Ryerson University

CIND-110

Data Organization
for Data Analysts

Assignment I
On Reverse/Forward Engineering Existing Datasets

Lead Instructor:
Tamer Abdou, PhD

Starts: Wednesday, September 16, 2020, 8:00 AM
Due: Wednesday, October 21, 2020, 11:59 PM
This assignment counts for 10% of the final grade

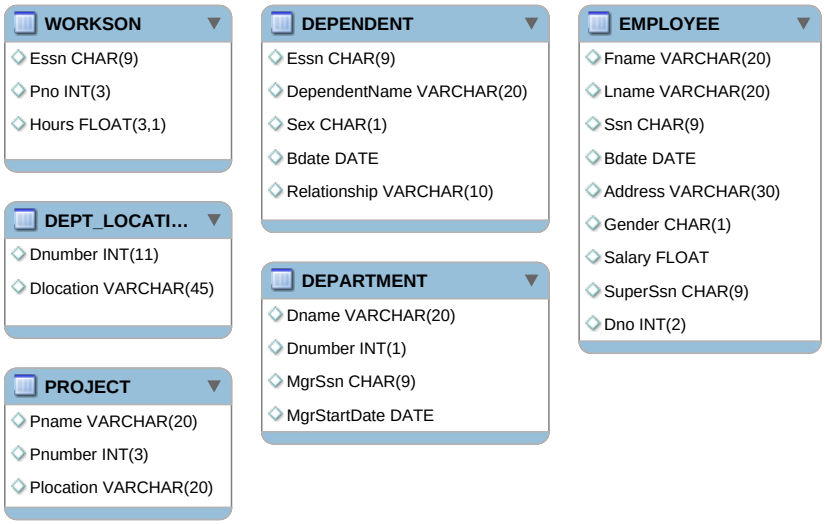
This assignment has 9 steps, as follows:

1. From the course shell, download the SQL file (CompanyDB.sql) and save it on your local machine.

2. On your machine, make sure that the MySQLWorkbench tool is connected to the target database server.

3. From MySQLWorkbench tool, execute/run the SQL file using the SQL Editor panel.

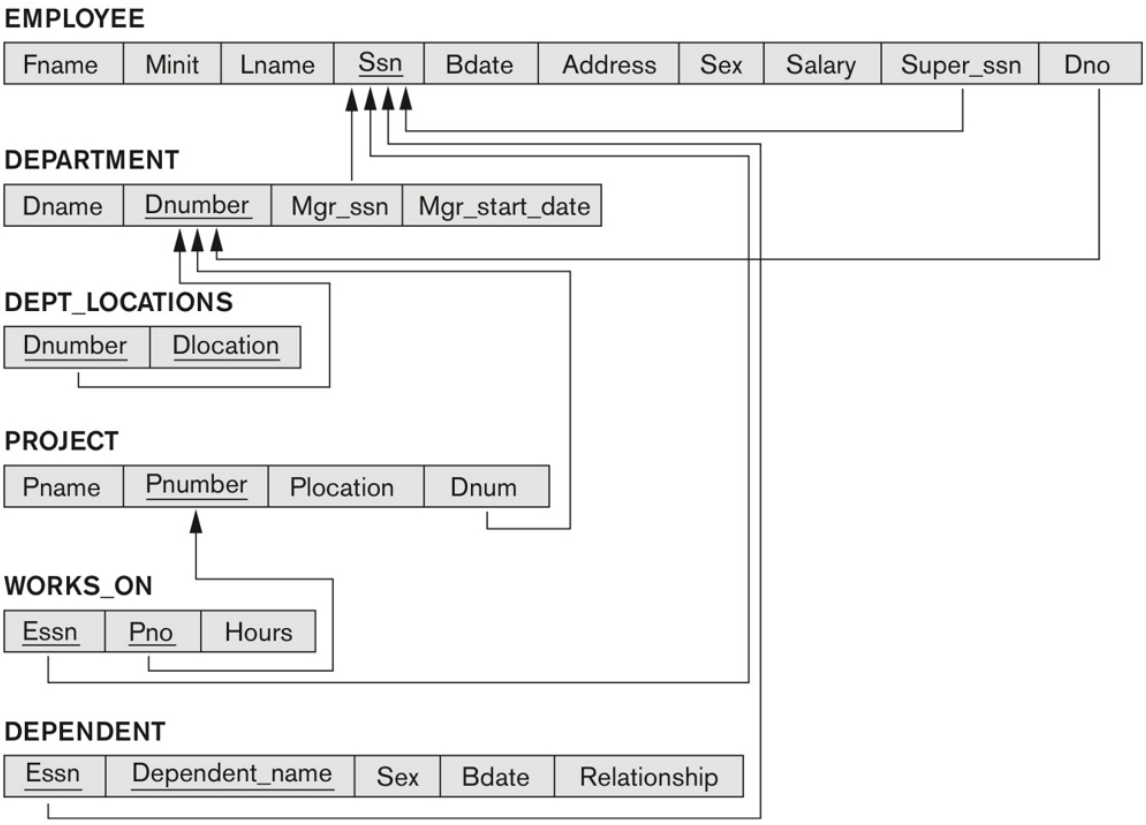
4. The SQL file will create six disconnected tables (WorksON, DEPT_LOCATIONS, PROJECT, DEPENDENT, DEPARTMENT, and EMPLOYEE) in a schema called 'CompanyDB', similar to the figure below.



5. The description of the attributes of each table can be found in Part 3, Chapter 5 of the TextBook: Fundamentals of DataBase Systems, 7^{th} Edition.

6. Use MySQLWorkbench tool to create the *primary* and *foreign* keys, according to the following figure (Adopted from Figure 5.7, pp.164) and that to describe all of the required entity and referential integrity constraints.

7. For each relationship, specify the cardinality ratios and their directions(whether they are *one-to-many*, *one-to-one*, *or many-to-many.*)



8. Use MySQLWorkbench tool to **reverse engineer** the whole database - including all the six tables along with their cardinality ratios - into a logical data model, then save it on your machine.

9. Use MySQL-Workbench tool to **forward engineer** the generated logical data model, and save the output script (.sql format) on your machine.

Submissions:

1. **SUBMIT** The generated data model in MWB format (Step 8) along with a screen-shot either in JPG or PNG format. The logical model should cover all the tables, attributes, keys, mandatory role constraints, and referential integrity constraints with no regards to the physical implementation.

2. **SUBMIT** The output script in SQL format (Step 9). The script should cover the structure of the tables in addition to the data stored in those tables.