2IO71  DBL Information Systems
Kick-Off

Dirk Fahland
Networks of hardware and software that people and organizations use to collect, filter, process, create, and distribute data.

Bridges business and computer science ... to study various business models and related algorithmic processes.
Cost and time to set up an Enterprise Resource Planning System?
Outline

- Information Systems
- Objectives of this Course
- The Assignment
- Organizational Matters
- Getting Started
IS Re-Design Project

- analyze & plan
- prototype & quality assessment
- finish implementation & quality assessment

(process docs) -> logs

UI

Engine

Database
Objectives of this Course

On the very last day of a very long IT project

Now I got it!!!
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What you get

- **Process documentation**
  - processes from purchases and sales
  - Process models (control-flow perspective)
  - textual description of how the process owners run the process (or how they think they did)

- **Log files**
  - contain traces of past executions (what really happened) of some processes

- **How to analyze?**
  - read, understand, and “play” the processes
  - Process Mining software to analyze logs
System Architecture

- Activiti process engine
  - executes processes from process models
  - web-application shows forms to display and enter data (forms generated from process models)
  - + extensions to query data from a database and to change contents of a database (using SQL)

- MySQL Database
What you build

- Data model of the application
  - tables, attributes, relations, …

- Process models of the application
  - extend control-flow models provided in the documentation with **data-flow perspective**
    = annotate activities with SQL

- Implement resource perspective in the engine
  - users, roles, …

- Testing scenarios to assess quality of your implementation
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Software

- Process Analysis Phase
  - Process Mining Tools
    - ProM6 [www.promtools.org/prom6](http://www.promtools.org/prom6) with packages DottedChart, Fuzzy
    - Fluxicon Disco [www.fluxicon.com](http://www.fluxicon.com)

- Implementation Phase
  - Activiti Process Engine with SQL Extensions (running as Tomcat servlet)
  - MySQL database
  - all provided in a Virtualbox VM
  - will be made available on Wednesday 24-04-2013
Where to find…

- Study Guide & Process Documentation → OASE
- Software → Links on OASE
- Tutorials → Links on OASE
- FAQ (Questions asked by you) → Forum in OASE
- Technical Support → Forum in OASE
- anything else → Forum in OASE

- or on www.win.tue.nl/~dfahland/courses/2io71/
Groups & Group Meetings

- 11 groups of 5-6 students
- each group has one tutor
  - will guide group through the project
  - 2 meetings per week (~1 hour each)
    - short presentation on progress, problems, approach, …
    - questions by tutor, discussion with tutor
    - meetings scheduled in agreement with tutor
- each group has a group workspace in OASE
Track your tasks
Tutors

- groups 1-4
  - E.O. Sabelnikova (e.sabelnikova@student.tue.nl)

- groups 5-8
  - K. Traganos (k.traganos@student.tue.nl)

- groups 9-11
  - tbd / D. Fahland
Rooms

- working in OGO rooms (see Study Guide)
  - Mon, Tue, Wed afternoon
  - Thu, Fri mornings

- rules for OGO rooms
  - keep rooms tidy and clean
  - eating is officially not allowed in the rooms, this will be tolerated as long as **NOTHING** is left behind (leftover foods, dishes, cups, …)
  - each group has one reserved room for the allocated times
    - if someone else is in the room: **kindly** ask them to respect your reservation
    - at other times, rooms can be used by anyone on first come/first serve basis
Milestones & Presentations

- 1st intermediate presentation: process analysis
  - your analysis how the process works
  - problems with the process, potentials for improvements
  - your approach to solve this and a plan of action
  - 10 mins + 10mins discussion

- 2nd intermediate presentation: prototype
  - working prototype for “core functionality”
  - testing scenarios that document that your prototype addresses the analyzed problems
  - 10 mins + 10mins discussion

- will be scheduled during your regular meeting hours
Final Presentation

- takes place Friday, 21\textsuperscript{st} June 2013 (final report is due Thursday 20\textsuperscript{th} June 2013)
- in front of other groups
- your results of the project
  - analysis
  - implementation
  - quality and how you certify it
  - 20mins presentation + 5mins discussion
- the best group gets an award
Grading

- **Phase 1**
  - Document “Process Analysis” (5 pages) 5%
  - Presentation 5%

- **Phase 2**
  - Prototype Implementation 5%
  - Presentation 5%

- **Phase 3**
  - Final Implementation 20%
  - Final Report 30%
  - Final Presentation 20%
  - Your personal logbook (must be present)

- peer assessment 5%
- tutor assessment 5%
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Using ProM6

- download from www.promtools.org/prom6
- run Package Manager (ProMPM)
  - install DottedChart, Fuzzy
Log Inspection
Log Inspection

- shows individual cases, events, and attributes
Dotted Chart Analysis

- Import Log file, Run “Analyze using Dotted Chart”
Dotted Chart Analysis

- use controls the left to inspect the log
import log, run “Mine for a Fuzzy Model”, use standard settings, inspect abstract process model
Fuzzy Animation

- use Fuzzy Model created by Fuzzy Miner
- and run “Select Best Fuzzy Instance”
- take the result the original log and run “Animate Event Log in Fuzzy Instance”
Fuzzy Animation

- see the cases of the process in an animation
Wrap-Up

- IS redesign project
- start from process documentation (models, text, logs)
- build a new information system in a model-driven approach (data model, process models)
- three phases
  1. process analysis and project planning
  2. prototype development and testing
  3. completing implementation and quality testing
- final presentation & report

Questions?
Good Luck and Enjoy!

Dirk Fahland