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Online Shopping Application for Local Vendors.

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Abstract —*In the era of online shopping with the online shopping giants like Flipkart, Amazon dominating the shopping world, people are ignoring the local vendors who also provide us with the same quality goods. And so, in an attempt to provide global platform to the local vendors and to acquaint the people with the shops available in their locality, we are designing an online shopping application for local vendors in Pune*

Keywords- *Data Mining, Clustering, Indexing, Global Positioning System (GPS),Latitude, Longitude, Sentiment Analysis, Application Programming Interface (API).*

"I. INTRODUCTION"

To develop a web service which will have product information and its related data in detail from local markets in Pune. Depending upon customers, his GPS location will be detected. Also recommendations will be given on the base of graph based reviews. Discounts will also be off ered to the customer through the app which the customer can avail using promo codes.

This application will use various techniques such as :

Geofencing

Geofencing is based upon ``Trilateration Algorithm with Performance Analysis'' and ``Haversine Formulation and Visualization algorithm.'' It is used for location detection of customers as well as it will display shops in 5-10 kms range of customer.

Natural Language Processing with Prediction

This is a prediction algorithm which will covert text based reviews into graph-based/numeric reviews. This is a web based service and will be available to the readers for knowing about the product which will also help them in decision making.It allows users to customize results of the analysis to suit their desires.

Web Services

Web Services will include Service Oriented Architecture(SOA) and they are used to establish reliable communication between different stakeholders. Data Mining will handle the uncertain and unstructured data in order to classify or cluster it. Data Mining techniques will also include indexing of data.

"II. SURVEY DETAILS"

LOCATION BASED PAPERS

1. "The Advanced TOA Trilateration Algorithms with Performance Analysis", IEEE-2016 by Sajina Pradhan, Seokjoo Shin, Goo-Rak Kwon, Jae-young Pyun, and Suk-seung Hwang.

Abstract of base paper:- The time of arrival (TOA) trilateration, which is one of the representative localization algorithms, estimates the location of the mobile station (MS) based on the received signals from at least three base stations (BS).The mobile station is located at a single point and the base stations are considered to be located in a circle around the MS and the distances between the MS and BS forms the radius of the circle.In this way the distance is

determined. Due to location estimation error, the result would not be quite accurate and it wont be originally an integer it may be slightly increased.

2. "Student Residential Distance Calculation using Haversine Formulation and Visualization through GoogleMap for Admission Analysis", IEEE-2016 by VinayakHegde, Aswathi T S, Sidharth R.

Abstract of base paper:-Haversine distance formulation algorithm is used for calculating the distance between two locations using GPS. Google maps API is used to find out the latitude and longitude of each shop and customer which gives the minimum, maximum and average distance. Customers will come from different localities and residences.

NLP AND RATING BASED PAPERS

3. ``Natural Language Processing: A Model to Predict a Sequence of Words '', IEEE 2015 by Gerald R. Gendron, Chesapeake.

Abstract of base paper:-With the growth of social media, the value of text-based information is increasing day by day. Hence, It is very difficult to analyze large text data to discover the structure within the data using computational methods. The main idea of this project is to take a small part of text and build a predictive model to present the user with the graph based on numeric reviews which is based on the users inputs.

4. ``Convergence Analysis for an Online Recommendation System'', IEEE 2016 by Anh Truong, Negar Kiyavash, and VivekBorkar.

Abstract of base paper:-Online recommendation system uses feedback in form of ratings from various customers to recommend objects to customers. Sometimes in practice it do not hold large number of good objects,experts who vote on all objects , experts with exact same taste as the user receiving the recommendation . The algorithm outperforms current state -of-the-art recommendation algorithm.

DATA MINING BASED PAPERS

5. ``An Efficient Approach for Clustering Uncertain Data Mining Based On Hash Indexing and Voronoi Clustering'', IEEE 2013 by Samir Ajani, MangeshWanjari.

Abstract of base paper:-Various clusters of data is formed from the uncertain and unstructured data. There are various techniques for clustering of data such as Rule based classification, DTL, Naive Bayes Classification, etc. Generally K-means algorithm is used for clustering of data but that increases computational time and so we use K-means with Voronoi Clustering.

GENERAL PAPERS

6. ``Psychology Reactance to Online Recommendations: the Influence of Time Pressure '', IEEE 2012 by Wang Yanping and Cheng Yan

Abstract of base paper:-Psychological theories have proved that pressure on time for a task accomplishment has an effect on people's attitude to giving advises. Many e-commerce application have brought this theory in practical and have implemented this in their design of marketing and promotions. For Example- Flipkart/Amazon imposes a deadline on their promotion for their great discounts. As a result people are found to take recommendations positively and people are more likely to buy products faster.

7. `` An Laboratory Experiment for Comparing Effectiveness of Three Types of Online Recommendations'', IEEE 2008 by SHI Lin, WANG Kanliang.

Abstract of base paper:-Increasing use of e-commerce has accelerated the development of this business. And so reduce information overload and help the customer to make easy and better decisions of purchasing a product these e-commerce websites have introduced online recommendation systems.

The recommendation systems are adopted by the well-known e-commerce websites (such as Flipkart, Myntra, Amazon) are based on best sellers, purchase history of consumers to predict future purchase behavior.

There are 3 categories of recommendations:

(1) Personalization :- Personalization refers to the capability of providing personalized recommendation based on the person's individual choices.

(2) Technology acceptance model (TAM): The aim of TAM is to explain and predict the adoption of new technologies by users.
(3) The above recommendation algorithms are for customers who have already purchases a product earlier from the respective website. But it is difficult to make effective recommendations for new users due to the lack of browse history and purchase records

Consumers' reviews are the second effective recommendation approach and do not need any historic records and complicated recommendation algorithm.

8. ``The Impact of Information Factors on Online Recommendation Adoption", by XiaobingGan, Yanhua Zhang, YananYu,Yanmin Jiao.

Abstract of base paper: - In this paper, Elaboration Likelihood Model (ELM) is used to demonstrate the important adoption factors on the recommendation system. Factors such as the Recommendation Persuasiveness which is the extent to which the reader views the argument of the recommendation , recommendation source credibility, recommendation completeness provides sufficient information and recommendation credibility are taken into consideration.

9. ``Optimal Recommendation to Users that React: Online Learning for a Class of POMDPs", IEEE 2016 by Rahul Meshram, Aditya Gopalan and D. Manjunath.

Abstract of base paper:-AOR (Automated online recommendation) systems for different types of system content aim to adapt to user's preferences. They target those products in recommendation for which the user has a higher preference and is frequently searched by the user. But the user might not like if the product is recommended to him frequently but it would be quite efficient to introduce a time interval before recommending the product to the user again. for ex: if we consider a music system, the user might get bored of listening to the same song gain and again so it should be recommended after a period of time instead of recommending immediately.

10. ``User Preference Learning for Online Social Recommendation", IEEE by Zhou Zhao, Deng Cai, Xiaofei He and Yueting Zhuang.

Abstract of base paper:- Now-a-days social recommendation system has attracted a lot of attention in the research communities of information retrieval, data mining and machine learning domains. So, it is important to adapt to the changing system and generate a recommending system which will adjust to the rapidly and dynamically changing user preferences. Currently, social networking sites like Twitter and Facebook are popular platforms through which users give their opinions for various products and these are found to have an impact on the sale of the product positively or negatively. Also in various shopping applications, recommendations are provided for purchasing various products.

"III. PROPOSED SYSTEM"

The previous Recommendation system or online shopping portals and is not feasible to show the location based product which has a higher recommendation or the higher review. Those systems are not able to send the information of the product which is nearby available .

PRODUCT FUNCTION

1) Admin Module : Admin of the application will not be required to register. Admin can register/add a shop, edit and delete shop.
2) Shop Module : Shop user can login using user id and password which is registered by admin. Shop user can add product, edit and delete a product.

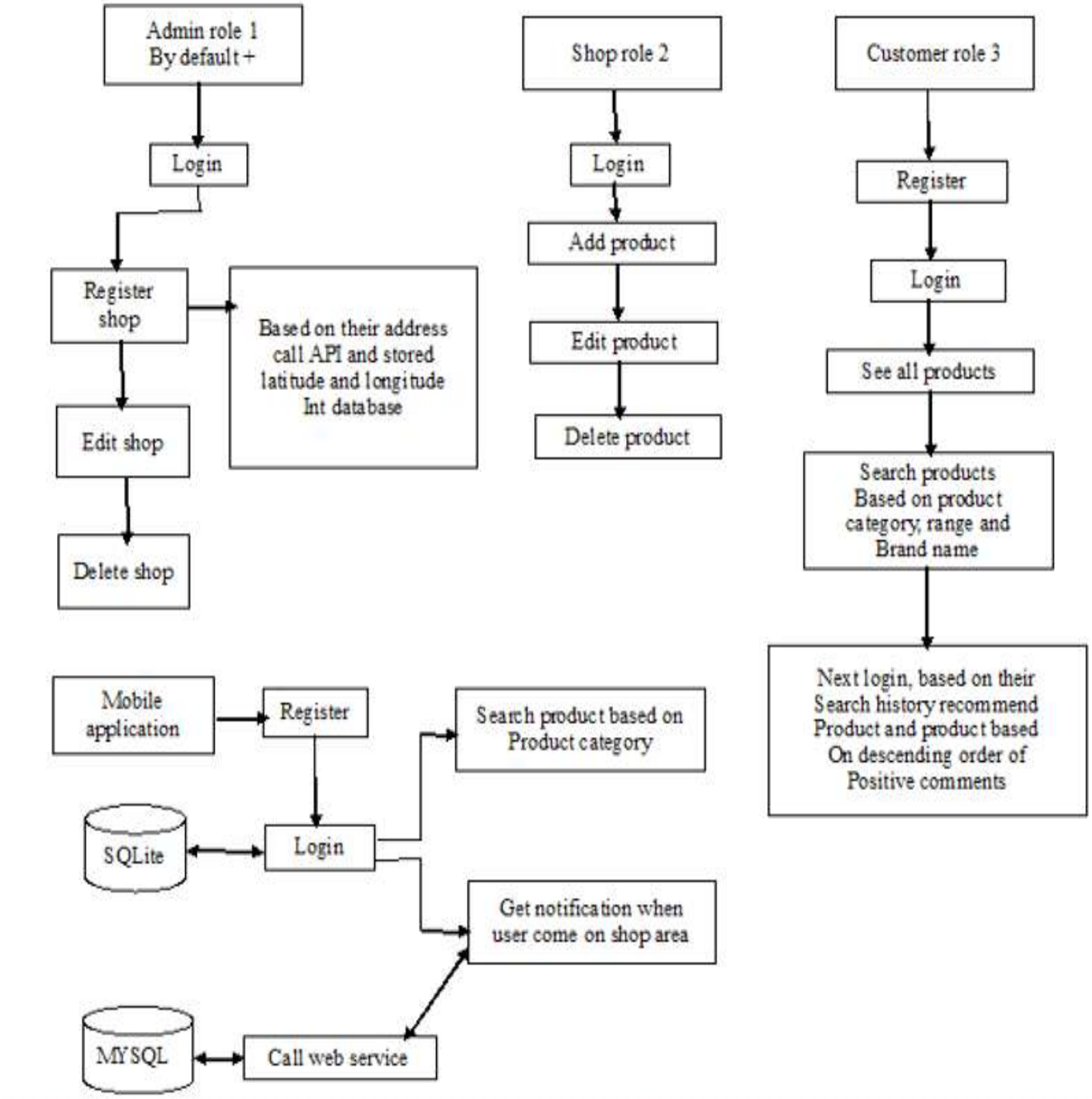
3) Customer Module : Customer registers and then logs in, and first time sees all products. Search based on products category can be done. For example, mobile, laptop, etc. and also product range (for ex-mobile range 10000 to 20000), search on brand name or product name (ex- dell, hp, etc).

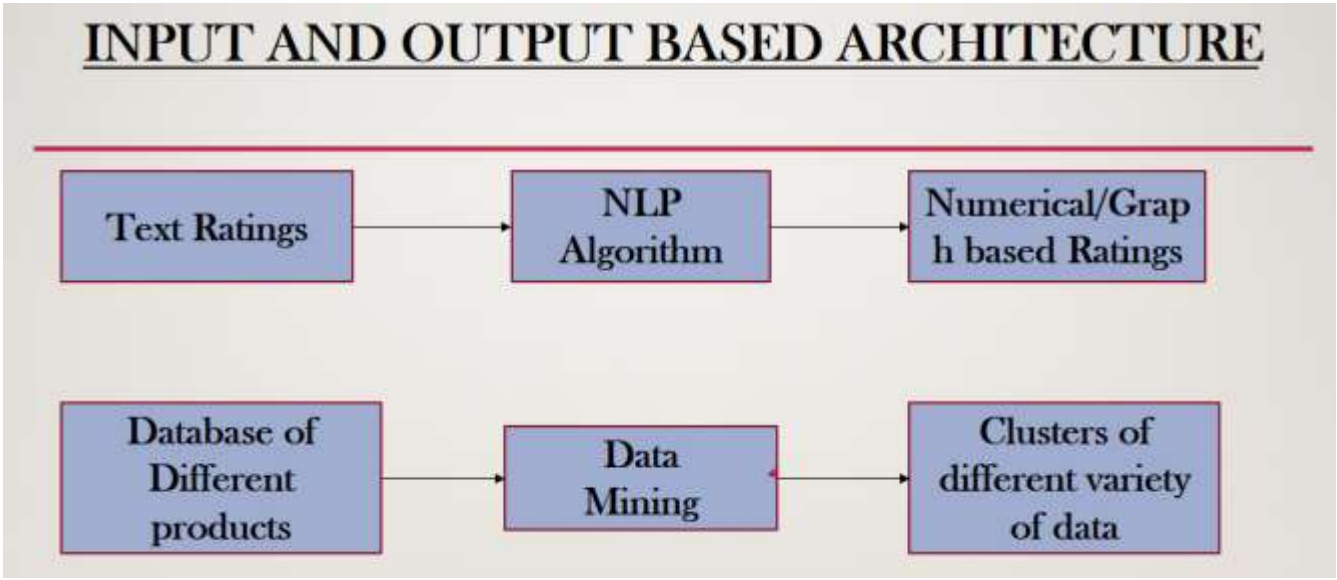
4) System Details : Customer search history will be stored in a database. Also, the given text based reviews for a particular product will be stored which will be converted into numerical/graph based reviews using NLP. So, When user log in again then based on their last search and ratings, products are recommended to them.

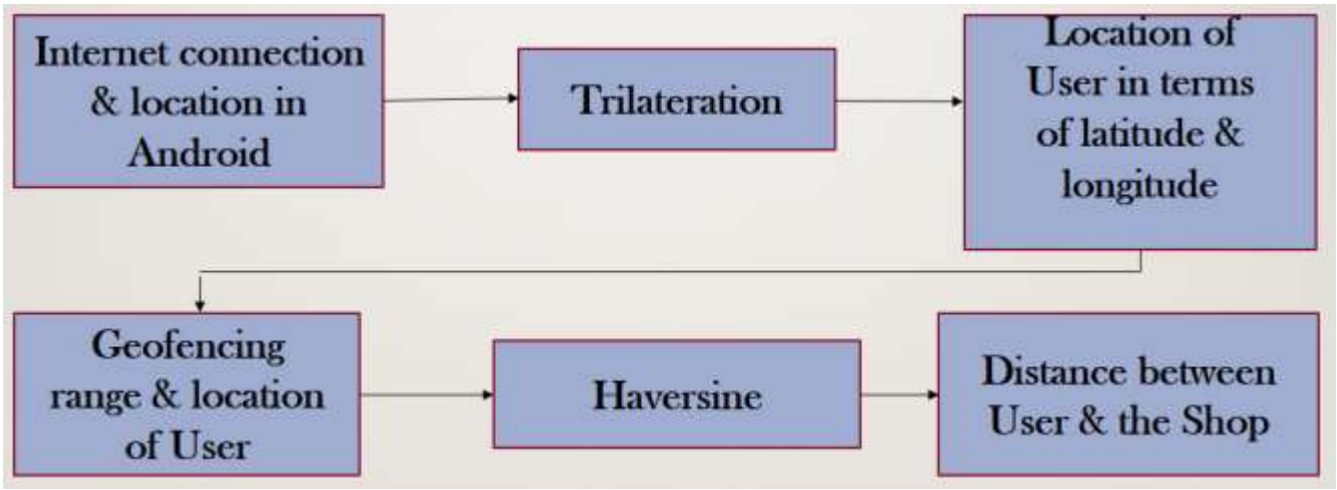
5) Android Part : User register and then Log in. The user is shown category and user select category, then the product is shown with shop Location, then user marks product for buying. Location Reminder is given when a user enters the particular area, then automatically gets notifications on user's phone.

6) Constraints : Internet connection is required.

SYSTEM ARCHITECTURE DESIGN







OUTCOME OF THE PROJECT

The outcome of our final year project is that it will boost the market of local vendors. As Location of the customer will be detected successfully and then according to geofencing range provides, it will also result in early delivery of the products as compared to existing online shopping systems. Customer will get the appropriate review of the particular product. Our system will provide various recommendations to the customer about the products and their respective offers based on his/her previous search history.

"IV. CONCLUSION AND POSSIBLE FUTURE WORK"

Recommender System are new generation internet tool that help user in navigating through information on the internet and receive information related to their preferences. To overcome the product overload of Internet shoppers, we introduce a semantic recommendation procedure which is more efficient. Using this application we get the product information and also give the notification to the customer through GSM. This system will be used in local market for electronic product recommendation for users.

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