A General Look at Building Applications for Mobile Devices

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Mobile applications increasingly affect business activity and information dissemination. They're gaining wide acceptance due to the increased need to support the mobile workforce and rapid enhancement in wireless communication devices and technologies. Many applications allow sending and viewing email, browsing the World Wide Web, viewing traffic and weather reports, watching movies, and accessing back-end database systems.

Context, components, and case studies

Mobile Applications: Architecture, Design, and Development aims to help software developers build successful mobile applications. Authors Valentino Lee, Heather Schneider, and Robbie Schell introduce mobile applications and address the business

context, pros, and cons of going mobile. They discuss different themes of client-server mobile application architecture and present some good architectural design tenets. The book gives the reader ground information on mobile device types and characteristics using general terms without getting too technical.

Next, the authors detail the best practices for developing easy, convenient, and helpful mobile client-user interfaces. They address major architectural components of mobile client applications and the best practices for implementing them. The book also explains different methods for transferring data between a mobile client and a back-end system. It explores modifications and required extensions for mobilizing existing Enterprise Web applications and covers related security issues.

The authors then review the waterfall development model, including requirements gathering and documenting and applications design, coding, testing, deployment, and operation. They also provide three hypothetical case studies: Mobile Museum, Mobile Biologist, and Mobile Zoo. Mobile Museum concerns the mobilization of a hypothetical Web site to accommodate users with mobile devices that have a constant network connection. Mobile Biologist explores issues (such as synchronization) that relate to situations where developers cannot guarantee connectivity between a mobile client and a server. Mobile Zoo describes the development of a mobile application that uses Pocket Web Host to host Web pages on a Pocket PC. Appendices present Pocket Web Host's design and related resources.

The good and the bad

The book helps beginners create and deploy robust mobile applications. It's a good information source for software developers, architects, and project managers who want to accommodate mobility in their existing application architectures. Computer science, computer engineering, software engineering, and information systems students will also find fruitful guidelines and information. The book's best features are its presentation of basic concepts in clear language and its use of three case studies to explore the development life cycle.

On the other hand, although the book's scope is wide, Lee, Schneider, and Schell only briefly introduce the subject. Besides shallow coverage and over-explaining simple background material, some figures and explanations need revision (for example, Figure 12.8). Also, technical errors exist in the UML class diagrams (such as in Figure 12.18),

where the authors misplace the methods; for example, they define `delete()` and `getNewSamples()` methods in the Sample class.

Another weakness is the material's organization. For example, chapter 6 appears to contain repeated, even irrelevant topics that the authors should have omitted. Also, the book focuses on developing client-server applications with little or superficial reference to issues that result from going mobile.

Conclusion

The authors should have elaborated more on the topics and given software developers more technical information, especially on issues that are unique to mobile applications. They should also have elaborated more on operating systems and middleware support; key mobile data technologies such as Mobitex, General Packet Radio Service, and Advanced Radio Data Information Systems; security; caching; toolkits such as Sync, Coda, and Lotus Notes; and implementation tools.

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