

Memory-Based Reasoning: A Data Mining Technology Applicable to Business Problems

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Abstract

Data mining consists of technologies used to discover valuable information that has not been found, from large volumes of data in order to use that information to develop business strategies.

We are developing our technologies and systems, mainly focusing on Memory-Based Reasoning (MBR) which is one of the data mining technologies, to achieve a high prediction accuracy, and applying that to business processes. We are also enhancing our technologies and support for the business sections of Fujitsu Ltd., where they develop business solutions for their customers, by analyzing the customer's data together with the business sections in cooperation with their customers.

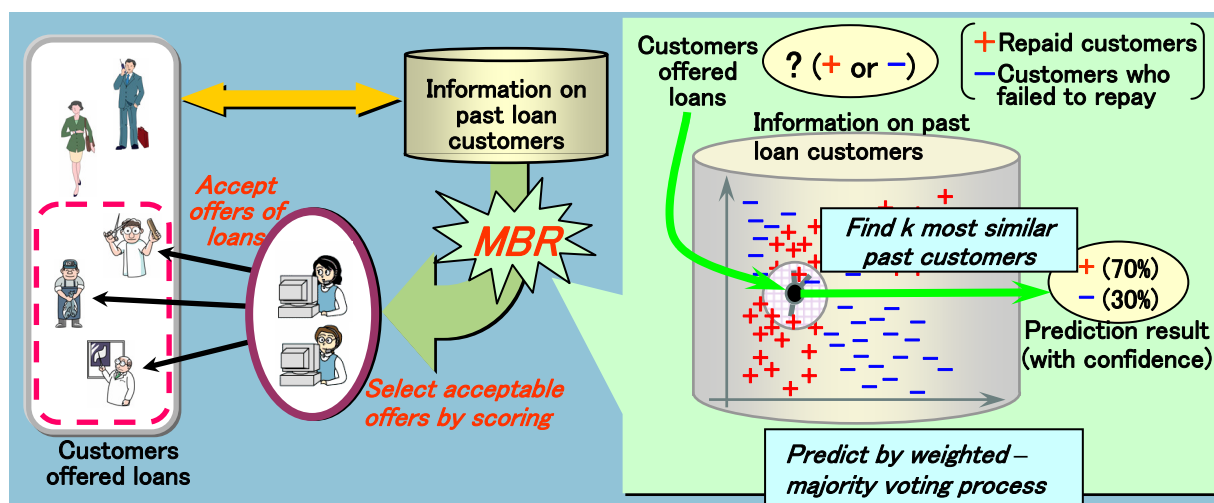
Technology

We have developed the technology by enhancing our MBR technology, which predicts the class of a new case with high accuracy by means of cases similar to the new case found from accumulated past cases. The new technology can:

- Achieve high accuracy by means of the original metric (weights of attributes) calculated using the distribution of past cases.
- Enable a quantitative evaluation of the analysis by means of prediction with degrees of confidence
- Output the reliability of the prediction itself which is calculated using the distribution of similar cases
- Indicate causes of the prediction result using the weights of attributes.
- Decrease the amount of work for the business process by determining the proper number of similar cases automatically using the distribution of past cases.
- Archive high accuracy for the multi dimensional time-series which has gaps and omissions in observation points by means of adaptive matching algorithm.

Application Examples

- Fujitsu credit scoring systems, in which our MBR technology is installed, have been in operation at several banks and consumer finance companies.
- Our MBR technology is installed in a Fujitsu product called "Interstage Navigator Explorer Server," and it has been applied to systems that use information such as CRM systems.
- Our MBR technology has been used by a customer in the manufacturing industry to select some important attributes, which mainly determine the whole system performance, from a large number of attributes.
- Our MBR technology is applicable to predict quality and performance in the manufacturing industry using past data or simulation results.



An application of the credit scoring system