Database Systems

CMPT 308

Design Project - 200 points

Goals

To experience the end-to-end wonder of designing and implementing a large database. (And also to show off your database skills in a manner you can brag about in the future and on interviews. Also, to make me proud to be your teacher.)

Instructions

Design a large relational database for an enterprise of your choosing, real or imagined. Implement it in PostgreSQL (in one *.sql* script). Include at least the following sections in your documentation:

- Executive Summary with overview and objectives
- Entity-Relationship Diagram
- Tables:
  - create statements with PKs, FKs, default values, check constraints, etc.
  - functional dependencies
  - sample data - enough to be interesting, but not too much
- View definitions and sample output
- Reports and their queries, with sample output
- Stored procedures and sample output showing their results
- Triggers and sample output showing their effects
- Security - grant and revoke for users and groups
- Implementation Notes
- Known Problems
- Future Enhancements

Deliverables

Beautiful and aesthetically pleasing professional documentation is required. Neatness counts! The length of the documentation should be in the vicinity of 25 typed pages, but feel free to use more or less space as necessary. Completeness is much more important than length, as I do not grade by weight.

Evaluation

- Analysis: Quality of your descriptions, E/R diagram, known problems, future enhancements, explanation for every database object, example output, use of transactions and proper isolation levels in stored procedures, etc. [50 points]
- Completeness: Difficulty and interestingness of your SQL (many joins, sub-queries, calculations, date calculations, group by, having, outer joins, etc.), stored procedures, triggers, views, security (users, groups, and access rights with grant and revoke), check constraints, defaults, indexes, table constraints, etc. [50 points]
- Correctness of everything: E/R diagram, tables, FDs, PKs, FKs; illustrative sample data, accurate queries, etc. [100 points]
- Quality of documentation: Overview, TOC, high-level design descriptions, objectives, style, business explanation and usage for each table… the details count, so make it great. [- points if not great]

Submitting

Submit your design document as a PDF. Submit your PostgreSQL script as a *.sql* text file. Push both to your GitHub repository **before** the date on which it is due.