

What marketing opportunities does data mining provide?

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Data mining can provide many different marketing opportunities. Data mining allows companies to establish and record customer characteristics and customer interactions. Customer characteristics can include demographic, psychographic and technographics of the customers. The reason that the Internet Company would be able to do this is because all their stored data would allow them to understand any problems. Other advantages of data mining are strong targeting, personalisation, association, knowledge management, clustering, estimation and prediction and decision trees.

Marketers use targeting to select the people receiving a fixed advertisement, to increase profit, brand recognition or other measurable outcome. Targeting on the web must account for different advertising ad space costs. Marketers use personalisation to select the advertisements to send to a person, to maximize some measurable outcome. Here we use advertisement loosely to refer to any recommendation or item offered by a site. Even a simple hyperlink in a menu or an article could be considered an advertisement.

Association, also called market basket analysis, identifies items that are likely to be purchased or viewed in the same session. If references placed to these items together on the same page in a web catalogue, you may remind the visitor to purchase or view something otherwise forgotten. If a promotion is held on one item in an association group, you're likely to increase purchases of other items in that group. Knowledge management is referred to systems that seek to identify and leverage patterns in natural language documents.

A more specific term is text analysis since the vast majority operates on text. The first step is associating words and context with high-level concepts. This can be done in a directed way by training a system with documents that have been tagged by a human with relevant concepts. The system then builds a pattern matcher for each concept, when presented with a new document, the pattern matcher shows how strongly the document relates to the concept. Clustering, sometimes called segmentation, identifies people who share common characteristics, and averages them to form a characteristics vector or centroid.

Clustering systems usually let you specify how many clusters to identify within a group of profiles, and then try to find the set of clusters that best represents the most profiles. Estimation and prediction guesses an unknown value, such as income, when you know other characteristics about a person. Prediction guesses a future value, when an event hasn't occurred yet such as the probability of buying a car next year or the expected number of stocks that a person will trade in the coming year.

The same algorithms can perform estimation and prediction. Decision trees, are essentially a flow chart of questions or data points that ultimately leads to a decision tree, for example, a car buying decision tree might start by asking whether you want a 1999 or 2000 model, then ask what type of car, then whether you prefer economy or power and so on, until it determines what might be the best car for you. Decision tree systems try to create optimized paths, ordering the questions so a decision can be made in the least number of steps.