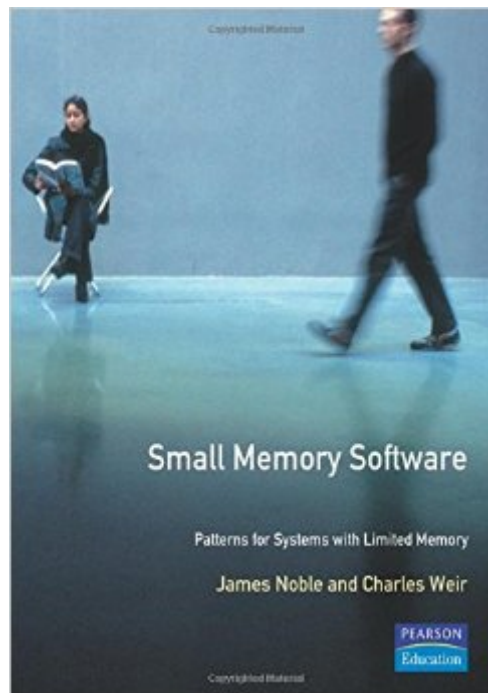# Small Memory Software: Patterns For Systems With Limited Memory (Software Patterns Series)

Synopsis

The phenomenal increases in processing power and memory capacity of computing hardware over recent years have allowed manufacturers to produce smaller and smaller computer systems such as palmtop PCs, smart cards and embedded control systems on domestic and industrial appliances. New techniques such as dynamic memory management and object-orientation help programming but tend to require additional memory. Standard programming techniques do not cope with these limited memory-capacity environments. This book will provide practical help for programmers developing software for this kind of environment. The major content is a series of patterns developed by the authors based on solutions which have been found to work in real-life situations. They range from small system design patterns and process management patterns, to patterns for User Interface development, compression and memory storage. This book will appeal to developers using Windows CE or building mobile telephones, smart cards, embedded devices, set-top computers - in short, all programmers working with memory-constrained systems.

Book Information

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Customer Reviews

The book is well written and covers relevant issues. On the other hand, these issues are rather trivial: if you've done this kind of work, you'll find that you already know some, or most, or even all of this; some of this stuff is downright self-evident (after all, even if you're new to the small-memory context, isn't it obvious that if you cannot afford to run out of memory you have to pre-allocate all

you need on startup, or that if your objects come and go and you must allocate, it's simpler and more predictable to manage fixed- rather than variable-size allocations?)Like any other patterns book I've seen, this one overdoes it. What can be said in two paragraphs will be diagrammed, over-formalized, and over-elaborated on a dosen of pages. This makes it look very scientific, but, besides taking more time than is necessary to understand, may also make it more difficult to understand. To belabor excessively is a general fault with all patterns books though; this one is no worse than the rest in that respect.All in all, this is an OK book that, while holding no conceptual breakthroughs, may be helpful for a new person -- provided he's willing to persevere through the excessive verbiage and diagramming.

Certainly a wonderful book coming at a very appropriate time, when people write more complex code for various devices. There is a certain gap in the industry in the embedded software field, where object oriented techniques and patterns are not always part of the arsenal of the developers. This book successfully bridges this gap and provides many useful examples as well as proofs for the ideas presented there. The requirements for the reader seem to require some C++ (and/or) Java , but all object oriented programmers and even traditional C users can benefit from it. There is some inclination from the authors to provide more examples from EPOC, rather than more diverse examples but that is not always the case. I recommend the book for the patterns enthusiast as well as the curious software engineer who wants to have a broader vision in his/her software development practices.

This book is an excellent working companion for any software developer. A very readable addition to the growing volume of literature on Software Patterns.While it focuses tightly on situations where memory is a major constraint, the authors' vision extends much further. A read through the discussion of the wide range of Forces addressed by the Patterns the book describes is very illuminating. Speed, reliability, usability, programmer effort and discipline - even security are all there.I've never worked on software for mobile phones, embedded devices, PDAs . . . but, with hindsight, I can readily recognise all the Patterns described - and have even used quite a few! More important, I now have a better understanding of the consequences of using Pooled rather than Variable Allocation, the benefits (and drawbacks) of using Embedded Pointers, the ways in which Secondary Storage can assist . . .The range of practical examples of Known Uses testifies to the authors' breadth of experience - and the relevance of the Patterns described to almost every software environment. From the Sinclair ZX-81 (and earlier) to the latest mobile technologies - with

DOS, UNIX, VMS, Windows and many others in-between - and all the applications they support.Read it like a novel, browse it or use it as a reference book as you please (or, as the authors suggest, leave it open on a radiator for 3 days so that it looks well read and put it on your desk to impress your boss).I'm just waiting for the launch of the Strap-It-On wrist mounted PC with morse code keypad, coindisc, voice output (with vocal emotions), RainSight weather prediction system and all the other memory-challenged applications invented for it!

We build in-memory applications and the patterns in this book helped us use memory efficiently.Although more for embedded devices the patterns are applicable and useful for any software development that relies on efficient use of memory and other resources.

The known way for small memory softwre is MISRA-C. The main point of the technology is fixed allocation. This is the best way for the safety related system. IEC 61508 and/or ISO 26262 should recommend coding guide.The MISRA-C is a best choice of the coding guide.But MISRA-C is the goding guide for C not other languages.MISRA-C is only coding not architecture and other techniques.This book is well categorized small memory techniques.It is helpful that embedded system engineers can design which techiniques should be implemented.Small architectureSecondary storageCompressionSmalll data structuresMemory allocationps.The design patterns are good for understanding.Please do not read design patterns book, but small memory book.

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