

Preface

The Fourth European Business Intelligence Summer School (eBISS 2014) took place in Berlin, Germany, in July 2014. Tutorials were given by renowned experts and covered several recent topics in business intelligence. This volume contains the lecture notes of the summer school.

The first chapter surveys the domain of requirements engineering for decision support systems. This is done in the context of a real-world application for analyzing the impact of the Chagas disease. This disease is classified as a life-threatening disease by the World Health Organization (WHO) and causes numerous deaths every year. The development of the Chagas Information Database (CID) is part of WHO's strategy for advancing in the disease control. CID is a decision support system to support national and international authorities in both their day-by-day and long-term decision making. The paper describes the results of applying Pohl's Framework for the requirements engineering phase of this project.

The second chapter presents the application of visual analytics for enabling a multiperspective analysis of mobile phone call data records. The analysis of human mobility is a hot research topic in data mining, geographic information science, and visual analytics. While a wide variety of methods and tools are available, it is still hard to systematically consider a dataset from multiple perspectives. The paper presents a workflow that enables a comprehensive analysis of a publicly available dataset about mobile phone calls of a large population over a long time period. The paper concludes by outlining potential applications of the proposed method.

The third chapter gives an overview of how the Web of documents has evolved into what is referred to as Linked Data. The paper starts with a description of the evolution that led from the first version of the Web to the Web of data, sometimes referred to as the Semantic Web. Based on the "data > information > knowledge" hierarchy, the article makes explicit the structures of knowledge representation and the building blocks of the Web of data. Then, the paper shows how RDF (Resource Description Framework) data can be managed and queried. After that, the paper delves on ontologies, from their creation to their alignment and reasoning. The article concludes by pointing out research and development perspectives in the linked data environment.

The fourth chapter gives a survey of supervised classification on data streams. Research in the statistical learning and data mining fields in the last decade resulted in many learning algorithms that are fast and automatic. However, a strong hypothesis made by these learning algorithms is that all examples can be loaded into memory. Recently, new use cases generating huge amounts of data have appeared, such as monitoring of telecommunication networks, user modeling in dynamic social networks, web mining, etc. As the volume of data increases rapidly, it is now necessary to use incremental learning algorithms on data streams. The article presents the main approaches of incremental supervised classification available in the literature.

Finally, the fifth chapter presents a survey of existing techniques of knowledge reuse and provides a classification approach for them. The importance of managing organizational knowledge for enterprises has been recognized since decades. Indeed, a systematic development and reuse of knowledge will help to improve the competitiveness of an enterprise. The paper investigates different approaches for knowledge reuse from computer science and business information systems. It proposes a classification approach for these techniques based on the following criteria: reuse technique, reuse situation, capacity of knowledge representation, addressee of knowledge, validation status, scope, and phase of solution development.

In addition to the lectures corresponding to the chapters described above, the eBISS 2014 had three other lectures, as follows:

- Frithjof Dau, from SAP Research, Germany: CUBIST - Combining and Uniting Business Intelligence with Semantic Technologies
- Asterios Katsifodimos, from Technical Universität Berlin, Germany: Big Data looks tiny from Stratosphere
- Roel J. Wieringa, from University of Twente, The Netherlands: Design Science Methodology for Business Intelligence

These lectures have no associated chapter in this volume, because their content is reported in recent publications, respectively, [1], [2], and [3].

We would like to thank the attendants of the summer school for their active participation, as well as the speakers and their co-authors for the high quality of their contribution in a constant evolving and highly competitive domain. Finally, the lectures in this volume greatly benefit from the comments of the external reviewers.

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