Original Article

Digitalized Ration Card

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Abstract - *The processes to avail items from the Ration shops are being complex nowadays due to excess crowd. The entire PDS works on ration cards. In order to overcome this difficulty, the mobile application named Online Ration System can be used. The commodities can be ordered online, and payment can be made through the online payment system in this application. The naive Bayes algorithm classifies the number of commodities to be selected according to the members of the family. Once it is chosen and the payment is completed successfully, a set of time slots will be provided. The time slot and date to collect the items will be displayed. The commodities should be collected on the respective date and time slot. It also includes a Free Home Delivery scheme for senior citizens. Random Forest algorithm classifies the distance of a delivery location. The distribution of commodities is completely supervised by the govt. It also has various disadvantages. The dealer tends to sell the commodities at a higher rate in the market. Due to this, we encounter a lack of transparency between the government and the people. A good system has not been developed yet, by which the government is updated on the grain consumption by the people. This ration card management system works on android technology that replaces traditional ration cards.*

Keywords - *Android, Public Distribution System (PDS), Naive Bayes, Random Forest*

I. INTRODUCTION

A ration card is issued by the government in India as an official document for the people to purchase food grain from the Public Distribution System. It is a crucial document for the people not only to urge items necessary for all times subsistence at a low price but also as a symbol of their identity.

In this online ration system, the admin usually updates the daily stocks and check the user activity. Admin monitoring the ration shop activity and user requirements and identifying the user age, whether below 50 or above 50. The user has to register by giving the information in the application before login in. Without login, a user can't view the items or any details in the application. Then a user can select the items they want. A naïve Bayes algorithm is used to classify the commodities according to the members of the family. After selection, time slot and date will be allocated for the user who is below 50, free home delivery for the senior citizens (i.e., above 50). The classification of the distance to the delivery location is done by the Random Forest algorithm. When the user is not using the ration card or not buying available items that are given by the government, then the user will be blocked by the admin.

II. LITERATURE SURVEY

In paper [1], the creators Anindya Ghose et al. discussed the rapid increase in usage of the internet results in the possibility of people creating and publishing content that provides a huge amount of information about the product. As there is a large number of reviews that are published for a single product, the true quality of the product is hard to be understood by the buyers and even the manufacturers. We examine the reviews like product sales and analyse how various factors affect the social outcomes of an individual's view. The approach explores various aspects of reviews, like the measures of readability and extent of spelling errors and identifies important text-based features. Moreover, various reviewer-level features like the average usefulness of past reviews and the identity measures of reviewers that are shown next to a review are also examined. The analysis has proven that the subjectivity, informativeness, readability, and linguistic correctness in reviews affect the sales and an individual's view on the product.

In paper [2], the creators Vikas Sindhwani et al. discussed sentiment prediction results in the identification of whether a particular text expresses a positive or negative opinion on a particular topic. Sentiment prediction as a standard text categorization issue. The background knowledge occurs in the form of previous information about the sentiment analysis of words in a dictionary. A huge amount of unlabeled data is present in many applications. A semi-supervised sentiment prediction algorithm uses the previous lexical knowledge along with the available unlabeled data. The sentiment analysis of documents and words is based on a bipartite graph representation of the information.

In paper [3], the creators Tak-Lam Wong et al. discussed that the internet is rapidly evolving, highly dynamic and complex as they involve a large number of vendors and consumers, as well as numerous items in the bidding list. A two-phase methodology aims at mining and abstracting the best items from multiple auction websites that help in modelling decisions. At first, it automatically extracts the product features and the value of the product from the description provided by the vendors. Then it summarizes the best product based on the information that is obtained, and this process is done by semi-supervised learning problem, and the graph min cuts algorithm is used for the completion of the task. The output of these items is then obtained by examining the frequency and the position of the product, which are mentioned in the description.

In paper [4], the creator's Yang Li1 et al. discussed the huge amounts of reviews that are available as well as the various changes in the review quality present a big factor to the effective use of the reviews, as the most appropriate reviews may vanish in a large amount of less relevant reviews. This paper aims to develop models and algorithms for predicting the usefulness of reviews, which is used for discovering the most appropriate reviews for given products. The effectiveness of a review depends on three important factors: the reviewer's expertise, the writing style of the review, and the timeliness of the review. Based on the factors discussed above, a nonlinear regression model for helpfulness prediction is presented.

In paper [5], the creators Tak-Lam Wong et al. discussed a framework for implementing information extraction wrappers with new attribute discovery is developed. The goal of wrapper adaption is to modify a previously learned wrapper automatically from the source site to a new site for extracting the information. It can find the previous unseen attributes and headers from the new site. At first, the extraction of knowledge from the previously learned wrapper in the source site is obtained. Then the information from the previously collected items is obtained. The Bayesian learning approach is used to automatic the selected set of training examples in adapting a wrapper for the new site. The problem of new attribute discovery is solved by analyzing the text fragments of the attributes in the new site. The Bayesian learning method discovers the new attributes and their respective headers.

In paper [6], the creator's Yan Liu et al. discussed have examined an Optimized Food Delivery Network based on Spatial Crowdsourcing. Spatial Crowdsourcing is similar to traditional Crowdsourcing, the only difference being that it also extends to the physical world by assigning location-based tasks to mobile employees. The involvement of local taxis is very crucial in practising the demand for takeout food delivery. The two on-demand food delivery problems are: (1) for O-OTOD, the food is delivered by taxis in which the passenger who ordered it also travels along and the ultimate aim is to minimize the number of taxis for maintaining a decently high salary to the drivers; (2) for D-OTOD, taxis deliver food without taking passengers, and the ultimate aim is to minimize the number of selected taxis and the total travelling distance to reduce the cost.

In paper [7], the creators Mostafa Majidpour et al. discussed the total time taken for the data access and analysing the prediction needs to be within a few seconds for the user application. The time series prediction algorithm is examined, and the nearest neighbour (NN) algorithm (k NN with k = 1) is obtained. The expected available energy at the outlet and the expected charging finishing time prediction is developed. The overall time, together with the accessing of data, data processing, and prediction, is approximately 1 second for both the predictions. Usually, the prediction takes 1 hour, and the horizon is 24 hours.

In paper [8], the creators Wei Tu et al. discussed that Online-to-offline commerce enables everyone to get their daily human needs done quicker. When on-demand food orders are ordered online by customers and are delivered by couriers, it has been challenging to select the required amount of couriers and route them to provide such food ordering systems. It is performed by Internet-of-Things and 3G/4G/5G technologies. The public riders are employed to work as crowdsourced workers delivering food by means of shared bicycles or electric motorbikes. An online dynamic optimization framework consisting of order collection, solution generation, and sequential delivery processes is presented. The crowdsourced riders are shared among different food providers. The result shows that the presented crowdsourced food delivery approach outperforms traditional urban logistics. The hybrid optimization mechanism can produce high-quality crowdsourced delivery routes in less than 120 seconds.

In paper [9], the creators Santa Cruz de Tenerife et discussed the aim of the contribution is to (1) analyze the importance of digitalization in the research area, (2) describe the execution of digital methods in education application (3) present the theory and process in a course which surrounds the digital transformation and adverse effects on the society. E-learning can cause a distraction by using digital tools. The students can be easily disturbed by the digital tools and waste their study time. It produces a lack of physical relationship between the lecturers and students.

In paper [10], the creators Zhuojing Ma et al. discussed that the methods like filtering, byte filling and aggregation methods are preferred in complex event processing, which converts the data streams into event streams. The event streams that are obtained are then sent to the engine, which formulates the event pattern languages according to the timing relationship and logical relationship between the events and then makes a consecutive query on the series of the event which meets the requirements of the event stream, which improves the security of the online shopping environment by verifying the feasibility and practicability of the shopping data.

Table 1.

S. No	Paper Title	Year	Technique	Result	Issues
1	Estimating the helpfulness and economic impact of product reviews: Mining text and reviewer characteristics	2011	Consumer-oriented mechanism and manufacturer-oriented ranking mechanism	It explores multiple aspects of review text, such as subjectivity levels, various measures of readability and extent of spelling errors to identify important text-based features.	The helpful votes are accumulated over a long period of time and hence cannot be used for review placement in a short-or medium-term time frame.
2	Document-Word Co-Regularization for Semi-supervised Sentiment Analysis	2008	Sentiment prediction algorithm	The incorporation of prior knowledge of sentiment terms directly into our model. In order to adapt to new domains with minimal supervision and also exploit a large amount of unlabeled data readily available.	The approach is strictly transductive and does not allow prediction on new completely unseen test documents.
3	Hot item mining and summarization from multiple websites	2015	The graph min-cut algorithm	It is a task of extracting the product features and the associated product feature values automatically from the description provided by the sellers on the websites.	In the Web environment, the texts are usually not grammatically correct, and hence these two methods cannot be directly applied.
4	Modelling and predicting the helpfulness of online reviews	2008	Hyperlink-Induced Topic Search (HITS) algorithm	The empirical study on the IMDB movie reviews dataset demonstrates that the proposed approach is highly effective.	The sheer volume of available reviews, as well as the large variations in the review quality, presents a big impediment to the effective use of the reviews, as the most helpful reviews may be buried in a large number of low-quality reviews.
5	A probabilistic approach for adapting information extraction wrappers and discovering new attributes	2017	Bayesian learning technique and expectation-maximization (EM) algorithm	Extensive experiments from a number of real-world websites to demonstrate the effectiveness of our framework.	It suffers from one common shortcoming that they cannot differentiate the type of information extracted, and hence the items extracted by these approaches require human effort to interpret the meaning.
6	Optimized Food Delivery Network based on Spatial Crowdsourcing	2018	Online Takeout Ordering & Delivery(OTOD)	An online dynamic optimization framework consisting of order collection, solution generation, and sequential delivery processes is presented. The	Evaluations based on the real-world datasets showed that the algorithms could get the better solution compared to

				crowdsourced riders are shared among different food providers.	the baseline methods.
7	Fast prediction for sparse time series	2015	Nearest Neighbour Search	One predicts the expected available energy at the outlet, and the other one predicts the expected charging finishing time.	It does not result in more accuracy.
8	Online Crowdsourced Delivery for On-Demand Food	2019	Hybrid optimization	The Online Takeout Ordering and Delivery (OTOD) service is convenient and time-saving, especially for people who are taking rest at home or busy working.	Results in a large number of delivery requests within a short time duration. Therefore, it becomes difficult to deliver food on time during the rush hour due to the limited number of delivery staff.
9	Digitalization in engineering education research and practice	2018	E-learning	The range of topics is digitalized in engineering and research orientation to enhance the approaches of teaching practice.	Students do not focus enough on what they are studying. They can be easily distracted by these tools and waste their study time. Finally, digital learning means a lack of physical interaction between lecturers and students.
10	A complex event processing-based online shopping user risk identification system	2019	Complex event process	The analysis of shopping data flows verifies the feasibility and practicability, which potentially improves the security of the online shopping environment.	The imprecision may appear on either the attributes that comprise an event, causing content uncertainty.

III. CONCLUSION

Everything is getting digitalized these days. This helps in keeping all records properly and reduces the risk of fake documents, fraud and forgery. It also provides transparency between the government and the people. In this way, neither the government nor people can hide any information about the various money-related accounts. Using digitalized Ration System, the exact information about a particular household is given to the government; hence no fraud can be done. Moreover, it also helps the senior citizens to get their share of ration without any major struggle.

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