Department of Electrical Eng. and Computer Science

Requirements Engineering (Summer 2019)

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http://homepages.uc.edu/~niunn/courses

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Assignment 1

 \rightarrow Dataset available on the course website

http://homepages.uc.edu/~niunn/courses/

→ Objectives

Use the given set of functional requirements (FRs) to build an *i** model

Use your *i** model to make the FRs more complete by following softgoal-based tradeoff analysis

→Due: before 8:30am on Friday (July 12)

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Assignment 1 (Cont'd)

\rightarrow Schedule of Wednesday (July 10)

9:20-10:00: i* lecturing
10:00-10:30: students working on their ASN1 (i* modeling part) and the instructor doing Q&A
10:30-11:00: softgoal analysis lecturing
11:00-11:30: students working on their ASN1 (i* modeling and softgoal-based tradeoff analysis) and the instructor doing Q&A

\rightarrow Thursday (July 11)

№8:30-9:50: ASN1 Q&A
 №10:00-10:40: Visual modeling notations (class participation)
 №10:40-11:30:ASN1 Q&A

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Year Category of Paper	Authors	Title of Paper	Corr Corr
2007	Eric Yu	Towards Modelling and Reasoning Support for Early-Phase Requirements Engineering	

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Two views (SD & SR)
Five nodes (actors, goals, softgoals, tasks,
  resources)
Three edges (dependency, decomposition,
  softgoal contribution)
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Practical Impacts of i^*

\rightarrow International standard

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♦ User Requirements Notation (URN)

> Goal Requirements Language (GRL) www.itu.int/rec/T-REC-Z.151/en

Similar from the telecom industry

♥ITU-T Recommendation Z.151



→ Real-world applications

Shir traffic control

> N. Maiden *et al.* "Model-Driven Requirements Engineering: Synchronising Models in an Air Traffic Management Case Stud", CAiSE, 2004.

♦ Food safety

> A. Perini and A. Susi. "Designing a Decision Support System for Integrated Production in Agriculture: An Agent-Oriented Approach", Environmental Modelling and Software Journal, 19(9), September 2004.

Hospital wards

> S. Kethers *et al.* "Modelling Trust Relationships In A Healthcare Network: Experiences With The TCD Framework", ECIS 2005.

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Air Traffic Control



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Strategic Dependency (SD)



niversity of Cincinnati Department of Electrical Eng. and Computer Science Strategic Rationale (SR) Ask "Why", "How", "How else" Meeting Meeting Participant Initiator Attends Participate Meeting Organize InMeeting Meeting Attend Arrange Meeting Meeting Meeting Low Convenient Quick Be Effort Meeting, Date chedule Quality Low Agreeable Exclusions Effort (Proposed (Meeting Dates Schedule Date) Date User Meeting Friendly Preferred 📕 Find Dates Obtain Agreeable Find Min Avail Date Suitable Interruption Dates Obtain Slot Proposed Agreement AgreeToD Date ate Agreement Merge AvailDates

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Class Exercise - i* Modeling

→Let's model our summer course

Who're the key stakeholders/actors?

How're they depended on each other?

Swhat're their goals?

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- How to decompose the goals?
- What're the means and/or alternatives to achieve the goals?

Are there any softgoals?

Show're the softgoals supported or hindered?

Does software-intensive system play any role here?

\rightarrow Let me do SD with you first followed by SR

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Goal Analysis

→ Goal Elaboration:

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"Why" questions explore higher goals (context)
"How" questions explore lower goals (operations)
"How else" questions explore alternatives

→ Relationships between goals:

One goal helps achieve another (+)
One goal hurts achievement of another (-)

♦ One goal makes another (++)

→ Obstacle Analysis:

Can this goal be obstructed, if so how?
What are the consequences of obstructing it?



University of Cincinnati Department of Electrical Eng. and Computer Science Softgoals as Selection Criteria improve safety minimize costs minimize minimize maintain serve more development operation maintain passenger passengers costs costs safe comfort clearer distance signaling reduce staffing more add new increase frequent tracks train speed tràins automaté buy new rolling stock automate hire more collision braking avoidance operators