ITI41120 Applied Computer Science Project

Topic: Development of a prototype web-based tool for modelling application of patterns for system development support.

The project work can be scoped and assigned to **1 or 2 student groups**.

Research areas:

- Sofware engineering
  - System development methodologies
  - Patterns and pattern language development approaches
  - Safety and security assurance

Required skills:

- Programming
- Knowledge om UML or similar modelling language is a benefit

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Description: Develop a prototype tool that

1. provides a web-based design environment where users can draw diagrams of patterns, using pre-defined shapes. The syntax and semantics of the shapes is defined in [1].
2. Patterns are available in a library and address different aspects of system development such as requirements elicitation, system design, safety and security assurance.
3. use and tailor existing modelling/diagram tools.
4. demonstrate the usability of the prototype tool using an example case defined in [1].

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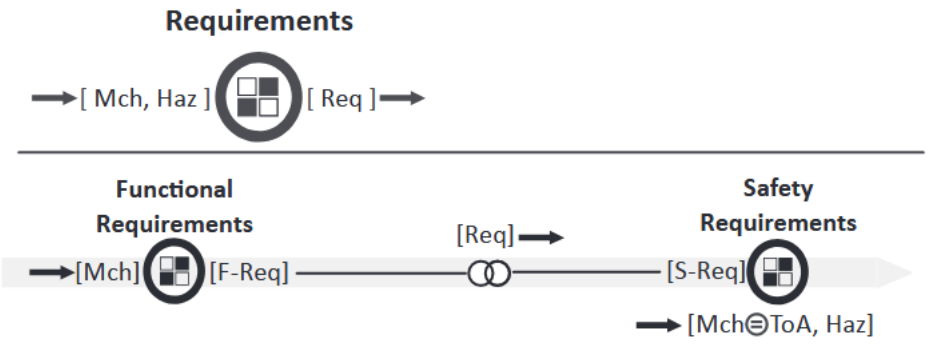
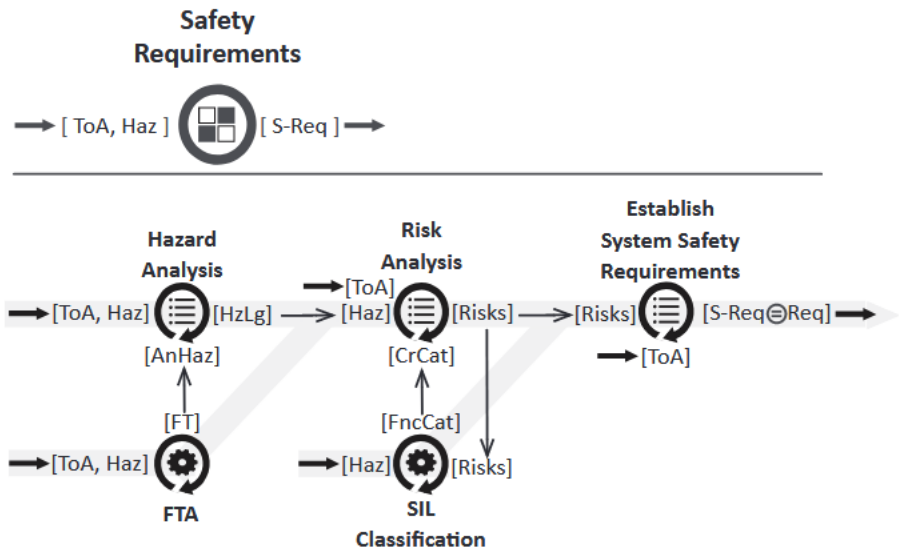
Example diagram representation of a combination of patterns



Requirements – Composite Pattern



Safety Requirements – Composite Pattern

References:

1. A. A. Hauge, SaCS: A Method and a Pattern Language for the Development of Conceptual Safety Designs, PhD Dissertation, University of Oslo, 2014. https://www.duo.uio.no/bitstream/handle/10852/41717/dravhandling-Hauge.pdf