

0.1 Software engineering

The application of a **systematic, disciplined, quantifiable** approach to the development, operation, and maintenance of software; that is, the application of engineering to software.

SWEBOK knowledge areas

- Software Requirements
- Software Design
- Software Construction
- Software Testing
- Software Maintenance

0.2 History

0.2.1 Programming languages

- 1956 - Fortran
- 1973 - C
- 1994 - Java

0.2.2 Important dates

- 1822 - First mechanical computer created by Charles Babbage
- 1911 - Foundation of IBM
- 1939 - First digital computer - the Atanasoft-Berry computer
- 1960s - SAGE software development process, and the Apollo on-board software MIT team led by Margaret Hamilton
- 1968 - First NATO Software Engineering Conference and Go To Statement Considered Harmful by Edgar Dijkstra
- 1975 - Foundation of Microsoft
- 1977 - Foundation of Oracle
- 1986 - Fred Brooks: No Silver Bullet
- 1995 - Creation of the Unified Modeling Language (UML)
- 2001 - Agile manifesto

0.2.3 Famous software failures

- Therac-25 (1985 - 1987)

At least 5 patients died because of massive overdoses of radiation caused by a software error (race condition)

- Ariane 5 Explosion (1996)

10 years of development and 7 billion lost in an explosion due to a software error (overflow)