Object-Relational Mapping with Java, JPA and Oracle

"Lucy, Ricky, Ethel and Fred start a business"

(DB Topics Version)

1. Download Oracle Express to your personal computer (Windows or Linux) from https://www.oracle.com/database/technologies/xe-prior-releases.html It is best to run an older version, i.e, 11gR2. (If you are using a Mac, you will need some virtual environment. See this guide.)

2. Extract the files from the zip file, then run setup.exe

3. Give Oracle a password for the system accounts. Configuring your database might take some time.

4. Install Apache Tomcat https://tomcat.apache.org/download-90.cgi   If you are on Windows, you can use the installer. Install it and link it to the version of Java (jdk, hopefully) that you are using. Accept defaults.

5. Launch Eclipse and make a new JPA project.

   a. Make sure your target runtime is Apache Tomcat.

   b. You will also have to let Eclipse know where Tomcat is installed
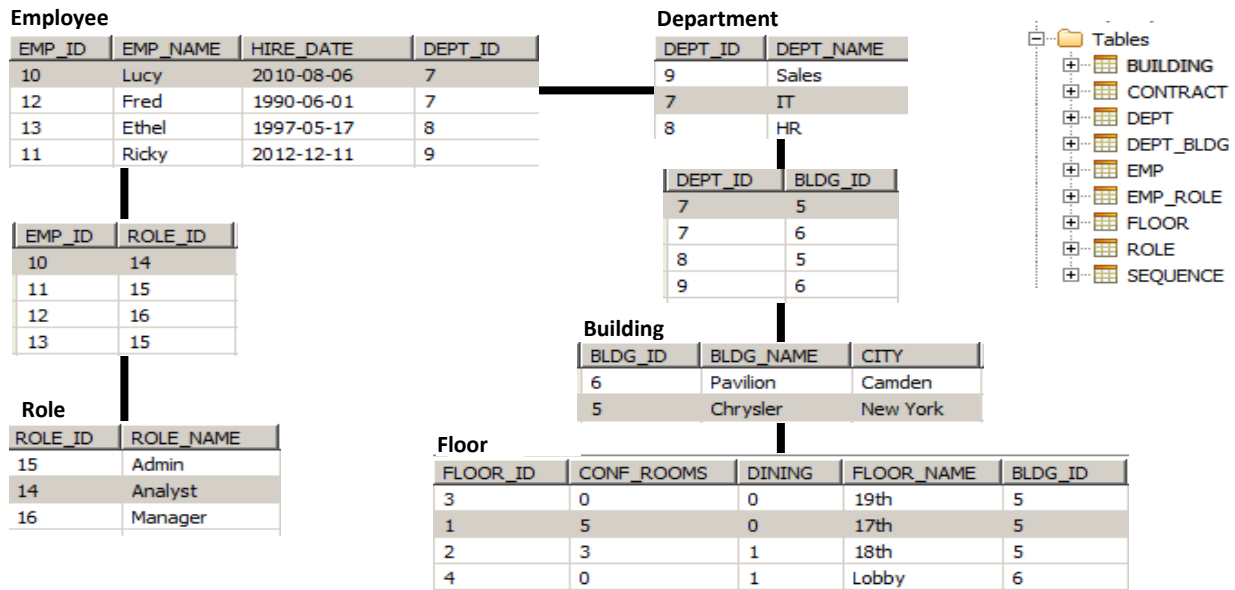

Instructions

1. Lucy and Ricky join Fred and Ethel in developing a building management service. Here are their roles, and information on the buildings they manage.

Employee	Hire Date	Dept	Role
Lucy	06-Aug-2010	IT	Analyst
Ricky	11-Dec-2012	Sales	Admin
Fred	01-Jun-1990	IT	Manager
Ethel	17-May-1997	HR	Admin

Building	City	Depts	Floors
Chrysler	New York	IT, HR	• 17th: 5 conf rooms, no dining facility • 18th: 3 conf rooms, dining available • 19th: no conf rooms, no dining facility
Pavilion	Camden	IT, Sales	• Lobby: no conf rooms, dining facility

2. Relationally, you realize this will result in the following physical data model:

Employee

EMP_ID	EMP_NAME	HIRE_DATE	DEPT_ID
10	Lucy	2010-08-06	7
12	Fred	1990-06-01	7
13	Ethel	1997-05-17	8
11	Ricky	2012-12-11	9

EMP_ID	ROLE_ID
10	14
11	15
12	16
13	15

Role

ROLE_ID	ROLE_NAME
15	Admin
14	Analyst
16	Manager

Department

DEPT_ID	DEPT_NAME
9	Sales
7	IT
8	HR

DEPT_ID	BLDG_ID
7	5
7	6
8	5
9	6

Building

BLDG_ID	BLDG_NAME	CITY
6	Pavilion	Camden
5	Chrysler	New York

Floor

FLOOR_ID	CONF_ROOMS	DINING	FLOOR_NAME	BLDG_ID
3	0	0	19th	5
1	5	0	17th	5
2	3	1	18th	5
4	0	1	Lobby	6

Tables
- ⊞ BUILDING
- ⊞ CONTRACT
- ⊞ DEPT
- ⊞ DEPT_BLDG
- ⊞ EMP
- ⊞ EMP_ROLE
- ⊞ FLOOR
- ⊞ ROLE
- ⊞ SEQUENCE

3. Build these classes with the appropriate JPA Annotations. Create a program to create Entities and persist the data in an Oracle database