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**Facharbeit in Informatik
Datenbanktechnologie**

Topic: Development of a Database System based on geographical information

The Swiss Feed Database contains chemical parameters of 155 nutrients. This data is available for more than 600 animal feed types and is used by companies, private farmers and research institutions to compose healthy, effective and cheap animal feed. Samples are extracted from feeds in order to measure nutrition parameters such as Proteins, Vitamins, etc.

The goal of this project is to integrate geographical information (Postal Code, Area, Canton, City, etc.) about the provenance of feeds samples into the current version of the Swiss Feed Data Warehouse. This information should be used to query the database depending on the user's selections. In particular, it should be possible to aggregate the feed parameters based on Cities, Regions, and so on.

Other spatial information are available. Particularly, the altitude in meters referring to the cultivation place of the feed from which the sample has been extrapolated must be stored. This information could have implications in the quality of feed.

The original data set is stored in more than one excel files, therefore the data need to be extracted and catalogued inside the created database.

This Facharbeit aims to build and populate a database with a schema based on the Swiss Feed Data Warehouse; the schema should be extended in order to model geographical information. After this, an online system to query the developed database should be designed and implemented. This system must integrate Google Maps features.

This thesis is to be completed in close collaboration with Agroscope, including potential visits to the agriculture research institute in Posieux. The result will be also used to support the



building of a Data Warehouse System.

Tasks:

1. Design and implementation of an own version of the Swiss Feed Database that include spatial and temporal information.
2. Development of an online application to allow the user to query the SFDW based on geographical information.
3. Integrate the application with the possibility to display spatial data.
4. Write a bachelor thesis describing your results.
5. Presentation of the results (15 minutes).

Literature:

- Elmasri and Navathe. Fundamentals of Database Systems, 5th Ed. Pearson International Edition, 2007.
- Peter Pin-Shan Chen. The entity-relationship model - toward a unified view of data. 1976.
- <http://cms.uzh.ch/lenya/ifi/live/departments/databaseTechnology/research/sfdb.html>
- <http://maps.google.com/help/maps/getmaps/>.

Supervisor:

- Francesco Cafagna

Starting date: 1st May, 2011

Ending date: 31 August, 2011

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