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Engineering Web Applications

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To our families and partners

Preface

The Web is nowadays omnipresent: we use it at home for private reasons, and we use it at work for professional reasons; we use it for fun (e.g., gaming) and for serious interactions (e.g., home banking), via fixed stations and via mobile devices, and these are just few of the motivations for and the contexts in which we exploit such a powerful medium. The Web has indeed probably become the number one reason for private PCs at home, and the most important kind of "business card" for companies and institutions. Very likely, each of us has already tried at least once online applications such as `Amazon.com` for buying books or CDs, `Ikea.com` for buying furniture, and, of course, `Google.com` for searching Web sites. Similarly, most of us can no longer imagine a travel planning without the flight booking and hotel reservation systems that are accessible over the Web. We could cite many other examples where the Web is playing a major role, but we believe there is no need for further convincing the reader that the Web has become an indispensable instrument to the most of us.

While the potential, contents, and features offered via the Web are fascinating and attracting an ever growing number of people, there is also a steadily increasing number of people who are interested in developing applications for the Web. If one likes the Web, there is nothing better than developing an own Web site or Web application. Yet, depending on the result one aims to achieve, writing a good application for the Web might be an intricate and complex endeavor that typically requires profound knowledge of the way the Web works.

This book is about engineering Web applications, that is, about developing Web applications according to sound principles, models, and methods. There are many books about Web development available on the market. Most of them focus on specific programming aspects (e.g., data design, presentation design, or Web services), programming languages (e.g., PHP, Java, .NET, JavaScript) or on HTML/XML development. Then, there are many so-called edited books, which assemble independent contributions by multiple authors that, together, cover some aspects of Web development. With this book, we

aim to provide a comprehensive book that covers the whole development life cycle of Web applications, that does not focus too much on specific technologies, and that offers an integrated view on all the addressed topics, also thanks to the adoption of models providing high-level abstractions.

Writing such a book was not an easy task. Bringing together the ideas, knowledge, and personal believes of four authors with different backgrounds and experiences was indeed challenging. Uncountable discussions via email and lots of Skype phone conferences were necessary to reach this final version of the book, while we could still go on (and actually do) with new discussions on additional topics and ideas. However, in order to come to a conclusion, writing a book also means taking decisions and keeping deadlines. We sincerely tried to stick to our internal calendar, but only seldom we succeeded. The tones in emails and on the phone were sometimes even harsh, yet fair, but eventually we could always come to an agreement on how to improve what had been written so far and to proceed. Writing a book is also this, arguing and defending ideas, but we are convinced the book benefited from each discussion and, hence, that it was worth to spend the energy we invested into each discussion.

The present version of the book represents the result of about two years of work. Though integrated, the book reflects the characteristics of each author, either because one gave more emphasis to details and technical aspects and another paid more attention to modeling aspects, or simply because some parts have influences from software engineering and others from data engineering or model-driven development. We however think this book provides a good balance between our respective backgrounds and "cultures" and – as outlined in the introduction of this book – we think that it provides a variety of readers with interesting and stimulating contents.

As for the acknowledgments, we would like to stress that many people contributed to the publication of this book. We want to thank them all.

Special thanks go to Stefano Ceri and Mike Carey, who gave us the possibility to publish the book in the renowned series "Data Centric Systems and Applications". Many thanks go to Ralph Gerstner by Springer for assisting and guiding us during the whole production process. We are also deeply indebted to the reviewers and the manuscript copy editor; their comments and annotations effectively helped us improve the book in both language and content.

Finally, we would like to thank our families, partners, and friends for encouraging (and also tolerating!) us during the writing of this book.

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