MTAT.03.287 Seminar on Business Intelligence

Course Overview

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https://courses.cs.ut.ee/2016/bis/
Seminar Topics

- Data acquisition and integration
- Data analytics
- Reporting (delivery)
Seminar Objectives

• Introduce the practices and methods used for extracting and presenting relevant information for decision-making out of databases.

• Give background on data integration (including warehousing), data analysis in databases and data presentation.
Seminar Outcomes

1. Implement a simple multi-source data integration at database or analytics level.
2. Choose and validate data analysis approaches for a given task.
3. Implement data transformations from relational forms to analytical presentations.
4. Discuss and argue about different data presentation and reporting options.
5. Identify and present information relevant to decision making.
Seminars

- 1/week
- Timetable
  - 2-3 introductory „lectures“
  - Presentations on literature reviews
  - Project stage presentations
- Web: https://courses.cs.ut.ee/2016/bis/
Passing Requirements

- Seminar presentation on a BI case study
- Seminar presentation on project stage
  - Should be on a different BI task(s) from the case study
- Project stage demo
- Final project demo/poster

- Choose case study in the next seminar at latest. Note when you would like to present.
Review of a BI Case Study

• ~10 min presentation + discussion
• Outline
  – Summary of the paper
  – Results of the paper
  – What was new or surprising?
  – Do you agree with it? Were there any significant threats to validity?
  – What did you learn? How would you use the results of the paper?
The Project

• In teams
  – 3 persons per team

• In stages
  I. Problem clarification and data acquisition
  II. Data analysis
  III. Delivery of BI
Stage I

• What data do we need to answer the question?
• What kind of complementary data is available?
• How to acquire and integrate the data?
• What will be the bias in the available data?
• Acquire and integrate the data!
Stage II

• What are the possible analysis approaches?
• How will they work/complement each other?
• What is the confidence/accuracy of the results?
• Analyse the data!
Stage III

• What are the best ways to deliver the data?
• Deliver the data!
• Present the solution (web site/wiki + poster/slides)!
Ideas for the project

1. Opportunities in IT in Estonia (how to wake up the sleeping tiger?)
2. How can ICS attract the right students in the next years? What can we expect to see in the next years?
3. What is the optimal order of ICS courses?
4. How to turn Tartu into a striving (high quality of life) town?
5. Public dashboards (see http://valvurid.err.ee/ and http://meediainspektoor.ee/ for example)
Projects in Organisations

1. Marathon results/winner estimation. **Tartu Maraton**.
2. Profiling deaths and risk groups. **Estonian Rescue Services**.
3. Visualisation of rescue events and/or preventive actions on a map. See [http://jordan.vald.ma/dev/br/](http://jordan.vald.ma/dev/br/) for inspiration. **Estonian Rescue Services**.
4. Rescue event profile change or trend prediction. **Estonian Rescue Services**.
5. Temporal and spatial analysis of rescue arrival times. **Estonian Rescue Services**.
6. Linking rescue events with slowly changing or static data. **Estonian Rescue Services**. This task can be extended into a thesis.
Ideas for Practical Task

• Visualise Exam Grade/Results
• Golf Tour live-scoring
• Golf ranking/score estimation
• Student grade estimation
• University course outcome estimation
• Software development process visualisation
• Integration of bug repositories’ data
• Integration of data from social media
• Press coverage feel/analysis
Siim Karus

• PhD in Computer Science
• Microsoft Student Partner 2007-2009 (MSP)
  – http://www.microsoft.com/eesti/msp/
• Author of Estonian freeware portal VabaVaraVeeb
  – http://vabavara.eu
• More than 10 years of industry experience as programmer, information systems’ auditor, architect and business intelligence developer.