Software Engineering presents a broad perspective on software systems engineering, concentrating on widely-used techniques for developing large-scale software systems. In seven parts, this best-selling book covers a wide spectrum of software processes from initial requirements elicitation through design and development to system evolution. It supports students taking undergraduate and graduate courses in software engineering and software engineers in industry who need to update their knowledge on new techniques such as requirements engineering, distributed systems architectures and system dependability.

Extensive market research has ensured that this new edition is useful and relevant for both students and practising software engineers. The sixth edition has been restructured and updated, important new topics have been added and obsolete material has been cut. The end result is an even more focused book that is about 10% shorter than the previous edition.

Changes from the fifth edition

- There are new chapters covering software processes, distributed systems architectures, dependability and legacy systems.

- Program examples are now in Java and graphical system models are described in the standard UML.

- All chapters have been updated and several have been extensively rewritten. Reuse now focuses on component-based development and patterns; object-oriented design has a process focus and uses the UML; the chapters on requirements have been split to cover the requirements themselves and requirements engineering process; cost estimation has been updated to include the COCOMO 2 model.

- The chapters on critical systems has been restructured so that reliability, safety, availability and security are integrated in chapters on critical systems specification, development and validation.

- The section on formal specification has been cut to a single chapter and material on CASE has been integrated with the chapters covering the processes supported. Functional design has been incorporated in the new chapter on legacy systems.

The book's web site (www.software-engin.com) includes links to material to support the use of the book in teaching and personal study. It includes an instructor's manual, overhead transparencies, source code of the program examples and additional material on CASE and formal specification.

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Synopsis

Software Engineering presents a broad perspective on software systems engineering, concentrating on...
widely used techniques for developing large-scale systems. The objectives of this seventh edition are to include new material on iterative software development, component-based software engineering and system architectures, to emphasize that system dependability is not an add-on but should be considered at all stages of the software process, and not to increase the size of the book significantly.

To this end the book has been restructured into 6 parts, removing the separate section on evolution as the distinction between development and evolution can be seen as artificial. New chapters have been added on:

Socio-technical Systems discussing the context of software in a broader system composed of other hardware and software, people, organisations, policies, procedures and laws.

Application System Architectures to teach students the general structure of application systems such as transaction systems, information systems and embedded control systems. The chapter covers 6 common system architectures with an architectural overview and discussion of the characteristics of these types of system.

Iterative Software Development looking at prototyping and adding new material on agile methods and extreme programming.

Component-based Software Engineering introducing the notion of a component, component composition and component frameworks and covering design with reuse.

Software Evolution revising the presentation of the 6th edition to cover re-engineering and software change in a single chapter.

The book supports students taking undergraduate or graduate courses in software engineering, and software engineers in industry needing to update their knowledge.

Description
Includes bibliographical references (p. [663]-677) and index.

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