Software

Introduction to Software Engineering

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Learning Objectives

By the end of this video, you will be able to
• Explain what is software.
• Explain main characteristics of software.
• Classify software according to the given dimensions.
What Is Software?
Today, the world’s largest bookseller, Amazon, is a software company ...

Today’s largest video service by number of subscribers is a software company: Netflix.

Today’s dominant music companies are software companies, too: Apple’s iTunes, Spotify, and Pandora.

Today’s fastest growing entertainment companies are videogame makers – again, software.

The best new movie production company in many decades, Pixar, was a software company.

Today’s largest direct marketing platform is a software company – Google.

Today’s fastest growing telecom company is Skype ...

LinkedIn is today’s fastest growing recruiting company.

...
Software: Malleable

“The programmer, like the poet, works only slightly removed from pure thought-stuff. He builds his castles in the air, from air, creating by exertion of the imagination. Few media of creation are so flexible, so easy to polish and rework, so readily capable of realizing grand conceptual structures.”

- Fred Brooks, 1999 Turing Award Winner

(Le Breton, 1863)
“Software entities are more complex for their size than perhaps any other human construct because no two parts are alike (at least above the statement level). If they are, we make the two similar parts into a subroutine – open or closed. In this respect, software systems differ profoundly from computers, buildings, or automobiles, where repeated elements abound.”

- Fred Brooks, 1999 Turing Award Winner

(Brooks, 1995, p 182)
Software: Useful

“Deep within, we want others to use our work and find it helpful. In this respect, the programming system is not essentially different from the child's first clay pencil holder ‘for Daddy's office.’”

- Fred Brooks, 1999 Turing Award Winner

(Brooks, 1995, p 7)
Software Varies

- Size
- How humans interact with it
- Requirements stability/knowledge
- Need for reliability
- Need for security
- Portability
- Cost
Microsoft PowerPoint

- Size: large
- Interactiveness: high
- Requirements: frequent new features
- Reliability: moderate
- Security: low (at least used to be)
- Portability: high
- Cost: high
Space Shuttle Software

• Size: moderate to large
• Interactiveness: low
• Requirements: stable
• Reliability: very high
• Security: low
• Portability: low
• Cost: high
Online Shopping Software

- Size: moderate
- Interactiveness: high
- Requirements: frequent new features
- Reliability: high
- Security: high
- Portability: low
- Cost: low
Your Example?

- Size:
- Interactiveness:
- Requirements:
- Reliability:
- Security:
- Portability:
- Cost:
Online Services

Software

Services
References


The End