New York University Tandon School of Engineering
Project for Intro. To Databases (CS-UY 3083 - B)
Professor Salim Arfaoui

Project overview:
This project allows you to use your creativity, apply database concepts, to develop a database-related application. It helps you practice skills, reinforce knowledge, and experience database design and development. This project is to provide you with real-world experience in requirements definition, conceptual modeling, logical design, physical design, operation of a relational database, and application development.

In practice, a database-related application is usually developed by teams of developers with diverse expertise. An application can be developed from and consists of multiple diverse, distributed, and dynamically generated software components. They implement different parts of the application's functionality and interact with each other to provide services to the users.

During the semester, you will be expected to complete a project involving the creation of a database-related system. You may choose to develop a non-web-based project (i.e., desktop software) or a web-based project (i.e., web software). There is no requirement on any specific technologies or programming languages; the only requirement is that you must properly design and integrate a relational database **(City Jail)** into your app. However, to maximize your learning experience, you are recommended to consider a web-based project.

The project will entail the design of a database, with all accompanying evidence of its good design, along with an app that will interface with the database through record gathering, inserting, deleting, etc. To maintain some cohesion between each project milestone, and leave you with a final, portfolio-worthy deliverable, the team will design, implement, populate, test, and document the project.

You may design your system as a web app or non-web app, using any software architectural style(s) of your choice as long as the **(City Jail)** database is integrated into your app.

Each team member is expected to make significant contributions to the project. Peer evaluations of your project contributions will be collected. **The peer evaluations will help determine your final project grade. (worth 3pts)**

There will be 6 deliverable:

1) (02 points) Milestone 0: Team charter
2) (15 points) Milestone 1: DB design
3) (10 points) Milestone 2: GUI design
4) (20 points) Milestone 3: DB setup and SQL
5) (25 points) Milestone 4: Final Deliverable
6) (25 points) Milestone 5: Presentations/Demo

(2 points) Milestone 0: Team charter

- Form a team of 2-3
- Complete and sign the Team Charter document

(15 points) Milestone 1: DB design

- Create an E-R diagram representing the database
- Indicate cardinality of relationships and any mandatory relationships
- Convert the E-R diagram into an E-R model
- Identify functional dependencies of your tables
- Demonstrate that your tables are in 3NF

(10 points) Milestone 2: UI design

- Decide on a UI development environment.
- Specify the target user(s) of your system
- Sketch an initial prototype of your UI and for each UI element:
    - Briefly describe its purpose,
    - What it does
    - How the users will use it
    - What the users can expect from using it.
- Design user interface(s), including all necessary elements.

(20 points) Milestone 3: DB setup and SQL

- Set up the database to be used by your app
- Set all of your tables in your database
- Populate the database with the chosen dataset — be sure the data are practical and sufficient
- Write all SQL commands you plan to use in your app
- Write at least 2 different PL/SQL commands (such as trigger, assertion, check constraint, stored procedure, Function,...) to efficiently manage the business logic of your app
- Test and verify that your SQL commands work properly

(25 points) Milestone 4: Final Deliverable

- Write program(s) to interact with the database
- Implement all functionalities and necessary features to fulfill the project requirements
- Test and verify that your app works properly

(25 points) Milestone 5: Presentations/Demo

- Application assessment
- 10-15 minute team presentation of work to the class or CA.
- Demo of app