Web Engineering

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CHAPTER I

AN INTRODUCTION TO WEB ENGINEERING

Modern Web applications are full-fledged, complex software systems. Therefore, the development of Web applications requires a methodologically sound engineering approach. Based on Software Engineering, Web Engineering comprises the use of systematic and quantifiable approaches in order to accomplish the specification, implementation, operation, and maintenance of high-quality Web applications. We distinguish Web applications from the viewpoints of development history and complexity: Web applications can have document centric, interactive, transactional, or ubiquitous characteristics, or even features of the semantic Web. The particular requirements of Web Engineering result from the special characteristics of Web applications in the areas of the software product itself, its development, and its use. Evolution is a characteristic that encompasses these three areas.

1.1. Motivation

The World Wide Web has a massive and permanent influence on our lives. Economy, industry, education, healthcare, public administration, entertainment – there is hardly any part of our daily lives that has not been pervaded by the World Wide Web, or Web for short (Ginige and Murugesan 2001b). The reason for this omnipresence lies especially in the very nature of the Web, which is characterized by global and permanent availability and comfortable and uniform access to often widely distributed information producible by anyone in the form of Web pages (Berners-Lee 1996, Murugesan et al. 1999). Most probably you came across this book by entering the term "Web Engineering" into a search engine. Then, you might have used a portal for comparing offers of different vendors and finally, you may have bought the book using an online shop.

While originally the Web was designed as a purely informational medium, it is now increasingly evolving into an application medium (Ginige and Murugesan 2001a, Murugesan et al. 1999). Web applications today are full-fledged, complex software systems providing interactive, data intensive, and customizable services accessible through different devices; they provide a facility for the realization of user transactions and usually store data in an underlying database (Kappel et al. 2002). The distinguishing feature of Web applications compared with traditional software applications is the way in which the Web is used, i.e. its technologies and standards are used as a development platform and as a user platform at the same time. A Web application can therefore be defined as follows: