

AMU Intra-Circulating Hub: Design, Development and Deployment of An Intelligent Web Application For Direct Consumer To Consumer Trading Over Internet

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Abstract- *The sudden change in information technology has provided facility of trading in the Internet. There are several platforms available for trading but there is no suitable platform available for direct consumer-to-consumer trading mainly for students studying in a university so that they are able to purchase, sell their goods and make use of various services within the university. So this helps students by providing the facility of easy exchange within a small social network. The mostly used websites for example Snap deal, EBay, Flipkart are very global hence does not facilitate the trade and exchange of goods directly among the customers in a small community like campus environment.*

As the name specifies “AMU Intra-Circulating HUB” is software developed for managing various trading activities within the University among Students. AMU INTRA-CIRCULATING HUB is an online platform exclusively for AMU students in which they can buy and sell products to other AMU students. This platform will serve as a bridge between the buyer and the seller. Suppose a student graduated from AMU and he has a lot of books of previous semesters and at the same time another student got admission in graduation and he has to buy new books and nobody wants to spend a lot of money on buying new books, so this platform will connect those students who want to buy something to those students who are willing to sell the same thing.

Keywords- Data Mining, Decision making, Online trading, Web Mining, Recommendation System.

I. INTRODUCTION

Due to the increase in number of internet users, numbers of transactions are also increasing for any product buying. Because of the increasing users in the internet domain the load on the web server also increases. Therefore we need to think of scalability, manageability and Performance of an application. Hence in this project different kind of logs are

maintained for frequent user, frequent page, and access logs to keep track of overall page count. An algorithm know as Least Frequent User is used that will allow the users to be severed from a different application server if the first application server is full for a specific page per user based on priority. Even if the load on the server is full the user is redirect to a Help Page from where the user can continue the operation on the other application server. Recommendation systems are basically used to suggest most appropriate products to users or buyers. As we are aware of the competition among online product selling websites, Recommendation system, plays a major role in order to make more profit as well as retain the buyer. The product recommendation system should suggest those products in which buyer or user are interested. This project develops product recommendation system after combining the properties of content and collaborative filtering with association mining.

The rapid development of information technology has facilitated an elegant trading environment in the Internet. There are many trading platforms nowadays but there is no good platform designed for direct consumer-to-consumer (C2C) trading primarily for university students, to buy and sell their goods and services directly to other students within their university or city. Such a need arises in a social network where items should be traded or exchanged easily with a small community. The famous websites such as Amazon or eBay are too global in nature and does not support the direct trading of goods and services among the students in a small social network such as a campus environment.

An online web application called AMU INTRA-CIRCULATING HUB, Student-Trade has been developed. It is a state-of-the-art platform for direct consumerto-consumer trading in the Internet. The platform is targeted for direct consumer-to-consumer trading among university students. The items for trading include books, household items, electronics, housing rental, sports equipment and tutoring services. The

web application design needs to be modern, fast, and very simple to use. It is developed using PHP, the Laravel framework, HTML, CSS and MySQL. The main contribution of this paper is on the design intelligence of the Student-Trade web application. The objective is to help the user to decide on the selling price of the sale item. In addition, the web application can also have features of a recommender system. That is, the trading system would also have the intelligence of recommending items or products to a potential buyer given his previous purchase patterns. The decision support system is embedded with a hybrid neighborhood search algorithm, with emphasis on solving a price-recommendation problem in a real-world internet trading platform. The solution to the price recommendation problem would require techniques from decision-support systems as well as data-mining on a database of used items already traded or currently available.

1.1 Present state of art and its shortcoming:

The present state of art is completely computerized and everything is done through internet. Maintaining a state-of-the-art information system involves five elements including hardware, software, data, people and process. Hardware must be reliable and must be equipped to handle various workloads. Software must carefully be designed and evaluated for its effectiveness. All data must be entered accurately into the computer.

1.2 Realization of the problem:

Currently Students have to walk to the book shops to buy their books or any other thing, their details are taken and kept on papers. Shop keepers too need to move from their offices to go and check for the Books/Items whether there satisfied or not. This is time consuming and costly. Due to the manual systems in use, the whole process tends to be slow. Customers too have no prior information on cost of netting their products.

1.3 Introduction of work to be taken up:

After realizing above-mentioned problems, the main aim was to develop a system that could be comfortable for the customer, manager and owner. From this, they can find their required information/products. They have not to waste their time and money in searching many numbers of shops.

There in our site we upload the latest products, lower rate materials, and study material for Students.

The Seller or buyer who wants to sell or buy anything must register. This work is done online. At this point, this

person has to supply some information such as; Name, Faculty number, Enrolment Number, Hostel room number and any other important details.

After these details are worked out, the individual if wants to sell something must upload an image of the products with some details and if wants to buy something than must search for the required product and contact the seller through given details. The project will also have an option of Donation. Suppose if someone wants to donate his/her books, medical or engineering equipments or vehicle or any other items than they can use the service of Donation . This donations feature will be very helpful for poor and needy students.

1.4 Broad Outline of the Work:

1.4.1 Objective:

The main objective of AMU Intra-Circulating Hub is to reduce financial pressure from Students. AMU Intra-Circulating Hub will be a platform in which Students will sell their used and unused products to other Students in a low price. For Eg., in college life in every new semester Students have to buy new books and these books will become useless for them in the next semester so with the use of this platform one can buy second hand books at a very low price from the seniors and after use they can again sell it to their juniors on much lower price than the previous price. In this way the Objective of this project will be fulfilled i.e. Reduce Financial burden from students, create such type of trading platform which should work only for AMU Students within AMU campus.

1.4.2 Benefits of this project:

- This will find the products of our need in a low price. This will generate a trading platform within the University only for University students by University students
- It will save a lot of time, money and labor.
- It will provide a way to communicate directly with the seller/buyer.
- The software acts as an office which is open 24/7.
- It provides custom features development and support with software.

II. PROBLEM FORMULATION

2.1 Problem Statement/ Various aspects of the Problem:

In College Life most of the students face a similar type of problem in every Semester i.e. they have to buy new books for that semester and after that semester book will become useless for them. No student wants to spend a lot of money on New books for a short interval of time , Similarly every year when students(specially Hostellers) got newly admitted in AMU there is a need of vehicle , books, some study materials and many other necessary things and at the same time every year many students graduates from university, many of them go abroad or another city in India and they have their used things behind them in good condition like vehicle(bike, Scooty ,bicycle) ,books ,study packages etc. ,which they wants to sell to someone so that they will get at least half of the MRP , And at this particular time we have two situations/problems somehow related to eachother (one wants to sell its used items at half rates and one wants to buy new stuffs at cheap rates and in good quality).

2.2 Existing System:

In the existing system all work is done on paper . According to the existing system, all the work on paper has been manually handled. Due to the fact that a lot of time is spent and money is also a daunting task. In the existing system all data is collected from different places, then the information based on all collected data is shown through the means of a catalogue. Then by stuying all the facts on the basis of the given data, customer will get interested in the property.

2.3 Drawbacks in Existing System:

- Not User Friendly: The existing system is not user friendly because the retrieval of data is very slow and data is not maintained efficiently.
- Difficulty in generating report based on data: Due to the fact that all work is done manually, it takes a lot of time to collect data, due to which it takes a lot of time to prepare a catalogue or report.
- Lots of paperwork: Existing system requires lot of paper work. Loss of even a single register/record led to difficult situation.
- Time Consuming: Every work is done manually so we cannot Generate report in the middle of the session or as per the requirement because it is very time consuming.

2.4 Requirement of New System:

a) Functional Requirement:

- User registration: The system should allow new users to register online and create profile.

- Online Meeting: User/Buyers/Sellers should be able to use the system to search/upload products and sell/buy them.
- Automatic update to database once reservation is made or new customer is registered: Whenever there is new registration or appointment, the system should be able to update the database without any additional efforts from the admin.
- Feedbacks from customers: It should provide means for customers to leave feedback.

b) Non Functional Requirements:

- Security: System must enforce security constraints so as to keep data safe and secure from unauthorized users.
- Performance and Response Time: The system should have high performance rate when executing user's input and should be able to provide feedback and response within a short time.
- Availability: The system should always be available for access at 24 hours, 7 days a week.
- Ease of use: A simple but quality user interface should be developed which is easy to understand and requires less training.
- The system should be reliable and robust.

2.5 Feasibility Study:

A key part of the preliminary investigation that reviews anticipated costs and benefits and recommends a course of action based on operational, technical, economic, and time factors. The purpose of the study is to determine if the systems request should proceed further.

• Economically Feasibility:

The system being developed is economic with respect to Business or point of view. It is cost effective in the sense that has eliminated the salary work completely. The system is also time effective that it takes to adjust the data and the way to do the job should be quite an efficient. The database obtained contains minimum error of data and are highly accurate as the data is required.

• Technical feasibility:

The technical requirement for the system is economic and it does not use any other additional Hardware and software.

• Behavioural Feasibility:

The system working is quite easy to use and learn due to its simple but attractive interface. User requires no special training for operating the system.

2.6 Features of New System:

The new system has been designed as per the user requirements so as to fulfill almost all them.

1. **User Friendly:-** The proposed system is user friendly because the retrieval and storing of data is fast and data is maintained efficiently. Moreover, the graphical user interface is provided in the proposed system, which provides user to deal with the system very easily.
2. **Planned Approach Towards Working:-** The working in the organization will be well planned and organized. The data will be stored properly in data stores, which will help in retrieval of information as well as its storage.
3. **Very Less Paper Work:-** The proposed system requires very less paper work. All the data is fetched into the computer immediately and reports can be generated through computers. Moreover, work becomes very easy because there is no need to keep data on papers.
4. **Computer Operator Control:-** Computer operator control will be there so no chance of errors. Moreover, storing and retrieving of information is easy. So, work can be done speedily and in time.

III. METHODOLOGY

Register as Seller or Buyer

This module is responsible for any user to register in the application by entering the personal details like Username, Password, Email, and Phone No, Type (Buyer and Seller).

Login Module

This module allows any user to perform login into the application.

Product Submission by Seller

This Module is responsible for submitting of the products by giving details like Product Name, Product Description, and Product Cost, Category (Mobile, Book, Tablet, Laptop, and Electronics)

Product Buying Module

This Module is responsible for purchase of products by entering the credit card number and expiration date.

Content Based Recommendations

This Module analyzes the transaction history of the buyers through the transaction logs. A user customized threshold is set. If any of the products exceeds the specific threshold then recommendations of the product are suggested.

Collaborative Based Recommendations

This Module is responsible for gaining the rating across the registered as well as unregistered users. The recommendations are generated based on the aggregated rating across the users of the application.

Hybrid based Recommendations

This Module is responsible for doing the intersection between the content and collaborative based recommendations.

Review based recommendations

This Module is responsible for collecting the reviews for the products, cleaning of the reviews, the amount of positive polarity, negative polarity and neutral polarity and recommend products which has maximum positive polarity, neutral polarity and lowest negative polarity.

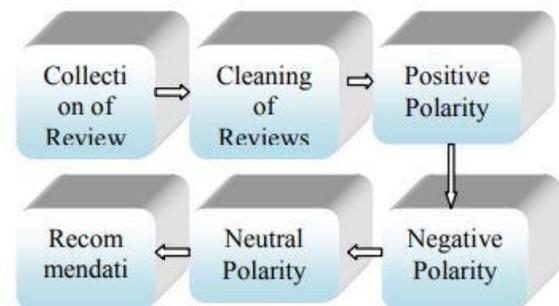


Fig. 1 Review Based Recommendation

Collection of Reviews

This Module is responsible for collecting the reviews from the registered users. This module will collect reviews based on actions that are required on the products.

Cleaning of Reviews

This Module is responsible for cleaning of each of the reviews by removing unused or unwanted words.

IV. SYSTEM IMPLEMENTATION

4.1 Hardware requirement

The hardware requirements for developing this system are as follows:-

- Processor - Pentium IV or higher
- Hard Disk – 1GB of available hard disk space
- Color Monitor
- RAM – 2GB

4.2 Software requirement

The software requirements for developing this system are as follows:-

- XAMPP server
- Internet browser

4.3 Input Requirement

The input requirements for developing this system are as follows:-

- Optical mouse
- Standard QWERTY Keypad

V. IMPLEMENTATION OF THE INTELLIGENT TRADING PLATFORM

One important motivation for the current implementation is for university students within a small community or on campus, to buy or sell within the same community. Therefore, a registered user can submit an item post to his/her (university) community only. Registered buyers can also select to only view items being sold by those within the same community (university). Since all users within the same university community must be verified to be a student of that university, it is much easier for a seller to organize and complete a sale. As an unregistered user, one of the limitations is that an item post can only be submitted publicly. Also, they can only view item listings within a city. Figure 2 and 3 shows the trading process of a seller and a buyer.

Fig.2 trading process of Seller

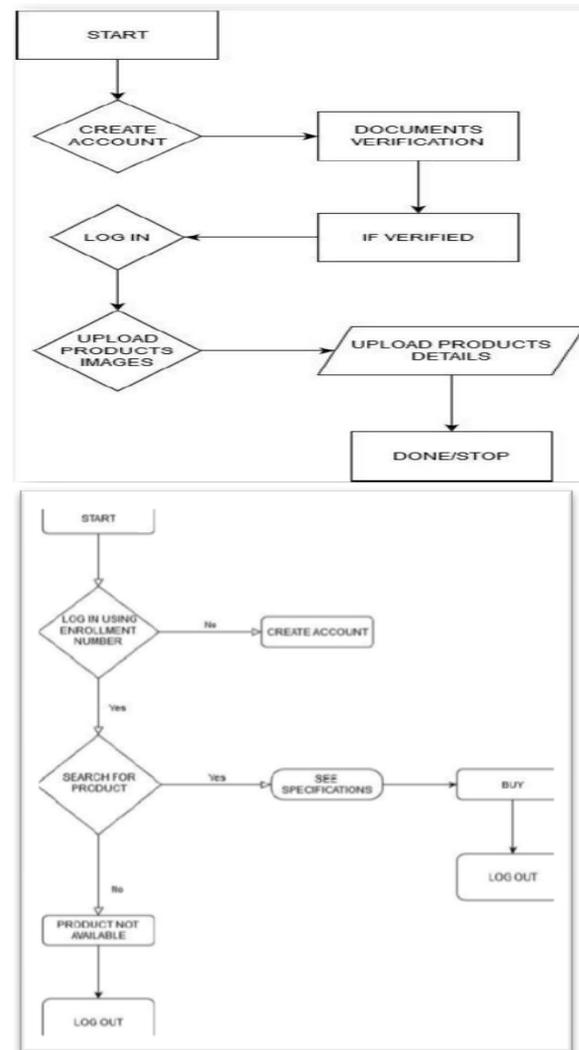


Fig.2 trading process of Buyer

VI. RESULT AND DISCUSSION

As we can see that the information which is present on the internet is increasing rapidly. So it becomes necessary to improve efficiency of various search engines also. Web mining provides solution for this. It performs mining of information based on content and transactions. In this project the product recommendations based on content and collaborative mining techniques and association rule mining are proposed.

The main objective of this System is to reduce financial burden from students and help them to sell and buy products on low price and this System will generate a trading platform within AMU campus exclusively for AMU students. This system will provide immediate help to the users who want to buy or sell something moreover this system is designed to carry out operation in a smooth and effective manner. This project as described above is easy to use, low

maintenance required, user friendly and can be accessed on any device.

6.1 Application Areas

- This application can be used by owner to sell or rent their products/equipment.
- It can be used by buyers to look and contact the owner of their desired properties.

VII. CONCLUSION AND FUTURE SCOPE

For a seller, the intelligent trading platform has provided real-time search on related items in the marketplace and would suggest a price for the sale item. This helps a seller to post sale items in line with the market. Techniques from data mining, decision-support system and neural network have contributed to the process of software development.

For a buyer, the intelligent trading platform can gather information on his previous purchased items from the databases. Also, buyer can express his interests or post requests for certain desirable items. The recommender system would then recommend sale items to the potential buyer. Overall, the platform targeted for direct consumer-to-consumer trading would be more intelligent, simpler-to-use and more user friendly.

7.1 Limitations

No software in the world can be called perfect as it has some or the other flaw or lacking, that is new version keeps on pouring. Similarly, this information system also possesses some limitations that is many typical queries need to be implemented.

7.2 Future extension

The future enhancements that are possible in the project are as follow: -

1. Provide online advance payment system.
2. Alternate customer database.

7.3 Future scope and plan

- We will launch this project in AMU on January 2021, and we will make sure that each and every student of AMU is aware of this project.
- After successful launching of this project in AMU, we will try to cover other colleges of Aligarh.

- After this we will try to expand this project into other cities of the states, first we will go for New Delhi and Lucknow.
- Very soon this project will be converted into a Startup.

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