

DATA MINING: TECHNIQUES AND APPLICATIONS

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BART BAESENS and DAVID MARTENS

In this age of computerized data processing, more and more structured data becomes available. This is mainly driven by the automation of processes, and innovative storage technologies. Although useful and valuable knowledge is hidden in these vast amounts of data, it is typically hidden. Data mining entails the automatic inferring of patterns and knowledge from this data in order to come to a better decision making process.

Such predictive analytics take advantage of the valuable knowledge that is present in your data. Typical applications include sales, churn and response prediction. It goes without saying that predictive models can not only improve business and customer understanding, but can even provide a competitive advantage.

The course aims at providing a sound mix of both theoretical, technical insights as well as practical implementation details, illustrated by several real-life cases. It will be highly interactively organized. Next to a review of the most commonly used techniques for data mining (e.g. decision trees, artificial neural networks), the hands-on course will demonstrate opportunities for improved decision making at your company, with a number of real-life case studies and the practical use of data mining software.

The course will focus on data mining techniques and applications. Following concepts will be discussed :-

- Introduction to data mining
- Data preprocessing
- Supervised learning techniques
- Decision trees (C4.5)
- Linear models (linear regression, logistic regression)
- Non-linear models (artificial neural networks, support vector machines)
- Unsupervised learning techniques
- Clustering (kmeans clustering, SOMs)
- Association rule mining (Apriori)
- Applications in credit scoring, fraud detection, marketing, house price prediction, fraud detection, etc.
- The use of Weka, an open source data mining tool, to do supervised and unsupervised data mining.

After the training course, attendees will be aware of recent trends and applications in data mining, and will be able to build high-performing predictive models and spot opportunity for data mining to optimize business processes.

The target audience consists of people who are involved into data analysis, data mining, statistical analysis, development of decision models for improved business decision making.

COURSE TEACHERS:

Dr. Bart Baesens is an assistant professor at the K.U.Leuven, Vlerick Leuven Ghent Management School (Belgium), and a lecturer at the University of Southampton (United Kingdom). He has done extensive research on data mining, credit scoring, and CRM.

Dr. David Martens is a researcher at the Management Informatics department of the University of Leuven, where he works on building practical and usable predictive classification models. He has developed several high-performing new techniques, and worked out several real-life applications in the credit scoring, audit and marketing domain.

Book on line via www.theorsociety.com or email Hilary Wilkes on hilary.wilkes@theorsociety.com or telephone on 0121 233 9300