

A Brief History of Software Engineering

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We present a personal perspective of the Art of Programming. We start with its state around 1960 and follow its development to the present day. The term Software Engineering became known after a conference in 1968, when the difficulties and pitfalls of designing complex systems were frankly discussed. A search for solutions began. It concentrated on better methodologies and tools. The most prominent were programming languages reflecting the procedural, modular, and finally object-oriented styles. Software engineering is intimately tied to their emergence and improvement. Also of significance were efforts of systematizing, even automating, program documentation and testing. Ultimately, analytic verification and correctness proofs were to replace testing.

More recently, the rapid growth of computing power made it possible to apply computing to ever more complicated tasks. This trend dramatically increased the demands on software engineers. Programs and systems became complex and almost impossible to fully understand. However, the sinking cost and the abundance of computing resources inevitably reduced the care for good design. Quality seemed too extravagant, a loser in the race for profit. We should be concerned about the resulting deterioration in quality. Our limitations are no longer given by slow hardware, but by our own intellectual capability. Programming, after all, is NOT easy. From experience we know that most programs could be significantly improved, made more reliable, economical, comfortable to use.

What can we learn from history?