Definition of Requirements Engineering

Requirements Engineering

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Learning Objectives

By the end of this video, you will be able to

• Explain what is requirements engineering.
• Name two main actions in requirements engineering.
• Explain how understanding the problem world and machine, along with their shared phenomena, helps conduct requirements engineering.
• Explain why, what, and who of requirements engineering.
Definition

• "Requirements engineering is the branch of software engineering concerned with the *real-world goals* for, *functions [services]* of, and *constraints* on software systems. It is also concerned with the relationship of these factors to *precise specifications* of software *behavior*, and to their *evolution* over time and across *software families*.”

   (Zave, 1997)
Problem World and Machine

Problem World/Application Domain
(Problem: environment)

Machine
(System solution: software + hardware)

Shared Phenomena (Interface)

(Zave & Jackson, 1997)
Problem World: System-As-Is $\rightarrow$ System-to-Be

(Lamsweerde, 2009)

• System
  • A set of interacting components in the problem world to satisfy some global objectives

• System-as-is
  • System as it exists before the machine is built into it

• System-to-be
  • System as it should be when the machine will be built and operated in it
Why, What, and Who of Requirements Engineering

(System-as-is)

Problems, Opportunities, Domain knowledge

Objectives

Satisfy

WHY

WHAT

Services, Constraints, Assumptions

WHO

Software-to-be

Assigned to

People

Devices

Existing software

(System-to-be)
References


The End