

# INF 43: Intro to Software Engineering

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Instructor: Alex Thornton

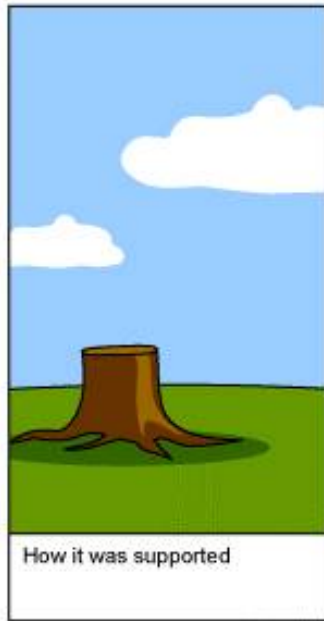
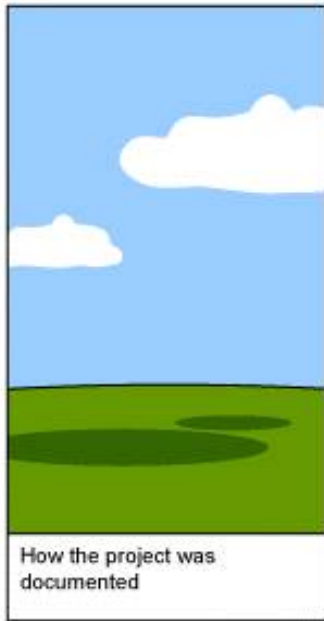
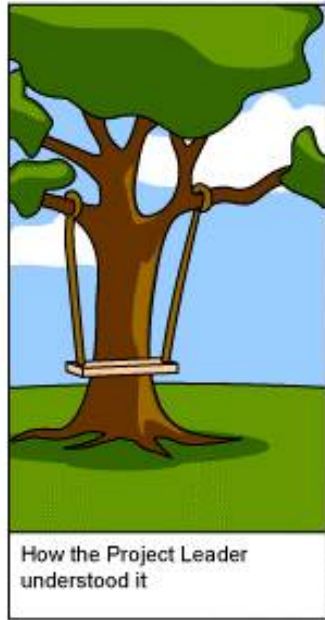
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# Announcement

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- Assignment1
  - Requirement Engineering
  - Due: **Monday, April 20, 9:00pm**
  - Submission via Checkmate



# Requirements

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- Functional Requirements
  - What a system is supposed to do
- Non-Functional Requirements
  - How a system is supposed to be
  - Quality attributes
- Constraints
  - Global issues that shape the requirements
  - Constraints on the project itself or restrictions on the eventual design of the product

# Functional vs. non-functional requirements

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- Functional (FR)
  - Behavior of the system
  - Actions that the system must carry out
  - Easily testable
  - Fundamental process or transformation that software components perform on inputs and outputs

- Non-functional (NFR)
  - Quality attributes of the system
  - Subjective evaluation
  - Hard to test

# Non-Functional Requirements (NFR)

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## Look and Feel

- The intended appearance
- Examples
  - The product shall comply with corporate branding standards.
  - The product shall be attractive to an older audience.

## Usability and Humanity

- What the product has to be if it is to be successfully used by its intended audience
- Examples
  - The product shall be easy to use by members of the public who might not read English.
  - The product shall be easy to use on the first attempt by a member of the public without training.

# Non-Functional Requirements (NFR)

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## Performance

- How fast, bit, accurate, safe, reliable, robust, scalable, and long-lasting, and what capacity
- Examples
  - The product shall identify whether an aircraft is hostile or friendly within 0.25 second.
  - The product shall produce the schedule within 3 seconds of the user's request.

## Security

- The security, confidentiality, and integrity of the product
- Examples
  - The product shall ensure that only authorized users are able to gain access.
  - The product shall distinguish between authorized and non-authorized users.

# Non-Functional Requirements (NFR)

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## □ Operational and Environmental

- The product's intended operating environment
- Examples
  - The product shall be used in variable lighting conditions.
  - The product shall conserve battery life.

## □ Maintainability and Support

- How changeable the product must be and what support is needed
- Examples
  - The product shall be readily portable to Linux.
  - The product shall be translated into various foreign languages. As yet, the languages are unknown.



# Non-Functional Requirements (NFR)

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## □ Cultural and Political

- Human and sociological factors
- Examples
  - The product shall not display religious symbols or words associated with mainstream religions.

## □ Legal

- Conformance to applicable laws
- Examples
  - The product shall comply with the Americans with Disability Act.
  - The product shall comply with our ISO 9001 certification.

# Constraints

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- Solution constraints: Mandated technology
- Deadlines: Any known deadlines
- Financial budget
- Current system constraints
  
- Examples:
  - The product shall operate using Windows XP.
  - The product must be available at the beginning of the new tax year.
  - The product is a photocopier to be used by an environmentally conscious organization; it must work with recycled paper.

# Do and Don't for HW 1

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- Focus on problems, not solutions
- Make every sentence meaningful
- Make your document professional
- More details are better
- Distinction between FR and NFR (constraints)
- Provide specific test data in the acceptance test plan

# Reference

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- Robertson, Suzanne and James Robertson. Mastering the Requirements Process. Addison-Wesley Professional, March 2006.