Database Theory, 2DV513

# Assignment 3: Final Project

## Due Date: 2020-01-15

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Assignment 3 is a project assignment. It is important that you find a reasonable scope for your project. You can use whatever relational database management systems and programming language(s) you prefer to solve the assignment. You can use whatever interface you like, either multiple programs, and console UI, a web interface, or whatever you like. All answers should be your own. You are allowed to work in groups of two. Make sure you include your names in the report when you submit. Please submit the report only once.

# Tasks

### 1.Idea

Come up with an idea for your project. Describe what problem it solves, who the main user(s) will be, and why your idea is a good fit for them and the problem. Describe the main features that your application must have to be complete.

**NOTE:** If you are unsure, please validate your idea before you continue past Task 1 of this assignment if you are unsure. Use the Idea Submission form to do so. The deadline to submit Ideas is **December 10**. Idea documents that do not follow the formatting guidelines will not receive feedback. Check the description for formatting guidelines at the idea submission form.

### 2. Logical model

Design a data model for your project and present it as an E/R diagram. Make sure to include important attributes and relationships. Discuss and motivate your design.

### 3. Design in SQL

Translate your design to collections in SQL. Discuss and motivate how you translated entities and relationships.

### 4. SQL queries

Create five queries to your SQL design that are needed to implement the functionality of your application. You will probably need to create more than five queries to make your application functional, however we require some specific cases to be implemented and described in the assignment report. Focus on the more important queries and features of your application (i.e., there is no need to show how you insert documents in your various collections). Explain and motivate each query.

General guidelines for queries:

1. At least 2 queries should query data from more than one table, i.e., you should use at least two multirelation queries
2. You should make use of SQL JOIN
3. You should make use of Aggregation and/or Grouping
4. Create and use a View

### 5. Implementation

Write a program that implements your Idea in Task 1 with the design and queries from Task 2-4. You are of course allowed to introduce more queries.

### 6. Supplemental video

Make a video (at most 10 minutes) demonstrating how your implementation works. It should show how it runs your queries and the results they produce (focus on guideline queries from Task4). You should upload the video somewhere (ex. youtube or vimeo), where it is accessible to us and reference it in the project report.

## Submission

Your submission should include solutions to all assignments above. Submit a report in PDF format on Moodle and the source code. If you need data in your database, please submit a database dump or an installation script. You can draw the E/R diagrams by hand and submit scanned versions or photos (as long as they are readable). If you work together with someone, submit the assignment from only one of your accounts and make sure to put both names in the report! The report should have at least 4 pages and should not be longer than 8 including Tables and Figures.