0 Administrivia

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Office hours: Wednesday 13.00 - 13.30h, and by appointment

This class earns you 6 Credit Points.

Exam:

We will have a written exam at HFT (90 min.). An alternative option will be offered to those who cannot come into the country.
It is an open book exam, meaning you can use all materials distributed in class, your own notes, two text books, and a language dictionary.
Be sure to download all materials from the Moodle in time. They will disappear after the exam.
Link to the Moodle course: http://moodle.hft-stuttgart.de/

Exam prerequisite („pre-exam", Prüfungsvorleistung (PVL)):

In order to be allowed to participate in the written exam you have to pass a prerequisite. This consists of a group seminar project with written documentation and a short (10 minutes per person) presentation in front of the class about a topic in the context of Business Intelligence. You can chose your own topic but it has to be approved by Prof. Koch. Your performance (documentation + presentation) will be evaluated as „passed" or „failed".

Possible topics for the group project include:
1. implementation and later live demo of a small data warehouse with reports, using SQL Server or another data warehousing system
2. implementation of a data mining flow with data of your choice and later live demo, using Rapid Miner or another data mining tool
3. seminar presentation about a topic within the field of BI, based on scientific papers, accompanied by a written report (at least 5 pages per group member). Topics in artificial intelligence (for instance deep learning) are welcome.
4. Suggest your own project idea to Prof. Koch by email (including the following points: group members, working title, major work packages, structure of the proposed documentation / presentation)

Project group requirements:
- You should work in groups of 2 or 3 students.

You must register your group members and the topic in the Wiki in the Moodle course. With the registration, you must supply the papers on which the project or presentation will be based (either post links to the papers or send them by email to Prof. Koch).

Students of the Master‘s Programme in Mathematics do NOT need to do this exam prerequisite (PVL).

Recommendable Reading

- Bauer, Andreas; Günzel, Holger (Editors):
  Data Warehouse Systeme - Architektur, Entwicklung, Anwendung
  dpunkt Verlag
  Very comprehensive book, written by about 50 authors as a joint effort. Takes into account a large number of different approaches, comparing and unifying them. Suggests a reference model for data warehousing.
- Kimball, Ralph:
  The Data Warehouse Toolkit - Practical Techniques for Building Dimensional Data Warehouses
  Wiley
  Good description of the multidimensional model and how to model a data warehouse using it. The modelling is explained using examples from various business fields.
- Inmon, W.H.:
  Building the Data Warehouse
  Wiley
  The classic. Inmon is considered the "father of data warehousing". Not as much technical detail as in some other books, more a management point of view.
- Humphries, Mark; Hawkins, Michael; Dy, Michelle:
  Data Warehousing - Architecture and Implementation
  Prentice Hall
  Overview of many important concepts in concise, easy to read form with many diagrams. Can be read quickly.
- Kimball, Ralph; Reeves, Laura; Ross, Margy; Thornthwaite, Warren:
  The Data Warehouse Lifecycle Toolkit - Expert Methods for Designing, Developing, and Deploying Data Warehouses
  Wiley
- Adamson, Christopher; Venerable, Michael:
  Data Warehouse Design Solutions
  Wiley
  A variety of case studies
- Han, Jiawei; Kamber, Micheline: Data Mining - Concepts and Techniques, Morgan Kaufmann

Some Webresources:

General Data Warehousing:

- The TDWI (**The Data Warehousing Institute™**) provides education, training, certification, news, and research for executives and information technology (IT) professionals. It is an association in which companies and individuals can become members. Special rates for student members available.

http://www.tdwi.org/

- **Data Warehousing and OLAP** - A Research-Oriented Bibliography
  compiled by the Canadian professor Daniel Lemire
  http://www.daniel-lemire.com/OLAP/index.html
- "The **Data Warehousing and Business Intelligence** site aims to help people get a good high-level understanding of what it takes to implement a successful data warehouse project". Maintained by the company 1keydata.
  http://www.1keydata.com/datawarehousing/datawarehouse.html
- Paul Lane et al.: ***Oracle® Database Data Warehousing Guide10g***
  Online tutorial, Good coverage of many important concepts. However, strongly biased towards Oracle.
  http://stanford.edu/dept/itss/docs/oracle/10g/server.101/b10736/toc.htm
- **BusinessIntelligence.com**
  provides news and papers in the field of BI. The site is sponsored by Domo, a US BI consulting company.
  http://businessintelligence.com/
- **BI/DW Insider**
  technical papers and presentations in the field of BI and data warehousing. The site is maintained by Adam Getz, Practice Manager of Business Intelligence at DCS Consulting.
  http://bi-insider.com/

Data Analytics:

- **Kaggle**
  Resource for data mining. Kaggle offers a no-setup, customizable, Jupyter Notebooks environment. Access free GPUs and a large repository of community published data & code.
  https://www.kaggle.com
- **KDNuggets**
  Machine Learning, Data Science, Data Mining, Big Data, Analytics, AI
  https://www.kdnuggets.com
- Data Science Central
  Web portal for the topics of Artificial Intelligence, Machine Learning, Deep Learning, Statistics, Big Data
  https://www.datasciencecentral.com/

=> When reading, keep in mind that for some of these sites there is a company selecting the publications.