

Book Review: *Mobile Devices Programming*

by Paul Pocatilu



The book entitled *Mobile Devices Programming*, published by ASE Publishing House, is an absolute novelty in the field, being the first material of this kind, published in the Bucharest University of Economic Studies. The book is the result of an intensive research and strong documentation undertaken by the author over several years. Some results were presented at international conferences on applied economic informatics and computer science and were published in scientific journals. They were appreciated by specialists in the field of mobile applications development.

Mobile Devices Programming is a book targeted for master students in the field of Economic Informatics, held within the Faculty of Economic Cybernetics, Statistics and Informatics, and also to all those who want to develop applications for mobile devices, knowing their great diversity depending on the operating systems.

The book includes the practical examples of numerous mobile applications, developed for over six years, and incorporates theoretical contributions and practical experience of the author. Some topics of the chapters of this book were presented to master students during Mobile Devices Programming courses and seminars.

The mobile applications development, addressed in this book is focused on the many important operating systems and mobile platforms on the market. For each mobile platform are included topics like user interface, data storage, networking, multimedia, sensors, and personal information management. All topics include examples that were tested on real mobile devices and on virtual emulators.

The book contains 600 pages and is divided into twelve chapters of which the first is *Introduction* and the last represents *Conclusions*.

The first chapter of the book, entitled *Mobile devices hardware characteristics*, presents the most significant hardware components of mobile devices, such as processors, storage devices, input and output components. The chapter also highlights the connectivity of mobile devices.

In the chapter *Operating systems and applications for mobile devices* the currently available major mobile operating systems are reviewed. The chapter presents at the end technologies and programming languages used for developing mobile applications for each operating system.

In the third chapter, *Java Micro Edition (Java ME)*, platform specific elements are treated and the programming model for MIDP (Mobile Information Device Profile) and CLDC (Connected Limited Device Configuration) are presented. MIDlet applications are described and the specific APIs for user interface, persistent data storage, network access, multimedia and games programming are presented. Also, some optional packages that extend the MIDP are highlighted.

The chapter entitled *Android* addresses the programming model specific to mobile applica-

tions targeting this platform. In this chapter are described activities, intents, content providers and services. Implementation aspects as user interface, activities, intents, two-dimensional and three-dimensional graphics, persistent data storage (including SQLite databases), content providers, network access, personal information management, multimedia, services, sensors and geographic location are treated.

In the *Applications programming using Win32 API* chapter are discussed in detail the concepts related to Windows Mobile applications programming using C/C++. This chapter presents the basic structure of mobile applications and differences from traditional Windows applications. It also covers detailed aspects of user interface, persistent data storage, including EBD databases, data communications, GPS access, personal information management through Pocket Outlook Object Model, and multimedia.

The chapter entitled *.NET Compact Framework* focuses on C# application development for mobile devices based on Windows Mobile and Windows CE. In addition to the common components of .NET platform, specific classes for user interface and databases are presented. Win32 native API function calls (P/Invoke), 3D graphics using Direct3D Mobile, and networking using WCF are covered.

The chapter *Windows Phone* addresses Silverlight and XNA applications development using the C# programming language. It presents the Silverlight application programming model, user interface, persistent data storage (including database access using LINQ to SQL) and multimedia. Some special aspects of network connectivity, personal information management, sensors and locations are treated. The XNA programming model and XNA applications, mainly games, elements are presented.

The chapter entitled *Symbian* is dedicated to mobile applications development for Symbian OS using C++. This chapter covers the mobile applications structure, user interface, active objects, persistent data storage (including SQLite databases), networking, and multimedia. Also the programming model based on Qt class library is presented.

In the *Assembly languages for ARM processors* chapter are presented the ARM processors architecture, basic instructions, addressing modes and function calls from ARM or C/C++ code. The chapter also covers fundamental control structures implementation and math coprocessor (VFP) specific instructions. The presented ARM routines are called from Windows Mobile applications.

The eleventh chapter, *Internet-based applications for mobile devices*, treats the Web applications development using specific mobile technologies based on XHTML and CSS. Also, the HTML 5 multimedia characteristics are addressed.

The *Bibliography* of this book contains valuable and trustful sources and over 80% of works are published starting with 2008. The *Bibliography* includes also the author's works. The *Annex* includes a list of acronyms encountered in the book. The book ends with a short description and table of contents in English language.

Mobile devices programming is a good starting point for mobile applications development on almost all mobile operating systems and platform available on the market.

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