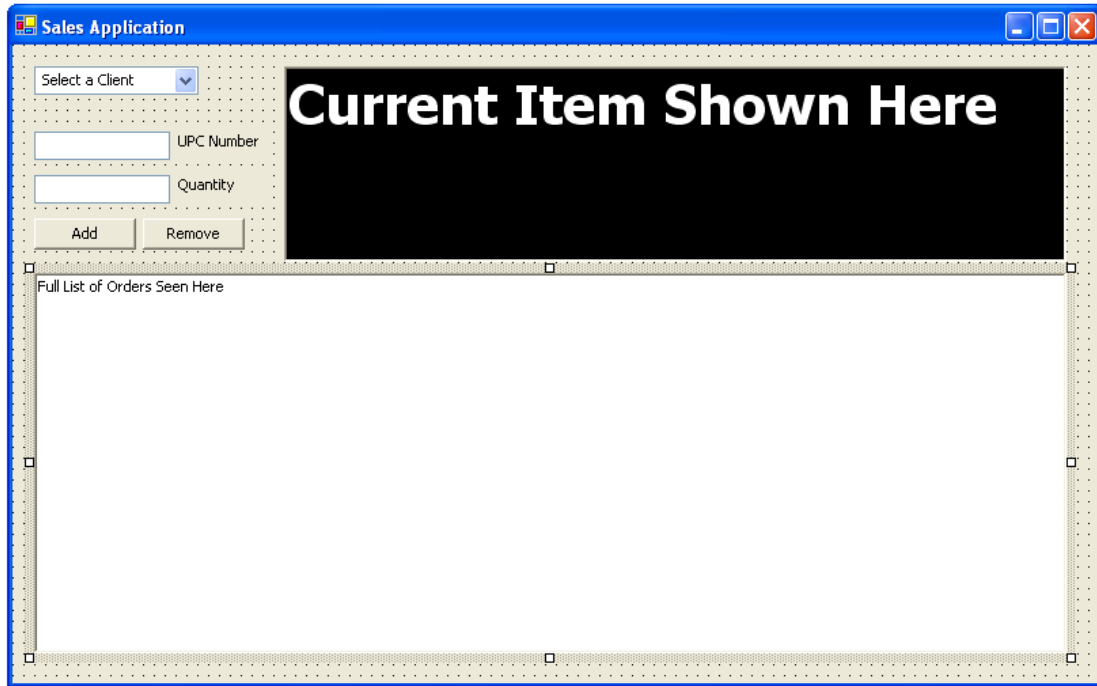
3.2.2 Item Manager GUI

The Item manager GUI functions in the same way as the Client Manager. The similarities in the interfaces allow for familiarity of the application.



3.2.3 Sale Application GUI

The sales interface allows the user to select a client, and then add items with a UPC along with its associated quantity. There will be two textboxes. One will display the current item, quantity and the price. The second will have a full list of the items that have been purchased and are currently in the system. From here, the user will also be able to print and save the invoice.



4. References

4.1 Websites:

<http://www.csharpfriends.com/>

<http://www.csharpcorner.com/>

<http://www.msdn.microsoft.com/>

4.2 Books and Documentation

Pressman, Roger S. (2001). *Software Engineering: A Practitioner's Approach*. Fifth Edition. New York, NY: McGraw-Hill.

Sommerville, I. (2004). *Software Engineering*. 6th edition. Addison-Wesley Pub Co.