DATA MINING HELPS MARKETING TO STUDY CUSTOMER BEHAVIOUR

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Abstract:
Data mining has many different uses in real life. An important use of data mining is to learn customer behaviour and thereby improve marketing strategy. We can categorize customer’s behaviour based on purchasing experience, product effectiveness etc. Customer behaviour will always be a big data set. Data from this large data set can be categorized according to the nature of the customer and make the necessary changes to marketing strategy. That is why data mining is so important here.

Keywords
Data mining, marketing, customer behaviour, tools for classification.

1. Introduction
Data mining is the process of identifying and classifying patterns from large data sets and providing accurate information accordingly. Marketing is a concept that is just as important as data mining. Marketing is the business process of selling, promoting or providing any service. There are many ways to improve marketing. Important among them is the behaviour of customer. We cannot make a marketing strategy by looking at only one customer. A large data set is always essential for decision making to improve marketing. Commonly used ways are not viable for this. Data mining can only accurately understand and categorize data. Here the data is sorted by customer’s behaviour. Data mining tools can be used for pattern identification because each customer is different.

2. Need for the study
This study aims to improve marketing according to the nature of the customer to those in the business.

3. Objective of the study
• Improving marketing based on customers behaviour
• Usage of data mining and its tools in real life

4. Methodology
This study is mainly based on data mining tools. Firstly, we can classify customers behaviour. The behaviours of customers are,

4.1 Purchase decision
We have a lot of obstacles when it comes to buying any things. Firstly, we need to figure out where to get what we need. Secondly, we need to know the purpose of the purchase thing. Thirdly, we should make sure that there is no damage to the purchased item. These are the factors that influence purchase.

4.2 User experience
Whether or not we buy an item depends on previous experience or usage.

4.3 Brand loyalty
Sometimes we only use the same branded products because of quality or satisfaction. Even if the same item is made by another brand, the chances of choosing that product are low.

4.4 Performance
Product performance is just as important as quality. We cannot use a product without its performance, quality and utility.

4.5 Conformity and affect
Conformity and affect are crucial in choosing a product.

4.6 Communication
Some customers may choose to have a product by communicating with others. That is, the oral advertising of a product.

4.7 Beliefs
No matter how good a product is, we don’t want a change from what we normally use. Its part of a belief.

4.8 Life style
Lifestyle also influences product selection of a customer. Rich and poor may buy the same product at different prices.

4.9 Age
There is a difference in choosing a product based on age.

4.10 Gender
Purchasing also varies according to gender.

4.11 Region
We always prefer to buy from our region even if we know we will get better in another region.

4.12 Social factors
Some people may choose products based on social status. Social status includes position, wealth, employment, leadership, popularity etc.
5. How data mining works

Use any classification algorithm to classify data in data mining. First put the collected data in the related region. For example:

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Item</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sugar</td>
<td>Grocery items</td>
</tr>
<tr>
<td>2</td>
<td>Tea powder</td>
<td>Grocery items</td>
</tr>
<tr>
<td>3</td>
<td>Milk powder</td>
<td>Grocery items</td>
</tr>
<tr>
<td>4</td>
<td>Saree</td>
<td>Textile items</td>
</tr>
<tr>
<td>5</td>
<td>Blouse</td>
<td>Textile items</td>
</tr>
<tr>
<td>6</td>
<td>Skirt</td>
<td>Textile items</td>
</tr>
<tr>
<td>7</td>
<td>Shirt</td>
<td>Textile items</td>
</tr>
<tr>
<td>8</td>
<td>Chair</td>
<td>Home appliances</td>
</tr>
<tr>
<td>9</td>
<td>Table</td>
<td>Home appliances</td>
</tr>
<tr>
<td>10</td>
<td>Bed</td>
<td>Home appliances</td>
</tr>
<tr>
<td>11</td>
<td>Rice</td>
<td>Grocery items</td>
</tr>
<tr>
<td>12</td>
<td>Shelf</td>
<td>Home appliances</td>
</tr>
</tbody>
</table>

Source: Primary Data
- When it comes to a wedding, the first choice is clothing.
- In this, we should first look at where to get the reasonable price.

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Item</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hair dye</td>
<td>Cosmetic</td>
</tr>
<tr>
<td>2</td>
<td>Rose powder</td>
<td>Cosmetic</td>
</tr>
<tr>
<td>3</td>
<td>Shirt</td>
<td>Textile items</td>
</tr>
<tr>
<td>4</td>
<td>Table</td>
<td>Home appliances</td>
</tr>
<tr>
<td>5</td>
<td>Gold</td>
<td>Gold items</td>
</tr>
</tbody>
</table>

Source: Primary Data
- People with grey hair will prefer it to be black.
- That is why they prefer to buy hair dye. If an allergic reaction occurs when using one brand, they will choose another brand.
- So, they change their hair dye brand based on their experience.

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Item</th>
<th>Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Talcum powder</td>
<td>Axe</td>
</tr>
<tr>
<td>2</td>
<td>Talcum powder</td>
<td>Nivea</td>
</tr>
<tr>
<td>3</td>
<td>Talcum powder</td>
<td>Nycil</td>
</tr>
<tr>
<td>4</td>
<td>Talcum powder</td>
<td>Yardley</td>
</tr>
<tr>
<td>5</td>
<td>Talcum powder</td>
<td>Ponds</td>
</tr>
</tbody>
</table>

Source: Primary data
- The first thing to consider is to choose the brand you like. Only then will other things be considered.

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Item</th>
<th>Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Washing machine</td>
<td>Whirlpool</td>
</tr>
<tr>
<td>2</td>
<td>Washing machine</td>
<td>Bosch</td>
</tr>
<tr>
<td>3</td>
<td>Washing machine</td>
<td>LG</td>
</tr>
<tr>
<td>4</td>
<td>Washing machine</td>
<td>Samsung</td>
</tr>
<tr>
<td>5</td>
<td>Washing machine</td>
<td>Haier</td>
</tr>
</tbody>
</table>

Source: Primary Data
- First ask about the performance of the washing machine. Then compare each brand. Then chooses the best of it.

6. Data mining classification methods

We can never come to a conclusion based on one or two data. Large set of data are mandatory to reach conclusions.

- Statistical procedure-based approach
- Machine learning based approach
- Neural network
- Classification algorithms
- ID3 algorithm
- C4.5 algorithm
- KNN algorithm
- Decision trees
- Support vector machines
- SenseClusters
For example:
In Statistical procedure-based approach, the following are relevant to data mining.
- Size
- Curse of dimensionality
- Automated analysis
- Data analysis
- Visualization
- Sampling etc.

But even if there are so many ways, machine learning based approach is the most used in today’s time. Like statistical approaches, background knowledge may use in development. But the operation is assumed without human interference. Here consumer behaviour can be categorised depending on a many attribute in data set. Each and every data set number and type of attributes may vary. The result comes from sequence of logical steps like decision trees.

7. Findings
- Marketing of the product can be done through data mining looking at all these factors.
- Data can be classified using any classification algorithm in data mining.
- Data are classified by its category.
- It is possible to know which areas of marketing should change accordingly.

8. Conclusion
From the study conducted among the customers/consumers, it can be seen that customers play a vital role in marketing. As such, marketing is dependent on customers. As the behaviour of customers changes, so does change the marketing strategy also. There is no other tool better than data mining to classify customers behaviour.

9. References

10. Websites
[1] wikipedia.org
[2] hindawi.com