



METADATA

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Abstract

The main scope of this textbook is to enhance readers' capabilities and skills in selecting the appropriate strategies for searching and retrieving information. Additionally, this textbook aims to familiarize its readers with the use of modern techniques and strategies for retrieving data and information from search engines, electronic resources, data banks, bibliographic databases and generally all kinds of databases. More specifically, this textbook initially (Introduction) sheds light on the concept of Information Retrieval Systems (IRS), their basic components and their utility. These include fundamental theoretical approaches to the scientific topic of Information Retrieval such as Boolean Algebra and Venn Diagrams (Chapter 1), as well as the theory behind the binary (Chapter 2) and vector (Chapter 3) information representation model adopted by an IRS. Subsequently, the methods and metrics of the evaluation of the IRSs are explained through practical examples (Chapter 4) such as the concepts of Precision, Recall, and their Harmonic Mean (F-Measure). At the same time, a set of search techniques and the related terminology

that embraces them are presented through multiple examples, as well as the importance of the relevance feedback process of a query to IRSs (Chapter 5). In addition, examples are given regarding the utility and possibilities offered by modern search engine environments and how they rank their results (Chapter 6), while complementarily, the practical use of search engines in bibliographic/library databases is presented (Chapter 7). This textbook also aims to understand the importance of metadata and the Semantic Web within the evolution of Information Retrieval scientific topic in today's digital world. More specifically, readers can acquire basic knowledge such as the importance of describing metadata for web resources based on international standards, the linked data and their lifecycle, as well as the utility of ontologies and knowledge graphs in the describing process (Chapter 8). Finally, this textbook offers the readers an integrated knowledge about the types of information resources, how to evaluate them, but also fundamental copyright issues that arise when the information is disseminated (Chapter 9).