CS317, Files and Database Systems:

Exercise #5 – TEAM DBMS Project for Presentation at Final Oral Exam

DUE: As Indicated on Canvas and Syllabus

Teams: 2019 DBMS Final DB Team Projects

Backup your design files as you go. Save last known working copies of your MySQL-Workbench design files with versioning (at least by file extension – e.g. MyDB_v1.1.mwb) and save off your SQL (generated by Workbench forward engineering or that you hand generate outside of the WB tool). If you work on an alternative NoSQL DB, please save and submit C++ or other source code, UML Class diagrams or other equivalent of an EER.

Using the knowledge you have gained through the course, choose a DBMS proof-of-concept design of your choice from the following:

1. **Design a Logical DBMS and SQL Views, Triggers, Stored Procedures and validation, referential and data itegrity features for a database of your own interest – provide a mysql-workbench schema in EER notation supported by the tool and forward engineer and test it. Views, an application with a connector or some sort of user friendly way to make use of the DB is required (no SQL should be required of the user).**
2. Propose any alternative final assignment, discuss with your instructor, and outline your own requirements, but you must make use of a CASE tool of some sort (Navicat, Modelio, other) and a DBMS of some sort (OODBMS, NoSQL).

Exercise #5 TEAM Requirements:

1) [20 points] Each Team member should research an aspect of your project and read at least two relevant papers, user guides, manuals or other sources of information you plan to use (e.g. MySQL Workbench, Modelio, MySQL Connector, etc.) along with:
    a) [10 pts] Citation and 3 key concepts for research resource #1.
    b) [10 pts] Citation and 3 key concepts for research resource #2.

2) [30 points] A design for your application or views including the following:
    a) [10 pts] Written summary, outline of features and description of the concept, logical design, and physical implementation for your work.
    b) [10 pts] Design materials such a mysql-workbench EER schema and key MySQL features used in your application.
    c) [10 pts] Plans to test and evaluate your DBMS or alternate ORDBMS/OODBMS application.

3) [50 points] Implementation and testing of your application including Data Definition Language, Data Manipulation Language, and UML/EERD schema designs – for user friendliness, your design must include views, web-support or connector applications (users should not be required to compose SQL to make use of your DB). You must provide test reports from test data included, and tests that prove your DBMS application works at the DML level as well as higher view, application and web-based levels. You will be asked to present your design as a final oral exam for the course, so think about 12 key slides you will use to present your design with each team member presenting 3 slides, a title slide, outline slide and conclusions slide.

    a) [25 pts] Write a report that includes [16 total pages including cover page, but not appendices or code]:

    [1 page] **Cover Page (list all group members clearly)**

    [1 paragraph] **Introduction**

    [1 page] **Functional (capability) Requirements**

    [N pages] **Logical Database Design Elements**

    [N pages] **Physical Database Design Elements**

    [N pages] **Schema Design, Verification and Demonstration [DDL]**

    [N pages] **Proof-of-Concept with Example Output and Tests Completed [DML, Views, Connectors]**

    [1 paragraph] **Conclusion**

    [1 page] **Formal References (and Attributions to Anyone who helped not on the team)**

    [N pages] **Appendices with results, code and supporting material** (to stay in page bounds)

    b) [25 pts] Deployed DB on PRClab1 (or equivalent) with test data populated and verifying queries (multi-table) defined as views [All DDL, DML, Workbench files, Connector code, test scripts should be turned in – if all are contained in your WB file this is fine, but also capture the SQL from forward engineering into a file and save]

Overall, provide a well-documented professional report of your findings, output, and tests so that it is easy for a colleague (or instructor) to understand what you've done, what worked, what did not and why (even if you can't complete to your satisfaction). Include any SQL source code and commands you write (or modify).

In this class, you'll be expected to consult the Oracle MySQL reference manual and tutorial pages as needed in addition to Connolly-Begg. Upload all SQL you develop and your report completed using MS Word or as a PDF to Blackboard and include any supporting information you want in appendices (ideally example output should be integrated into the report directly, but if not, clearly label in the report and by filename if test and example output is not pasted directly into the report). ***Your report must include SQL and/or Python/PHP/Java/C/C++ code so I can repeat your queries and replicate your results on PRClab1. Please zip your solution with your last name embedded in the file name.***

Grading Rubric

[20 points] Reading, analyzing and summarizing technical materials used in research:

[10 pts] a) _____

[10 pts] b) _____

[30 points] Logical and Physical DBMS Design:

[10 pts] a) Feature design _____

[10 pts] b) Logical and Physical Design _____

[10 pts] c) Test plans _____

[50 points] Exploratory DBMS, data analysis, or data processing application _____

[10 pts] a) Report on DB concept, creativity, clarity and completeness of project overall

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[10 pts] b) Design work summary – logical and physical _____

[5 pts] c) Professionalism of report and improvements presented at final oral presentation

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[15 pts] d) Deployment to PRClab1 _____

[10 pts] e) Test and demonstration _____