WS72 Systems Architecture

Case Study 2: Architecture Definition

Instructions for SRSoS Development :
Specification of System Component and Constituent System Interactions

Lecture 13

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Lab Exercise Overview

- You are a System Architect doing modelling and analysis for a national search and rescue capability improvement project[1].
- You will use Magic SoS Architect and UML to produce **models** for an initial **Architecture Definition** of CS Group in the context of the SRSoS[2]. The models must include:
  - A System (CS Group) Structure Model
  - A CS Interaction Model
- You will perform initial architectural analyses, including
  - Search and rescue strategies in the context of your CS Group
  - Exploration of alternative system behaviours required for achieving these strategies
- You will also demonstrate, through modelling or otherwise,
  - System elements and their interactions
  - Traceability of model elements to the narratives
  - Consistency between views (diagrams)

[1] *Refer to 24-06b Lecture Notes*
[2] *The CS belong to the SRSoS*

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Procedure

- You are organised into teams and your team will continue working on the same CS Group.
  - Designate one member to be the Chief Architect who will partition and be responsible for the integration of the work in a presentation.
- Revise your **system model** according to the agreement reached after the first stakeholder presentation.
- Create structure and interaction models for your CS Group in UML using Magic SoS Architect:
  - Model individual CS, their attributes and operations in a Class Diagram.
  - Complete the Class Diagram with the appropriate associations.
  - Use these diagrams to create a Sequence Diagram of the CS Group.
- Analyse how well your CS Group architecture definition can respond to different needs in the given scenario[1].
- Explore 2 alternative behaviours further required for CS group.
- Tomorrow the Chief Architect and team will present the results.
  - 10 min for presentation + 5 minutes for questions

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[1] Summary notes (24-12b) to be provided

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Assessment

- The CS Group **Class Diagram** will be assessed after 60 min based on the completeness and appropriateness of:
  - Names, Attributes, Operations and Associations.
- **The Work Plan**, which should include individual(s) assigned to tasks
- Each team will be assessed as to whether their models
  - Incorporate stakeholder decisions following the first presentations[1]
  - Correct instantiations of the Classes to include correctly ordered exchanges and messages (CS Group Sequence Diagram)
  - Correct UML syntax and semantics; and explanatory text
- Architecture analysis is assessed on:
  - Search and rescue strategies
  - Alternative CS Group behaviours
- Each team will also be assessed on
  - Model consistency between views (diagrams)
  - System Specification (refer to Tutorial II for an example[2])

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[1] Summary notes (24-12b) to be provided
[2] See also Section 6.5 in the tutorial (EA&PSE Chpt 6 (pp. 89-90).

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