Florida Polytechnic University

COP 3710 Database 1, Spring 2022

Group Project (20%): Designing & Implementing a Database System

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Project Rules:

- This is a group project assignment,
- The project will have multiple submissions,
- Start early, some of the assignments might take time,
- Each group must have 3 students,
- Always include all members' names on the cover page of all your submissions,
- There will be peer reviews that you will give contribution scores for your teammates. If a teammate is not contributing to the team, he/she will not get the full credit of the project based on the peer reviews,
- A presentation of the database system is required. All members of the group must attend this presentation and must be prepared to explain and demonstrate those aspects of the project for which they were responsible,
- There is no need to implement a user interface (UI) for your database,
- You can make assumptions about your database design providing that:
    - They are explicitly stated in you documents,
    - They don't conflict with any of the requirements of the project,
    - They are "reasonable".

Deliverables:

- There will be several assignments listed below, each assignment having its own deliverable document(s) (submissions).
- The final assignment will include all the (updated) documents you submitted before as the final project report.
- Your final submission will also include presentation slides of your project.
- Your final submission will include a presentation video (5 to 10 minutes will be used during the class presentation) that each team member will present some part of it.

Project Description:

You will analyze the requirements for, design, implement, document, and demonstrate a relational database system for an organization. You are free to choose a database type from one of the options listed below:

- E-commerce Database
- Transportation System Database
- Library System Database
- Hospital Management Database
- Restaurant Management Database
- Hotel Booking System Database
- Job Portal System Database
- Banking System Database
- Airline Reservation System Database
- Video Streaming Database
- Car Rental System Database
- Food Delivery System Database

Assignment 1 (Team Formation and Subject Selection): Due March 18th

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Submit a document that contains the following (one submission per team):

1) Your team member names.
2) Your team's choice for the database system that you want to develop.

Assignment 2 (Business Rules & ER Diagram): Due March 30th

Submit a document that contains the following (only one team member submits):

1) A short overview of the organization that you are building your database for including identification of the various types of users, administrators, etc. who will be accessing the system in various ways (10 points)
2) Your database's business rules (have at least 20 business rules) (50 points),
   - You can update/add more business rules as you progress
   - List your resources for the business rules in your document. For example, did you find a document that describes the business, or did you interview any person working in that business?
3) A complete Entity Relationship (ER) model that includes entities (at least 8 entities), attributes (at least 4 attributes per entity), keys, cardinality, connectivity, and relationships (each entity will have at least one relationship) and their types. The relational schema should be in some appropriate Normal Form, with identification and justification of the Normal Form. (80 points)

Assignment 3: (Data Dictionary & DDL Statements) Due April 6th

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Submit a document that contains the following (only one team member submits):

1) The SQL DDL statements to create your relational schema (40 points)
   - DDL statements must contain constraints that will prevent the entry of data that does not conform to your business rules
2) The complete data dictionary for your database (20 points)
3) If your previous documents have changed, submit the updated documents.

Assignment 4: (Data, Queries & Updates) Due April 15th

Submit a document that contains the following (only one team member submits):

1) Scripts to populate data into all your tables (at least 5 rows per table) (20 points)
2) Scripts to update data (update (SQL DML) statements should be in various complexity, at least 2 per table) (20 points)
3) At least 5 query scripts to answer questions about your organization and its operations (40 points)
   - Must include at least 2 aggregation queries utilizing group by and order by.

- Should be in various complexity joining two, three, and four tables

4) At least 4 scripts (update or insert) to demonstrate that you receive errors from the database because of the constraints (integrity, check, referential, not null constraints) implemented in your database. (20 points)
   - One script per constraint type (integrity, check, referential, not null)
5) If your previous documents have changed, submit the updated documents.

Assignment 5: (Final Documents, Slides, Video) Due April 20th

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Submit the following (only one team member submits):

1) A final report that includes all the documents that have been submitted for the previous project assignments, (10 points)
2) Presentation slides of your project should include (30 points):
   - Team members,
   - A brief overview of the organization,
   - Business rules,
   - ER Diagram and its explanation,
   - Queries and their explanations,
3) A video presentation in mp4 format that goes over your slides (5 to 10 minutes will be used during the class presentation). The video file should not be over 200 MB. Each team member will present some part of it. You can use screen recording software like screencastify to record your presentation and voice-over while you are going over the slides. (50 points)

Assignment 6: (Peer Evaluation) Due April 23rd

Each team member submits a contribution score for his/her teammates. The average of the scores received from the teammates will be your score from this assignment. If you do not submit this assignment, you get a zero regardless of your teammates' scores for you. (100 points)

In-class presentations will start on Thursday, April 21st. The presentations will follow up with in class discussions of the database design and its details.

Discussion board activity: Your presentation video can be posted to a canvas discussion board for other students to review.

Points distributions:

- Project Assignment 1: 10 points
- Project Assignment 2: 140 points
- Project Assignment 3: 60 points
- Project Assignment 4: 100 points
- Project Assignment 5: 90 points
- Project Assignment 6: 100 points
- Total 500 points