

# Foreword

Data warehouse systems have become a key component of the corporate information system architecture, in which they play a crucial role in building business decision support systems. By collecting and consolidating data from a variety of enterprise internal and external sources, data warehouses try to provide a homogeneous information basis for enterprise planning and decision making. We have recently witnessed a rapid growth both in the number of data warehousing products and services offered as well as in the acceptance of these technologies by industry. Within recent years, data warehouses have faced a tremendous shift from simple centralized repositories used to store cash-register transactions to a platform for data integration, federation, and sophisticated data analysis. Nowadays, data warehousing technologies are successfully used in many industries including retail, manufacturing, financial services, banking, telecommunication, healthcare, and so forth.

Data warehousing technology is currently a very active field of research. Research problems associated with creating, maintaining, and using data warehouse technology are partially similar to those specific for database systems. In fact, a data warehouse can be considered as “large” database system with additional functionality. However, the well-known problems of index selection, data partitioning, materialized view maintenance, data integration, query optimization, have received renewed attention in warehousing research. Some research problems are specific to data warehousing: data acquisition and data cleaning, data warehouse refreshment, evolution of data warehouse schema, multidimensional and parallel query optimization, conceptual modeling for the data warehouses, data quality management, and so forth. This book addresses all the above mentioned issues in the area of data warehousing from multiple perspectives, in the form of individual contributions written by prominent data warehouse technology researchers, and it also outlines new trends and future challenges in the context of next generation data warehouse systems.

In reading the book, I was impressed by how much the field of data warehousing has advanced and matured. The book describes different aspects of data warehousing technology and gives an insight into important research, technological, and practical problems and solutions related to the data warehousing technology. The content of the book covers fundamental aspects of data warehousing technology such as the conceptual modeling and design of data warehouse systems, data warehouse refreshment, query optimization, indexes, integration of the data warehouse technology with data mining techniques, and, finally, new trends in data warehousing such as temporal semistructured data models and spatial online analytical processing.

I am pleased to recommend this book to the readers. If you are a researcher, a data warehouse developer, or just a keen reader wishing to understand important aspects of data warehouses and their potential, you will find that this book provides both a solid technical background and state-of-the-art knowledge on this interesting and important topic. The book is a valuable source of information for academics and practitioners who are interested in learning the key ideas in the field of data warehousing. This book is likely to become a standard reference in the field of data warehousing for many years.

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