Project Proposal

Automated Inventory Management System for MCL

Submitted By

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1. INTRODUCTION

1.1 Background

[Context]

The People’s Bank Act created the People’s Bank (PB) of Sri Lanka in 1961 as a state-owned institution. The bank was set up to develop the rural economy of Sri Lanka, and was allowed to conduct all types of banking business, including pawn brokering, which the bank started within the same year. Until 1961 private pawnbrokers were the only ones allowed to conduct pawn brokering.

Pawn broking differs from most banks’ lending in that it is generally characterized by a high volume of small size advances, made for a relatively short period of time. A credit evaluation of the borrower is not required, nor is the loan monitored. If the amount is not repaid when it is due, the bank can recover the advance by auctioning the collateral. Therefore, credit risk and associated recovery costs are largely avoided. A successful pawnbroker-customer relationship relies on mutual trust. The pawnbroker trusts that the customer will pay back the advance when it is due; while the borrower trusts that the pawnbroker will return the collateral when the advance is fully repaid.

[Problem]

Customers come to Pawning Section with multiple purposes such as getting money via pawning their gold, redeeming their gold, renewing their loan, paying their loan partly. Therefore when they come to pawning section, their intention will be identified first and according to their purpose, employees will handle them and fulfill their needs. When they are trying to fulfill their needs, employees face many problems because of manual process. When carrying out their activities, the employees face many problems such as manual process of pawning is time consuming; therefore customers and employees get fed up with the process. Due to delay, customers shift to other banks and pawing centers, which are very quick in delivering these services through well-developed computerized system; increasing errors is another problem of manual process. Many errors are made during the calculation process; another dilemma of manual process is security problem. Anyone can access any information including personal data; inefficiency in performing the routine activities; sometimes data may be duplicated; since it is a file system, large amount of storage space being used to store files; pawning system of People’s Bank is
way back in technology, which is a serious threat to its growth and development, and so
on.

[Response]

To address this problem, the researcher intents to develop a computerized system which
is supposed to be a very user-friendly and effective system.

1.2 Problem Statement

Mannar & Company Limited (MCL) uses a manual system for its inventory management
i.e. the use of stock cards. This has led to the delay to acquire inventory and having slow
inventory on the shelf. The company also runs out of some particular stock items that are
in demand at crucial times.

1.3 Objectives

The main objective of this project is to develop an automated inventory management
system of MCL. Other objectives are:

- To develop an automated system that will be able to record, store, retrieve and
  generate reports of inventory useful to management in decision-making.
- To enable management to know when, what and how much to order in terms
  of the required inventories.
- ..................

1.4 Scope

The project covers the automation of licensing inventory process of MCL. It focuses on
the stock of licenses a particular time, the value of the stock, the amount of stock needed,
details of the various entities that have so far received their licenses and those that have
not received their licenses and have paid up. Other companies dealing in the same trade
will also be covered e.g. Kisenyi Development Association. Supermarkets will also be
visited to ascertain the management of their inventory.

1.5 Significance of the study

Inventory management is one aspect of business computing that enhances a company is
business performances so as to reap big from the business venture being undertaken.
MCL depends on the rapid turnover of inventory items with a limited shelf life at
relatively small margins.
• The system shall generate inventory reports that will help management to come up with timely decisions as regards planning and management of inventory.

• MCL will be able to manage its inventory effectively, thereby implementing strategies to meet customer related to a product’s availability by maintaining a sufficient stock of each of stock item.

• It will also help management maximize the convenience organizations profits.

• It is important to know what is available, where it is stored, how much is the monetary value associated with the stock item and when will the items stock life expire.

• Inventory management also refers to the activities associated with the ordering of the inventory, things like determining what to order, how much to order and when the supplier will deliver the goods.

All these queries will be answered by the new system on time for management to come up with the required decisions.

2. LITERATURE REVIEW

2.1 Management of Information Systems
Laudon, (2001) [9], Define Management Information System the study of Information system in business and management. It also designates a specific category of information systems serving management level functions. It does provide managers with reports or with online access to the organization current performance and historical records……...

2.2 Inventory Control Systems
According to Moskowitz(19950 [11], Inventory control - in whatever sense it applies to your business - can be done manually, of course but you can almost certainly do it faster, cheaper, and better by automating some or all of the inventory control process……

2.3 Types of Inventory Manual Systems
Cameron Balloons Virtual Factory (2005) [4] came up with the following manual inventory systems:

• Fixed re-order stock level The fixed re-order stock level is whereby the business decides the minimum level of stocks it can tolerate and then re-orders before the stocks reach this level. The exact timing will depend how long the stocks take to arrive. This minimum level is set so as to be able to give time to the suppliers.
• Fixed time re-ordering: Fixed time re-ordering, the firm re-orders stocks at a fixed time each month or week. Organizations set up different times depending on their convenience to re-order stocks.

The automation of the inventory system will hence help managers make the right decisions because information will be rightly available and in a correct format. Computerizing your inventory system brings you the potential for improving sales and profits through better analysis of inventory trends, including patterns of delivery and demand. It will almost certainly pay a significant return on your investment hence the significance of MCL automating its inventory management system.

3. METHODOLOGY

This section describes the methods that will be used to gather the requirements for the system. It covered Data Collection, Analysis and design tools, and Development, etc.

3.1 Requirement Analysis

This phase does describe the techniques that will be employed to gather the requirements for the proposed system. The various requirements gathering techniques that will be employed included the following:

• **Reading:** This particular technique will be employed to be able to read some of the guiding documents that the company does use to come up with the required rates of the various business entities in Kampala Central.

• **Questionnaire:** This technique will be used to attain the format of the current system because it provides the chance to collect information from respondents who are conversant with the whole system understudy.

• **Observation:** This method will be also employed so that researcher acknowledges the flow of activities in the licensing process i.e. the capture of data and the steps one goes through to acquire the license.

Requirements gathering activities will be done in numerous ways. A number of questions will be asked and responses will be recorded. The researcher will visit the shop-floor and observe the real scene of activities carried out by the staff. Formal and informal discussion will be held with library staff and members. Members’ requirements
will be captured carefully since they are the ones who have been suffering to search for books. Most of the requirements will be arranged in a proper way and presented.

3.2 Design

The requirements of the proposed system will be derived from the data that contained in the system inputs like businesses information and the data contained in the outputs like the stock cards reports. The data flow diagrams, context diagrams and entity relationship diagrams will be fully employed. All these models will give the conceptual view and validate analyzed end-user requirements. As a major modeling tool, entity relationship diagrams will help in organizing the data in the project into entities and also define the relationships between the entities. This process will enable the analyst to understand database structure so that data can be stored and retrieved in a most efficient manner. DFDs will show the flow of data from external entities into the system. It will also show how data move from one process to another as well as its logical storage.

3.3 Implementation

In order to develop the front-end of the system, latest Integrated Development Environment from Microsoft called Visual Studio 2013 will be used. The front-end will be windows based application. For the back-end database, another product from Microsoft for database management, MS SQL Server 2012 will be used. For report development Crystal Reports for .NET will be used.

3.4 Testing and Deployment

The system will be deployed as a package created using the Visual Studio IDE. The package wizard will collect all the program files needed to run the system on its own. As long as the database it concerned, MS SQL Server will be installed. For the reports the user must have the same database software and connectivity setup configured as in the development computer. If they don’t, the reports in our application will fail or we will need to dynamically configure the database the report is using via the Automation Server.

4. HARDWARE AND SOFTWARE TOOLS

This particular section does specify the requirements for the Automation of Inventory Management process; thus these requirements serve as a basis for the acceptance of the system.
In order to design and develop the solution for MCL, the researcher needs a computer with 4 GB RAM complete with Windows 7 operating system. It should be at least an Intel i3 processor. Fast USB port, US system of keyboard and a hard disk of 500 GB with a LED monitor. A printer preferably an HP LaserJet, network card, and double-click scroll-mouse. In order to do logical designs MS Visio 2013, to track the project MS Project 2013 and to document the work MS Word 2013 software applications needed. To develop the system MS Visual Studio 2013 and to implement the database MS SQL Server 2012 will be required. For report development Crystal Reports for .NET will be required.

5. TENTATIVE FINANCIAL BUDGET FOR THE RESEARCH

This research project is estimated to cost SLR.0000000.00 and its detail is given in Table 1.

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<thead>
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<th>Description</th>
<th>Amount</th>
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<tr>
<td>Literature Survey</td>
<td>Rs. 00,000.00</td>
</tr>
<tr>
<td>Hardware purchase (Computer, Printer, etc.)</td>
<td>Rs. 000,000.00</td>
</tr>
<tr>
<td>Software purchase (exclude free editions of software packages)</td>
<td>Rs. 000,000.00</td>
</tr>
<tr>
<td>Printing &amp; Binding of Report</td>
<td>Rs. 00,000.00</td>
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<tr>
<td>Miscellaneous</td>
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</tr>
<tr>
<td><strong>Total Amount:</strong></td>
<td><strong>Rs. 000,000.00</strong></td>
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6. SCHEDULED WORK-PLAN FOR THE PROJECT

This research project has already started its progress from February 2015 and scheduled to be continued up July 2015. Hence the total duration of the project is one year. The Figure 1 depicts the scheduled plan of the project.

<table>
<thead>
<tr>
<th>Activities</th>
<th>Feb</th>
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<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
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<td>Requirement Analysis</td>
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<td>System Design</td>
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<td>04/04/15</td>
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<td>System Implementation</td>
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<tr>
<td>System Testing</td>
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<td>13/05/15</td>
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<tr>
<td>System Deployment</td>
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<td></td>
<td>13/06/15</td>
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<tr>
<td>Report Writing and Submission</td>
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<td></td>
<td>21/07/15</td>
</tr>
</tbody>
</table>

Figure 1: Timeline for the Research Project
The schedule with possible dates for the research project is shown in Figure 2 below. (*Please change this according to your schedule.*)

![Figure 2: Project Schedule](image)

### 7. ORGANIZATION OF THE CHAPTERS

This software development project is going to be organized into 07 chapters as shown in Table 2 below.

Table 2: Organization of the Chapters

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Description</th>
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<tr>
<td>Chapter 01</td>
<td>Introduction:</td>
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<tr>
<td>Chapter 02</td>
<td>Literature Review</td>
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<tr>
<td>Chapter 03</td>
<td>Requirement Analysis</td>
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<td>System Design</td>
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<td>Chapter 05</td>
<td>System Implementation</td>
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<tr>
<td>Chapter 06</td>
<td>Testing and Deployment</td>
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</tr>
<tr>
<td>Chapter 07</td>
<td>Conclusion and Recommendation</td>
<td></td>
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</tbody>
</table>
8. REFERENCES

List and number all bibliographical references in 12-point Times, single-spaced, at the end of your paper. When referenced in the text, enclose the citation number in square brackets, for example [1]. Where appropriate, include the name(s) of editors of referenced books.


*Complete guide on how to create IEEE based citation and reference will be given to students on the session (15th February 2015).*