

## **HCI590 – Independent Study in Database Management Systems**

### **Project Proposal and Requirements Document**

#### **Project Goal**

Goal of this independent study project is to serve as a platform to facilitate understanding of the principles, theories and procedures regarding Database Management Systems. A project software shall be developed that incorporates as many aspects of DBMS as possible, thereby deepening my understanding of the matter and allowing to acquire practical knowledge. This is an incremental process and shall last the duration of one semester.

#### **Project Requirements**

This project shall minimally comprise, but shall not be limited to, the understanding of the following aspects of Database Management Systems:

##### **Database Design.**

This project will deal with the design and planing of a suitable database schema. Special attention will be paid to the aspects of maintainability, performance and extendability.

##### **Database Interaction.**

A client software and/or web front-end will be developed that allows for database interaction. This software will be used to manipulate and query the database.

##### **Data Mining.**

An important aspect of Database Management Systems is extracting data from the existing database. This project will cover the aspect of Data Mining by presenting a suitable application.

#### **Project Software**

The result of this project will be a website analysis tool that uses a Database Management System to retrieve and store data about the website traffic and the traffic statistics over time. Despite the fact that there exist already ample traffic analysis tools, this tool will differ from the broad mass of already existing products in such that it allows to monitor the traffic of a website and monitor the changes in the website content and thereby give users an understanding of how changes in the content of the website influence the traffic to the site. The Project Software will therefore cover the following features:

##### **Automatic Content Tracking.**

The software will automatically track the content of a certain website and add it to the database. A user-centered approach for this software component will ensure optimal user friendliness, but Usability Testing will not be conducted, as it is beyond the scope of this project.

##### **Automatic Representation of Data.**

A web front-end of the database will be implemented and show the collected data. These data will be displayed in a suitable manner, rather than as raw tables.

##### **Data Mining.**

This comprises the aspect of presenting patterns and trends in the collected raw data in the database in the web front-end. The mined data will be accessible from the front-end so that the user has immediate and easy overview over the traffic development on his or her website.