CUSTOMERS' ONLINE SHOPPING BEHAVIOR USING DATA MINING METHODS

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Abstract: Online shopping is a developed phenomenon in growing nowadays. The popularity of online shopping has raised the awareness of the retailers to focus on this area. Different online factors, impact online consumers' to behave differently depend upon the environment of different regions. Therefore, this study was to determine the online shopping customer's behavior and the relationship between the usefulness and their purchase intention. To see the impact of different factors of customers' online shopping behavior, the paper focus on these five online factors as financial risk, product quality risk, delivery time risk, online payment security risk, and the user friendly website design. The realistic data was collected through a questionnaire study and it was distributed among 100 respondents through hand and online. The findings of this paper mainly concentrated on two online shopping companies as Amazon and Flip kart. The most influential and significant factors are based on their impact to consumers' online shopping behavior. Through the data mining r performance of financial risk, product quality risk and delivery time risk. While the other attributes such as, payment security and user friendly website design may have a significant classification method the data are classified and predicated using Random tree algorithm in Weka tool. The conclusion of this paper can be depicted the usefulness and the customers' shopping behavior in a better way

Key Words: Online shopping behavior, Quality risk, Deliver time risk, online payment trust & security ,Website design

I. INTRODUCTION

Data mining refer to a process of an extracting knowledge from the large amount of data. Online shopping is a great way to shop with the things available on the websites such as clothes, gift items, food, home needs, medicines, and so on. These online shopping websites attract the customers' through their daily deals, reductions and store gifts. In a normal online purchasing process, there are five steps involved. Initially when the consumer identifies his or her needs for a product or service, then one move to online and search for the information. After gathering product information, the consumer evaluates the product with other available options selecting an item according to his/her requirement and criteria making transaction for selected products and gets post purchase experience. WEKA is a data mining system developed by University of Waikato in New Zealand. It is a collection of machine learning algorithm for data mining task. WEKA implements algorithms for data pre-processing, Classification, regression, clustering and association rules; it also used in visualization tools.

1.1 AMAZON:

In July 1995 Amazon.com started selling books through online and the response they received was unexpected .As in short time span books sold online in all 50 states of USA and other 45 countries. There are seven different international websites of Amazon with distributed customer service centers in seven Countries and over 17,000 people work in Amazon worldwide.

1.2 FLIP KART:

In October 2007 and November 2011, Flipkart acquired the website Mime360.com .In Flip kart online more than 33,000 employees are working. Flipkart launched its own set of tablet and mobile phone.

Amazon	***Flipkart***
Strength	
Brand items	***Particular brand only***
Good in delivery time	***Moderate delivery time***
Considerable Price	***Inconsiderable Price***
Weakness	
Very low margin at operator	***Not comfortable with online payment.***
Poor in Rural Area distribution.	***Poor in Rural and urban Area distribution***

II. METHODOLOGY

Customers' online shopping behavior are based on these five factors as follows,

2.1 Financial Risk: Financial risk is defined as the perception that a certain amount of money could be lost while purchasing or making a product work properly from an online purchase. Certain age groups are more concerned with their security and privacy of their bank account information.

2.2 Product Quality Risk: When an ecommerce business gives accurate descriptions of products and the ability to zoom in on the product pictures to give the client an accurate expectation of the product. Due to the limited information that is sometimes presented to consumers they lose the inability to evaluate the quality of the product.

2.3 Delivery Time Risk: There are many factors that affect whether or not the customer receives their delivery for example improper shipping and handling during transportation Easing customer's minds on shipping and non-delivery is by giving accurate updates on when they should expect the product they ordered.

2.4 Online Payment Security Risk: Often, customers trying to purchase goods or services with stolen cards exhibit behaviors that, once you are aware of them, are easy to spot.

2.5 User Friendly Website Design: Attractive web design has always played a key role in successful online sales and marketing. That's because it increases the perceived value of your products and works to make your website (and business) seem more trustworthy.

III. Literature Survey

K.Kiruthika, S. Sivakumar, the title is "Analysis of students' behaviour and learning using classification of data mining methods" discussed about classification and clustering using **WEKA tools -** AD Tree, J48 Tree and Random tree algorithm as data mining techniques.**Jubin Jose James,** student of New Delhi Institute of Management 2015-2017 Batch declare that every part of the Project Report Study on **Consumer buying behaviour towards online retail marketers** submitted by me is original.**Trilok Chand Sharma, Manoj Jain** [2], the article titled as "WEKA Approach for Comparative Study of Classification

IV. MATERIALS AND METHODS:

A data are collected through questionnaires from different online shopping customers' in multiple area. The questionnaires are based on the following attributes such as Company name, quality_product, Delivery_time, Price and Pay_security. In order to analyze the data and to know the strength and weakness of the company, we are using a data mining classification method through WEKA tool.

4.1 Description of Data Collection

Customer data's are collected through hand and online questionnaires, the sample questionnaires are,

Write about your personal details

Gender : Female/Male Area : Rural/Urban

1. Which is your favourite online shopping companies?
   a) Amazon b) Flipkart
2. Which companies' product_quality is good?
   a) Amazon b) Flipkart
3. Which companies' price is considerable?
   a) Amazon b) Flipkart
4. Which companies' delivery_time is best?
   a) Amazon b) Flipkart
5. Which company web site design is user friendly?
   a) Amazon b) Flipkart
6. Which company online payment_security is best?
   a) Amazon b) Flipkart

The collected data are grouped into excel and the sample record is shown below,

Table 4.1 Sample Dataset

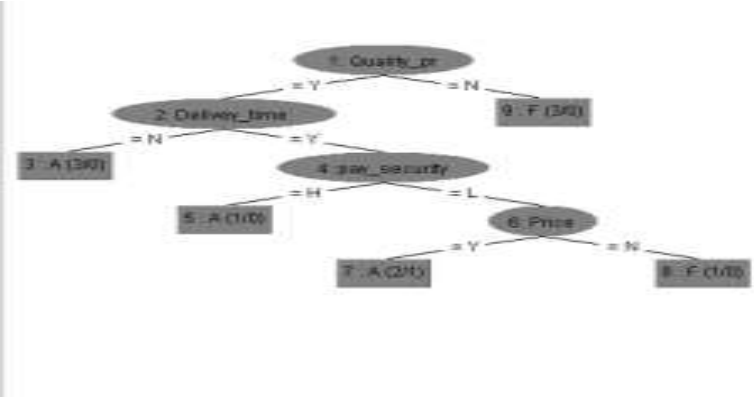
S.NO	COMPANY	GENDER	QUALITY_PR	DELIVEY_TIME	PRICE	WEB SITE	PAY_SECURITY
1	A	M	Y	N	Y	G	H
2	F	F	Y	Y	N	B	L
3	F	F	N	Y	N	G	L
4	F	M	N	Y	N	B	H
5	A	F	Y	N	Y	G	L

4.2 Classification

Classification is a form of data analysis that extracts models describing important data classes. Such models, called classifier, predict categorical class labels. Many Classification methods have been proposed by researchers in machine learning, pattern recognition and statistics. Recent data mining research has built on such work, developing scalable classification and prediction techniques capable of handling large amounts of risk resident data.WEKA is a data mining system developed by University of Waikato in New Zealand. It is a collection of machine learning algorithm for data mining task. WEKA implements algorithms for data pre-processing, Classification, regression, clustering and association rules; it also used in visualization tools. In the online shopping we explain about amazon and flipkart usage.

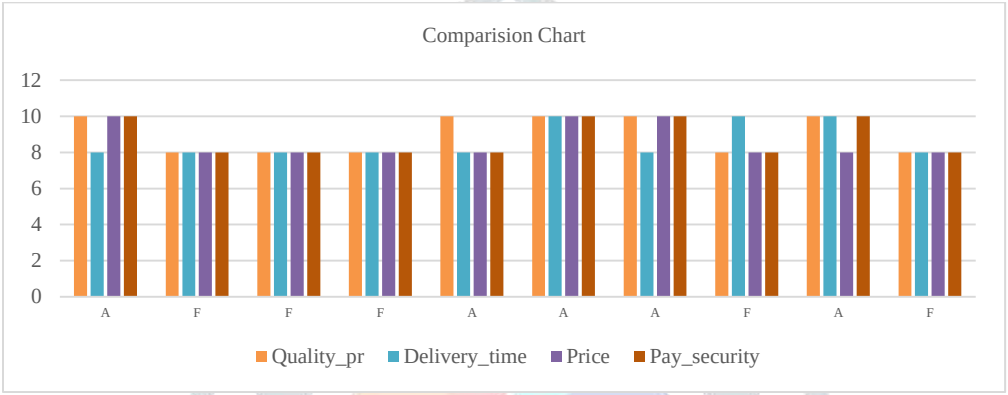
4.3 Random Tree

A random tree is a tree drawn at random from a set of possible trees. In this context"at random" means that each tree in the set of trees has an equal chance of being sampled. Another way of saying this is that the distribution of trees is "uniform".COMPONENT allows you to sample from three uniform distributions:



V. RESULT

The paper discusses and analyses about the online customers' shopping behavior through data mining methods. The results that obtained from the Random Tree classification are compared through Stratified Cross Validation Analysis. The comparative result of the give dataset is charted below,



Through the above Stratified Cross Validation Analysis the result for these three attributes are given below; The financial risk has a significance influence on customers' online shopping behavior; the average score of financial risk for the product Amazon is 60% low as compare to flip kart .The average score of product quality risk for the product Amazon is 80% low as compare to flip kart. The average score of delivery time risk for the product Flip kart is 40% low as compare to that of Amazon

VI. CONCLUSION

Online shopping is becoming more and more popular because of its easy use and the availability of products and services for 24 hours a day through internet service. This paper has examined the external online factors influence customer's online shopping behavior; specifically the influence of five external online factors namely financial risk, product quality risk, delivery time risk, online payment trust & security and website design. The findings of this study are given the clear picture to e-retailers and will help to formulate their online marketing according to the customers' shopping behavior.

VII. REFERENCE

[1] K.Kiruthika, S. Sivakumar, the title is"Analysis of students' behaviour and learning using classification of data mining methods" discussed about classification and clustering using **WEKA tools -** AD Tree, J48 Tree and Random tree algorithm as data mining techniques.

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[3] Trilok Chand Sharma, Manoj Jain [2], the article titled as "WEKA Approach for Comparative Study of Classification Algorithm" discussed about classification of different decision tree algorithm as data mining technique