

ONLINE DATABASE INVENTORY FOR
BOOKSTORE MANAGEMENT SYSTEM

PARISA MIRGHADERI

UNIVERSITY TECHNOLOGY MALAYSIA

ONLINE DATABASE INVENTORY FOR
BOOKSTORE MANAGEMENT SYSTEM

PARISA MIRGHADERI

A project report submitted in partial fulfillment of the
requirements for the award of the degree of
MSc. (Information Technology – Management)

Faculty of Computer Science and Information System
Universiti Teknologi Malaysia

NOVEMBER 2009

To my beloved Dad and Mum

Being your daughter is the greatest thing ever happen in my life.

To my dear husband

Without your patient, understanding, support and most of all love,
the completion of this work would not have been possible

To my darling kids, Ali & Sara

You are two precious gifts from Allah for my life.

To my respected supervisor

Thank you for everything and your support.

ACKNOWLEDGEMENT

First and foremost, I wish to express my sincere appreciation to my thesis supervisor, Assoc. Prof. Dr. Zailani Mohamed Sidek, for his precious guidance, encouragement, constructive criticisms, advice, knowledge and motivation. Without his continual support and interest, this thesis would not have been the same as presented here.

Besides that, I would also like to express my thank you to all my fellow postgraduate course mates for their support. My sincere appreciation also extends to all my colleagues, friends and others who have provided assistance at various occasions. Their views and tips are useful indeed. Unfortunately, it is not possible to list all of them in this limited space. A very special appreciation goes to all my family members for their continual supports, love and care.

ABSTRACT

Inventory is one of the most visible and tangible aspects of doing business. Raw materials, goods in process and finished goods all represent various forms of inventory. Each type represents money tied up until the inventory leaves the company as purchased products. Likewise, merchandise stocks in a retail store contribute to profits only when their sale puts money into the cash register. In a literal sense, inventory refers to stocks of anything necessary to do business. These stocks represent a large portion of the business investment and must be well managed in order to maximize profits. The purpose of this project is to develop a database inventory system for *Parsian Bookstore* in Iran. The development of this system will provide more inventory controlling and also give services and facilitate for customers and staffs of bookstore. This project develops a database and data management enhancement platform through incorporation the conventional data gathering and management approaches with the IT applications. It also establish a user friendly system to ease the accessibility, usage and sharing of the available data and information in the developed database.

ABSTRAK

Inventori (Daftar barang) merupakan salah satu aspek yang tampak dan jelas didalam menjalankan perniagaan. Bahan mentah, bahan diproses dan barang siap mewakili pelbagai jenis inventori (daftar barang). Setiap jenis inventori menggambarkan produk yang dibeli oleh syarikat. Malah, bekalan barangan jualan di kedai runcit menyumbang kepada keuntungan hanya apabila ianya di rekodkan. Secara umumnya perkataan, inventori boleh diertikan kepada saham / benda / bekalan yang berkaitan dengan perniagaan. Saham / bekalan ini menggambarkan bahawa pelaburan memainkan peranan yang penting dan mesti diuruskan dengan baik bagi memaksimumkan keuntungan. Tujuan utama projek ini dijalankan adalah untuk membina satu sistem inventori data bagi pihak "*Parsian Bookstore*" di Iran. Ia akan menyediakan suatu kawalan inventori dan khidmat yang lebih baik kepada pengguna dan juga kakitangan "*Parsian Bookstore*". Projek ini mewujudkan satu tabung data dan meningkatkan kecekapan pengurusan data melalui gabungan kaedah konvensional dan penggunaan aplikasi IT. Ia juga akan menghasikan sistem yang mesra pengguna bagi memudahkan kerja seperti perkongsian maklumat.

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGEMENTS	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	xi
	LIST OF FIGURES	xii
1	PROJECT OVERVIEW	1
	1.1 Introduction	1
	1.2 Background of problem	2
	1.3 Statement of the problem	3
	1.4 Project objective	3
	1.5 Scope	4
	1.6 Importance of project	5
	1.7 Summary	6
2	LITERATURE REVIEW	6
	2.1 Introduction	7
	2.2 Managing inventory system	9
	2.2.1 Designing a high level database	9
	2.2.2 Optimizing database performance	10
	2.2.2.1 Optimizing storage efficiency	10

	2.2.2.2 Optimizing data access speed	11
2.3	Mechanism to support the web-base system	4
2.4	Best Practice	17
	2.4.1 Common Methods in Conducting Web-base System	17
2.5	Market analysis	19
	2.5.1 Customer Evaluation	20
	2.5.2 Product or Service Evaluation	20
	2.5.3 Distribution Channels Evaluation	21
	2.5.4 Target Market Evaluation	22
	2.5.5 Competition Evaluation	22
	2.5.6 Advertising Evaluation	23
	2.5.7 Pricing Evaluation	24
	2.5.8 General questions in performing market analysis	24
2.6	Case studies	26
	2.6.1 Kinokuniya Book Store	27
	2.6.1.1 Advantages of Kinokuniya Book Store	28
	2.6.1.2 Disadvantages of Kinokuniya Bookstore	30
	2.6.1.3 Kinokuniya Bookstore Features	30
	2.6.2 Amazon	30
	2.6.2.1 Advantages of Amazon Book Store	31
2.7	Summary	34
3	RESEARCH METHODOLOGY	36
3.1	Introduction	36
3.2	Research Methodology	37
	3.2.1 Phase 1: Initial Planning Phase	39
	3.2.2 Phase 2: Analysis	39

	3.2.2.1 Literature Review	40
	3.2.2.2 Study of Current Online Bookstore Management	40
	3.2.3 Phase 3: Design, Development and Implementation of Prototype	40
3.3	System Methodology	45
3.4	Justification of Chosen Methodology	45
3.5	System Requirement	46
	3.5.1 Hardware Requirement	46
	3.5.2 Software Requirement	47
3.6	Project Schedule	50
3.7	Summary	51
4	STUDY CURRENT SYSTEM	52
4.1	Introduction	52
4.2	Organizational analysis	52
4.3	Current process	53
4.4	User Requirements	54
	4.4.1 Functional Requirement	54
	4.4.2 Non - Functional Requirement	55
4.5	To-Be Process and Data Model	56
	4.5.1 Use Case Description	58
	4.5.1.2 Use Case Diagram	59
	4.5.2 CRC Cards	61
	4.5.3 Class Diagram	61
	4.5.4 Sequence Diagram	61
	4.5.5 Activity Diagrams	62
4.6	System Architecture	62
4.7	Access users' level of Online Bookstore	64
4.8	Stakeholder Analysis	65
4.9	Survey Analysis	66
4.10	Summary	67

5	DESIGN, IMPLEMENTATION AND TESTING	68
5.1	Introduction	68
5.2	Implementation of Online Bookstore Management System	68
5.2.1	Coding Approach	69
5.3	Test Result / System Evaluation	69
5.4	Installation Procedure	70
5.5	Summary	70
6	ORGANIZATIONAL STRATEGY	71
6.1	Introduction	71
6.2	Conversion Strategy	72
6.2.1	Conversion Type	72
6.3	Changes in Management	73
6.3.1	Factors of Unacceptable Changes in Management	74
6.3.2	Management Policy	74
6.4	System Continuity Plan	75
6.5	Expected Organizational Benefits	75
6.6	Summary	76
7	DISCUSSION AND CONCLUSION	77
7.1	Achievements	77
7.2	Constraints and Challenges	78
7.3	Aspirations	78
7.4	Summary	78
	REFERENCES	79
	Appendices A – I	80-134

LIST OF TABLES

TABLE NO.	TITLE	PAGE
3.1	Phase 1: Initial Panning	41
3.2	Phase 2: Analysis	43
3.3	Phase 3: Designing, Developing & Implementation Prototype	43
4.1	Comparing old system to the new one	54
4.2	Functional requirements for project	55
4.3	Non-Functional requirements for project	56
4.4	Stakeholder Analysis	65

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
2.1	Literature Review framework	8
3.1	Project Methodology Framework	38
4.1	Use Case Diagram	60
4.2	System Architecture	63

CHAPTER 1

PROJECT OVERVIEW

1.1 Introduction

Inventory for many small business owners is one of the more noticeable and tangible aspects of doing business. Materials, merchandise in process and finished goods all represent different types of inventory. Each form represents money tied up until the inventory leaves the company as purchased products. Similarly, merchandise stocks in a retail store contribute to profits only when their sale puts money into the cash register. Indeed, inventory refers to stocks of anything essential to do business. These stocks represent a large part of the business investment and must be well managed in order to maximize profits. In fact, many small businesses cannot take up the types of losses arising from poor inventory management. Without controlling inventories, they become unreliable, inefficient and costly.

The purpose of this project is to develop an online textbook database system for Parsian books store. The bookstore has already got a database of textbooks but it is not in the computer format.

This chapter includes the initial stage of research related to researcher's project. The first outline is Problem Background of the problem which will emphasize the most problems in the existing inventory in Parsian bookstore. Then it will describe Problem Statement of the project. After that it will focus on Project Objectives of this research. Then it will clarify the Project Scope of the research and

what should be delivered at the end of the project. At the end of this chapter importance of this study for defined scope will be claimed.

1.2 Problem Background

Parsian bookstore offers a broad product line of textbooks and stationeries. Its customers are students, general and professional people.

For finding their problem the author had been in touch with the bookstore's staff for last months. She found out some structure of their system, and their inventory management.

As much as 70 percent of purchases are made by cash. Items have to be picked by the customers from the shops shelves. In inventory reordering and recording part the whole process of inventory management starts with reordering. Whenever a stock out occurs for an item, demand is registered in a demand book. Inventory is checked every 3 months and on each occasion two days at the weekend are spent for the purpose. The inventory checking is done by staffs.

Purchase orders are checked by the owner before allowing the purchaser to make purchases. A new item is added to the list of purchases if salesmen receive repeated demands from customers. The purchaser calls twice a day to find if there is some new entry on the demand register, and if so, checks for the new item in the market. Items are purchased from two or three main vendors. Every time they need to control data book record for new reporting and analyze year's profit.

1.3 Problem Statement

In order to address the research problems stated in the problem background section, the problem statement is focused on:

- Improving better management performance by reducing paper base system online database.
- Improving customer services by introducing a web-base system and search engine.
- Making a better selection by using the online bookstore.
- Using IT for purchasing and selecting items.

These points will lead the bookstore to creating a database for its inventory. There are different viewpoints to implement database features in bookstore base on owner's needs, ambitious and customer demands.

1.4 Project objectives

Efficient and effective inventory management and control systems are critical to the successful management of a retail establishment. Proper systems allow for the efficient use of available space and working capital. The system can identify which product has a higher inventory turnover, which product should be stocked in large quantities, when to reorder and the level of stock outs to expect. It can provide useful information for volume of sales and profit analysis. The objectives of this study are in three parts:

- i. To study database management and control systems and also suggests some tips for successful database management and optimizing database performance.

- ii. To identify best practices in managing web-based bookstore in terms of ways to support web-based bookstore and mechanisms to improve it.
- iii. To develop a database and data management enhancement platform through incorporation the conventional data gathering and management approaches with the IT applications.
- iv. Establish an online bookstore management system to ease the accessibility, usage and sharing of the available data and information in the developed database.

1.5 Scope

The scope of this project is to establish a system to drive and enforce the policies and standards of the bookstore data investment and management through collaborations and alliances with the stakeholders and the acquisition of the related global data and finally developing a database. This system should be able for data acquisition, tracking and monitoring from all the stakeholders. It also is a systematic data recovery process which focuses on improving the process of collecting, storing, updating, and maintaining data in database. The end result of this project will be a system that usable at bookstore and support customer service and improving management of bookstore. For developing this project we need some hardware such as pc, printers, and scanners. Also we need some software such as Microsoft office, PHP, Rational Rose, apache and MySQL.

1.6 Importance of project

By using this system, Parsian Bookstore will receive some benefit. The advantages of the new system compare to current one are, firstly the customer have more choices to buy at their prefer price. They also find and select their books easier

than before as they use the database and search through the database than shelves. If the book was not available they can order in advance, so the time and quantity problem will be solved.

Staffs in the bookstore would be gain benefit as well as it would be easier to approximate how many text books to order because they can gain benefits from the information of the database of the textbook trading system. It also will reduce the communication problems because the system is user friendly.

1.7 Summary

Information technology opens up much new potential for improving upon existing inventory management and control systems. Given the large size of the wholesale and retail trade sector, the potential impact on cost savings through well-organized inventory management is enormous.

Organizations with effective systems in place operated more efficiently; there was less confusion and also less need for ad-hoc decisions .A key benefit is improved information more relevant, more timely, and more accurate.