

Lesson 2

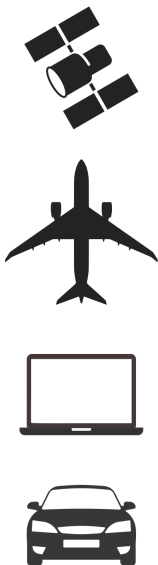
Software specifications. Formal methods

In this lesson we will talk about:

Software specifications, Precise software specifications, Formal methods, Software verification and validation

”Today’s software has grown by evolution, not by intelligent design”

— Leslie Lamport



Source Lines of Code
in millions

2M

Space Instruments
Hubble Telescope

Military drones, Mars Curiosity Rover

14M

Modern airplanes
Boeing Dreamliner

F35 Lightning II

40-80M

Computer Software
Windows, Debian, Office

Apple macOS

+100M

Automotive
BMW, Mercedes, Tesla

Software Specifications

What is a computer specification?

A **specification** often refers to a set of documented requirements to be satisfied by a material, design, product, or service.^[1] A specification is often a type of **technical standard**.

There are different types of technical or engineering specifications (specs), and the term is used differently in different technical contexts. They often refer to particular documents, and/or particular information within them. The word *specification* is broadly defined as "to state explicitly or in detail" or "to be specific".

A **requirement specification** is a documented **requirement**, or set of documented requirements, to be satisfied by a given material, design, product, service, etc.^[1] It is a common early part of **engineering design** and **product development** processes in many fields.

A **functional specification** is a kind of requirement specification, and may show functional block diagrams.
[citation needed]