Ed. F. L. Bauer

SOFTWARE ENGINEERING

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This book, a consolidated effort of a group of experts, carefully prepared in a two-week seminar in Garmisch, Dec, 71/Ian. 72, has the purpose of clarifying the "Software Engineering" notion.

The word "Software Engineering" has been used in 1967 and 1968 in a provocative way, in order to demonstrate that something was wrong in the existing design, production and servicing of software. The situation has considerably changed since then; many people show concern about the problems of software engineering and some of the manufacturers, to which the provocation was mainly addressed, claim that they already obey the principles of software engineering, whatever this may mean.

Soon, "Software engineering" will turn up in the advertisements. But although the problems are indeed much better understood, the material is still not concentrated and systematized.

The intention of the group of experts led by Prof. Bauer Friederich regards the planning of this course and this book was to cover as much as they can at the moment of all the aspects of the theme, and to contribute further to the systematization of the field. The authors did not actually debated whether there was a need for software engineering.

Instead, they think it is essential to point out where the ideas of software engineering should influence Computer Science and should penetrate in its curricula. The book is organized on four big chapters. The first chapter consists in an introduction prepared by K. W. Morton and J. B. Dennis. While Morton clarifies what the software engineer can do for computer user, the other author refers to the design and construction of software systems. In this respect Dennis explains the "computer system" and "software system" terms and insists on the four characteristics of a software system — function, correctness, performance and reliability — in facts the goals of designer of software system.

G. Goos refers in the second chapter to the hierarchies and language characteristics, precising the context of his study, namely — programming languages as a tool in writing system software.

M. Griffiths explains the relationship between definition and implementation of a language.

Chapter 3 is concerned with the techniques used in software engineering. J. B. Dennis insists on the modularity concept, and P. C. Poole and W. M. Waite treats the portability and adaptibility of a program. The debugging and testing of a program and the techniques related to these problems are developed by P. C. Poole.

The problem of the software reliability is the last one dealt with in this chapter. The last chapter is dedicated to some practical aspects.

The appendix, written by Prof. Bauer, refers to the software engineering notion. In fact, the software design and production is an industrial engineering field in which the structured programming has its important role.

The second edition of this book contains valuable ideas which are a result of the authors' long years of experience. Just part of its ideas must be known, when your often empirical experience should be systematized.

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