CMPE 351 - Database Systems

Term Project
Deadline: 08.01.2021 23.59

RULES

Submission

- Different tasks are assigned to you depending on your **last digit** of student id. Answers to incorrect tasks will **not** be evaluated.
- There is two slot for term project submission: **Report Submission** and **Code Submission**. Submit your files related slots.
- Submit your report as [name_surname_project_report].pdf.
  Only PDF files are accepted for reports.
- Submit your codes as [name_surname_project_code].ipynb.
- Late submissions will **not** be accepted. Submission system will be closed after deadline.
- Submissions via e-mail will **not** be accepted.

Reports

- This is an individual study, so you are expected to prove the uniqueness of your answers. Turnitin will assess the similarity of your report comparing Internet and in-class submissions.
- The reports which has more than **30%** similarity will **not** be evaluated.

  Note that you can see only the similarity score compared to Internet. In-class similarity will be reported only to Instructors.

Codes

- Solution without comments will **not** be evaluated.
- Plagiarism is strictly prohibited. Submitted codes will be assessed via a plagiarism tool. Involved students will get zero.

PROJECT

Assume that you have a firm depending on last digit of your student ID as given below.

Last Digit of Student ID	**Firm**
0, 1	Transportation
2, 3	Agency
4, 5	Sport Club
6, 7	TV Channel
8, 9	Theater

For example, the one whose student ID is 114200066 will answer the following questions by assuming s/he owns TV Channel.

QUESTIONS

1. Create a database for your firm.
2. Design and implement your tables, relations etc. depending on sector of your firm. Design is totally up to you, however, you are expected to justify your answers.
3. Design and implement simple application that allows users to make operations for your database, e.g. adding, showing records etc.

   Note: Demo for a sample application is recorded. Refer for Weekly Content/ Lab Sessions.

REPORT

(60 points)

1. Explain your firm and its sector.
2. *(20 points)* Explain your database design, i.e. which tables and relations are used, in details.
3. *(10 points)* Draw ER diagram of your database[1]. Provide snapshots for tables.
4. *(10 points)* Explain keys and cardinalities for each table.
5. *(20 points)* Apply 4NF Normalization for your database's tables. Explain each step of normalization.

[1] You can use LucidChart.

CODE

(40 points)

1. *(10 points)* Design and implement simple user interface for your database. Design is totally up to you. A sample is given in Weekly Content/ Lab Sessions.

2. *(20 points)* Implement functionality for adding records to tables.

3. *(10 points)* Implement functionality for showing records in tables.

4. *(10 points)* Implement functionality for executing more complex SQL commands.

5. Additional functionalities of application will be graded as bonus, up to 20 points.

Note: Ensure that your programs are fully documented, using comments.