



Inventory Management System and Cart Recommendation using ML

Offer recommendation using apriori and ANN

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Abstract: With current projections regarding the growth of Internet sales, online retailing raises many questions about how to market on the Net. While convenience impels consumers to purchase items on the web, quality remains a significant factor in deciding where to shop online. The competition is increasing and personalization is considered to be the competitive advantage that will determine the winners in the market of online shopping in the following years. Recommender systems are a means of personalizing a site and a solution to the customer's information overload problem. As such, many e-commerce sites already use them to facilitate the buying process. We present a recommender system for online shopping focusing on the specific characteristics and requirements of electronic retailing. We use a hybrid model supporting dynamic recommendations, which eliminates the problems the underlying techniques have when applied solely. As the World Wide Web becomes increasingly important as an information source and a place to conduct commerce, Web surfers face the daunting challenge on how to sift through a morass of information to get to the needed on. One solution to this information overload problem is the use of Recommendation System. Recommender systems are changing from novelties used by a few e-commerce sites to serious business tools that are re-shaping the world of e-commerce.

Index Terms – electronic retailing, Recommender systems, hybrid model,

I. INTRODUCTION

To develop a Inventory Management system and Cart Recommendation that is solely based on the shopping habits/history of people. With current projections regarding the growth of Internet sales, online retailing raises many questions about how to market on the Net. While convenience impels consumers to purchase items on the web, quality remains a significant factor in deciding where to shop online. The competition is increasing and globalization is considered to be the competitive advantage that will determine the winners in the market of online shopping in the following years. Recommender systems are a means of personalizing a site and a solution to the customer's information overload problem. As such, many e-commerce sites already use them to facilitate the buying process. In this paper we present a recommender system for online shopping focusing on the specific characteristics and requirements of electronic retailing. It is a tool for small scale local area bounded moderate profit business to maintain and keep a record of stock/products available at hand for sale. Due to certain undesired conditions the profit margin of small scale businesses has considerably been low. So to keep up with globalization and amortization it is imperative to expand these businesses over digital level(For eg. Local grocery shops delivering the commodities at your doorstep due to certain circumstances such as lockdown).

Our Inventory System provides advantage of buying local products such as grocery online and having it delivered to your doorstep without any human interaction, Thus ensuring health safety and provides a better deal economically (due to our recommendation system). In this system, the retailer(host) has the upper hand to display his inventory to a local area in bias of local competition to their customers and providing them with

reasonably swift service along with online services. To Summarize, our system provides faster, better and more reliably efficient service to Potential customers. Tally being the most popular app among the marketing chain (but it needs professional knowledge and learning paid courses), our system provides simple and understandable features to our hosts.

2. Related work

2.1 Survey Existing System:

Previously, customers used to have to leave the comfort of their home in order to buy daily living essentials such as groceries. The pre-digital era was slow and tedious at the same time. The

Existing system also causes losses to customers since the customers don't know about the existing discounts of the clubbed products. Also the pre-existing tech giant systems take a lot of time and extra delivery charges for delivering to your doorstep.

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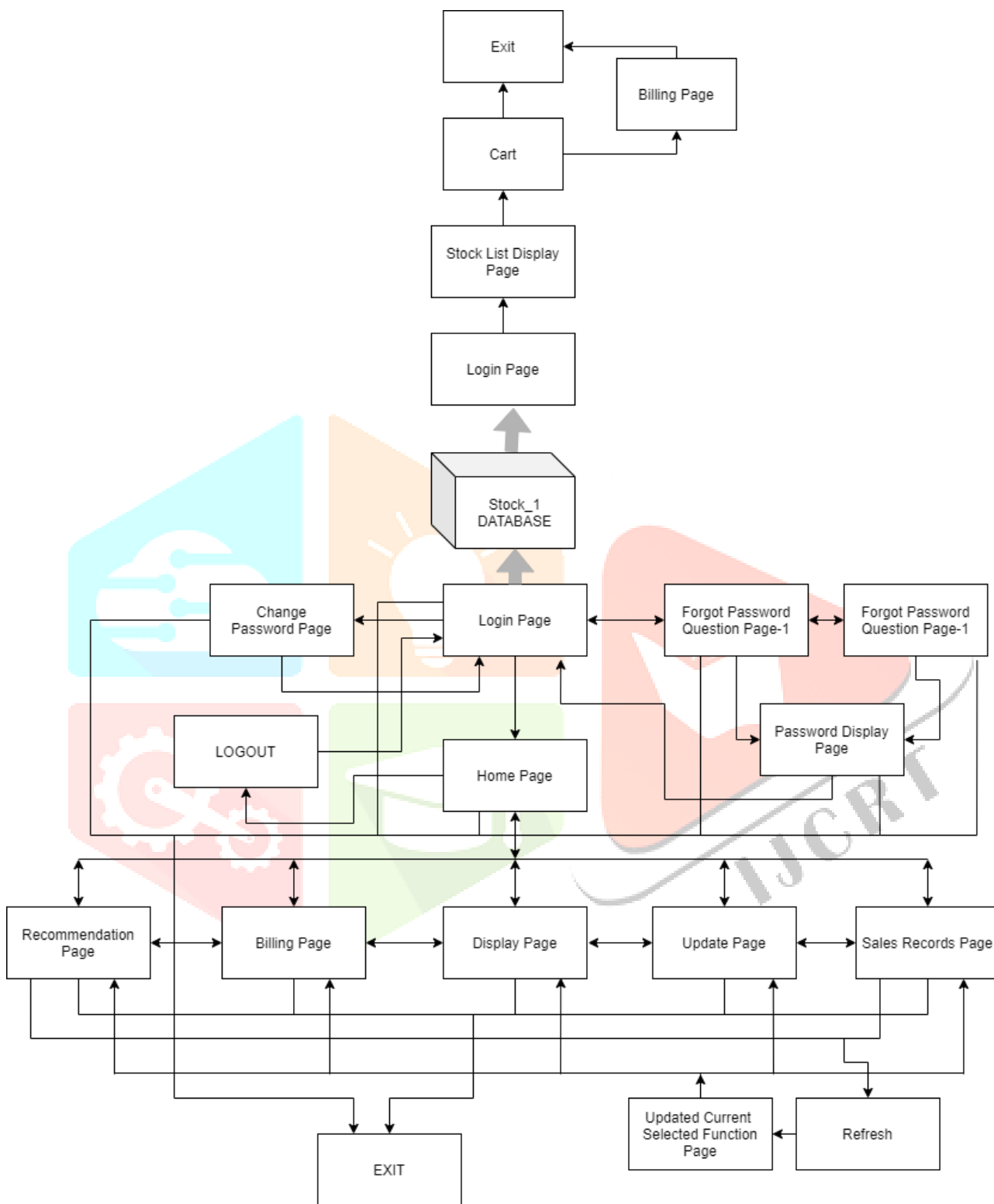
2.3. Problem Statement

1. To simplify online shopping by introducing this system and personalizing the inventory contents and not risking the global competition by staying regional.
2. To self empower the local retailers for going online with cheap/economical equipments.
3. To provide them with some insurance of income in unfortunate circumstances.

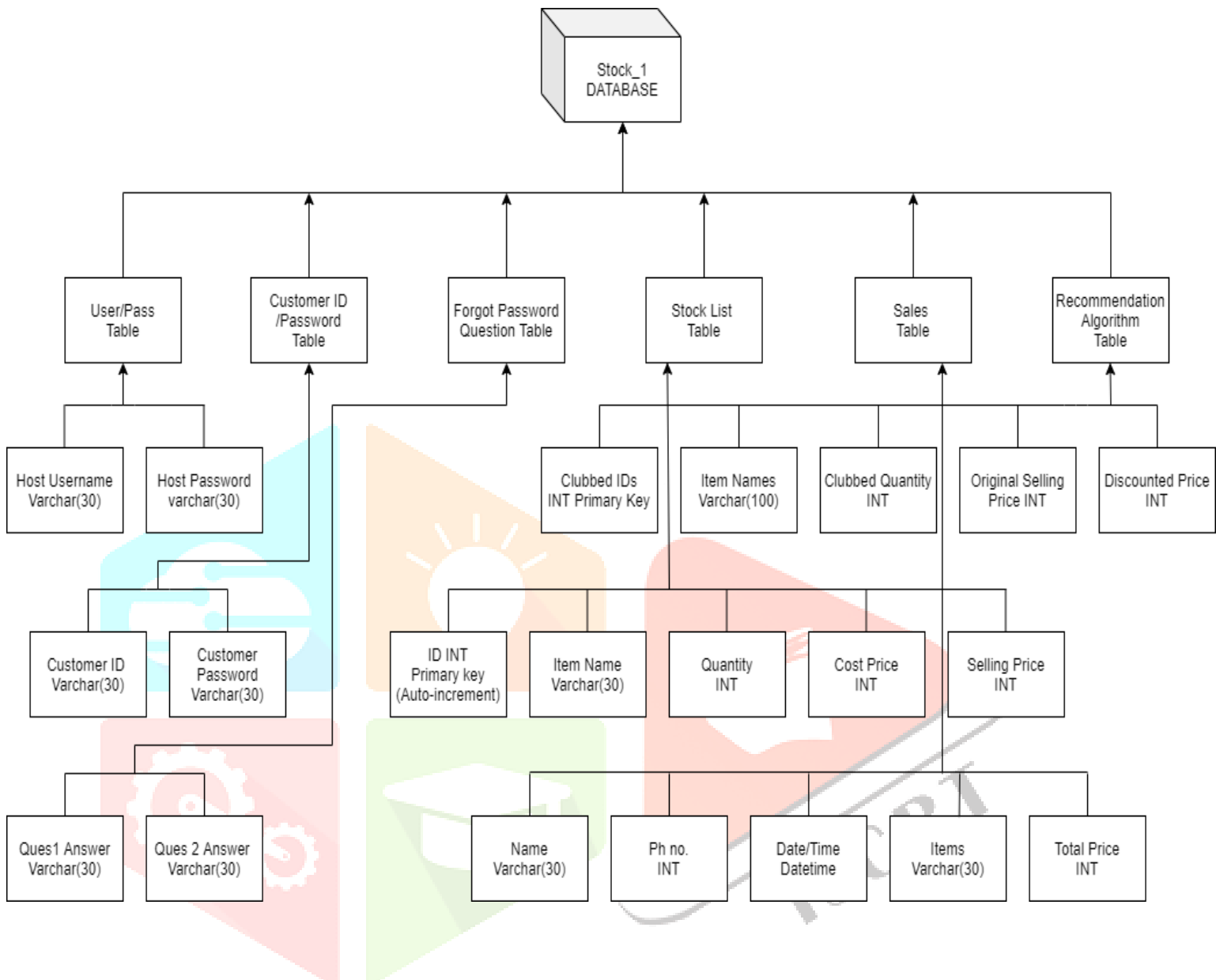
3. System and Implementation

Proposed System

3.1.1 System and Web Architecture



3.1.2 Database Architecture



3.1.3. Module Description

Our model includes database system, JAVA application, HTML/CSS page, JQuery and Python.

- For JAVA application development, Eclipse IDE is used.
- HTML/CSS page is developed in Notepad++.
- For Python Anaconda Navigator 3's Spyder IDE is used.

3.2 METHODOLOGY

3.2.1 System Methodology

- First using Eclipse IDE JAVA Applet is designed using content pane.
- Then ActionListener is implemented to the main class.
- mySql database is connected to the class.
- Offer recommendation is then trained on the collected data.

3.2.2 Database Methodology

- First the database is created using mySql sever in mySql Workbench.
 - Different tuples are created using different keywords such as PRIMARY KEY, AUTO INCREMENT, different tuples like DATETIME, INT, VARCHAR(x).
- Database is then put into action.

4. Results and Outputs:

4.1 Administrator Login:

Inventory Keeper by Uni-Space System Version 1.0

Inventory Keeper V1.0 11/04/2021 14:29:45

Register new User Delete existing Account

INVENTORY

UNI-SPACE SYSTEM

KEEPER

By
Uni-Space System

Administrator Login

Login ID *:

Password *:

[Forgot Password](#) Show Password

This is a COPYRIGHT© application please download from authenticated servers Only by Uni-Space System

Figure 4.1 Admin Login

4.2 Inventory Management

The screenshot shows the 'Inventory Keeper V1.0' application interface. The top navigation bar includes 'Menu', 'Tools', and 'Terms'. The main window title is 'Inventory Keeper V1.0' with a date of '11/04/2021' and time of '14:00:52'. On the left, there is a vertical menu with icons for 'Add Items', 'Issue Items', 'Stock', 'Offer Generator', 'Sales', 'Backup', 'Billing', and 'Supplier'. The main content area is titled 'Update existing items' and contains several input fields: 'Change item code', 'Update HSN', 'change item name', 'Update item quantity', 'Update cost price', and 'Update selling price'. Below these fields are 'Delete item' and 'Update item details' buttons. A table displays the current inventory items:

Sr.no.	code	HSN	Item Name	Quantity	Cost Price	Selling Price
1	bh0001	0	Pen	293	5.0	10.0
2	bh0002	0	Pencil	277	3.0	5.0
3	bh0003	0	Notebook	290	20.0	30.0
4	bh0004	0	Compass	289	50.0	70.0
5	bh0005	0	Printer Papers	294	30.0	50.0
6	bh0006	0	Paper Tray	290	50.0	75.0
7	bh0007	0	Spiral Book	295	100.0	150.0
8	bh0008	0	Pen Stand	287	70.0	100.0
9	bh0009	0	Globe	284	200.0	300.0
10	bh0010	0	Staple Machine	285	25.0	40.0
11	bh0011	0	Punch machine	288	75.0	100.0
12	bh0012	0	Cardboard File	283	15.0	20.0
13	bh0013	0	Plastic File	295	30.0	40.0

Figure 4.2 Inventory Management

4.3 Offer Generator

The screenshot shows the 'Inventory Keeper V1.0' application interface for the 'Offer Generator' section. The top navigation bar and title bar are identical to Figure 4.2. The left menu is also the same. The main content area is titled 'Offers Available' and includes a search bar with the text 'View available offers >' and 'Search : (Enter item name/ code)'. Below the search bar is a table of offers:

Sr.no.	code	HSN	item	price	discount %	New Price
1	bh0001, bh0007	0, 0	Pen, Spiral Book	160.0	5.0	152.0
2	bh0001, bh0008	0, 0	Pen, Pen Stand	110.0	5.0	104.5
3	bh0001, bh0013	0, 0	Pen, Plastic File	50.0	5.0	47.5
4	bh0003, bh0007	0, 0	Notebook, Spiral Book	180.0	5.0	171.0
5	bh0004, bh0007	0, 0	Compass, Spiral Book	220.0	5.0	209.0
6	bh0005, bh0007	0, 0	Printer Papers, Spiral Book	200.0	5.0	190.0
7	bh0005, bh0009	0, 0	Printer Papers, Globe	350.0	0.0	350.0
8	bh0007, bh0010	0, 0	Spiral Book, Staple Machine	190.0	5.0	180.5

At the bottom right of the table area, there are 'Refresh' and 'Print' buttons.

Figure 4.3 Offer Generator

4.4 Cart Invoice Generator

Bill out
×

Tax Invoice

Supplier : X Y Z Organization State : Dhule, Maharashtra State code : MH-18 GST/ PAN no. : FVKMP850C897456	Details of Invoice : Invoice no. : 04-21/MH-18/684280 Invoice amount: (INR) 5678986600.0 /- Invoice Date : 2021-11-04 Reversible charge applicable : No
Details of Buyer(To bill) : U V W Organization State : Mumbai, Maharashtra State code : MH 04 GST/ PAN no. 22HBJKI0987V6Y0	Supplier Details : Address : Plot no. 61, Jaihind Colony, Deopur, Dhule- 424002 Contact : +91 8945687567 Email-Id : xyzorganization@abc.com

Sr.no.	code	HSN	Item Name	Price	Quantity	Total price	Percentage(%) off	%off Price
1	bh0001	0	Pen	10.0	5	50.0	20.0	40.0
2	bh0008	0	Pen Stand	100.0	5	500.0	20.0	400.0
3	bh0013	0	Plastic File	40.0	5	200.0	20.0	160.0
							Sub-Price :	600.0
							+ GST18.0 :	108.0
							Price Payable:	708.0

Figure 4.4 Invoice Generator

5. Futurescope:

To provide a marketing opportunity to small scale businesses to go digital without sharing their profits with already built digital businesses, thus giving them the upper hand in their locality.

6. Conclusion

The **Inventory Management and Cart Advertising and Recommendation System** is to facilitate and enhance management of inventory data and also provide marketing opportunities and online presence of small local businesses economically. Also to provide a better Service to the local area customers such as time efficiency, easy UI, better deals on products.

7. References :

- [1] A Recommender System for Online Shopping Based on Past Customer Behaviour Prassas, Katherine C. Pramataris, Olga Papaemmanouil, Georgios J. Doukidis eLTRUN (Electronic Trading Research Unit) Athens University of Economics and Business 47A Evelpidon & 33 Lefkados Str., 113 62, Athens, Greece Prassas@aueb.gr, K.Pramatari@aueb.gr, Papaemma@aueb.gr, GJD@aueb.gr
- [2] A recommender system for online shopping based on past
Ming Li, Benjamin Dias, Ian Jarman, Wael El-Deredy, Paulo J. G. Lisboa DOI:
[10.1145/1557019.1557150](https://doi.org/10.1145/1557019.1557150)
- [3] Product recommendation based on shared customer's behavior
Fatima Rodrigues, Bruno Ferrieraa GECAD, Research Group on Intelligent Engineering and Computing for Advanced Innovation and Development b Institute of Engineering Polytechnic of Porto (ISEP/IPP).
- [4] Experimental Analysis of Recommendation System in e-Commerce
Neha Verma, Devanand, Bhavna Arora
International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN:
2278-3075, Volume-8 Issue-8S3, June 2019
- [5] <https://towardsdatascience.com/a-content-based-recommender-for-e-commerce-web-store-7554b5b73eac>
- [6] Recommender Systems
Algorithms and Applications – by P. Pavan Kumar, S. Vairachilai, Sirisha Potluri, Sachi Nandan Mohanty
- [7] https://youtu.be/HfSQL2H7_mE

