Homework #1

Complete By: **Wednesday, September 4th @ 5:00pm**

Submission: **collected at beginning of class on paper or submitted digitally through Gradescope**

Reading Tables

On the following two pages is a set of data that was stored in a database. There are three tables extracted from the database which store between them some information the company keeping the database finds useful. Read through this data in order to answer the questions that follow.

Employee Table

Employee_ID	Employee_Fname	Employee_Lname	Employee_HireDate	Employee_Title
2345	Brian	Oates	2/14/99	DBA
3373	Franklin	Johnson	3/15/06	Purchasing Agent
4893	Patricia	Richards	6/11/08	DBA
6234	Jasmine	Patel	8/10/09	Programmer
8273	Marco	Bienz	7/28/10	Analyst
9002	Wade	Gather	5/20/14	Clerk
9283	Juan	Chavez	7/4/14	Clerk
9382	Susan	Mathis	8/2/14	Database Programmer
13383	Raymond	Matthews	3/12/16	Programmer

Certified Table

Employee_ID	Skill_ID	Certified_Date
2345	100	2/14/04
2345	110	8/9/05
2345	180	2/14/07
3373	120	6/20/13
4893	180	6/11/08
4893	220	9/20/14
6234	110	8/10/09
6234	200	8/10/09
6234	210	1/29/14
8273	110	3/8/11
8273	190	8/19/14
9002	110	5/16/15
9002	120	5/16/15
9382	140	8/2/14
9382	210	8/2/14
9382	220	5/1/15
13383	170	3/12/16

Skill Table

Skill_ID	Skill_Name	Skill_Description
100	Basic Database Management	Create and manage database user accounts
110	Basic Web Design	Create and maintain HTML and CSS documents
120	Advanced Spreadsheets	Use of advanced functions, user-defined functions, and macroing
130	Basic Process Modeling	Create core business process models using standard libraries
140	Basic Database Design	Create simple data models
150	Master Database Programming	Create integrated trigger and procedure packages for a distributed environment
160	Basic Spreadsheets	Create single tab worksheets with basic formulas
170	Basic C# Programming	Create single-tier data aware modules
180	Advanced Database Management	Manage Database Server Clusters
190	Advanced Process Modeling	Evaluate and Redesign cross-functional and external business processes
200	Advanced C# Programming	Create multi-tier applications using multi-threading
210	Basic Database Manipulation	Create simple data retrieval and manipulation statements in SQL
220	Advanced Database Manipulation	Use of advanced data manipulations methods for multi-table inserts, sets operations and correlated subqueries.

1. What is the domain from which this data might have been taken?

    Human Resources

2. What is being represented by the data in these tables? What does this data allow us to describe?

    The Employee table has the information about the Ids, names, hired dates and designations of the employees. In the certified table, the information about the employees' skills and certification dates are being represented. And the skill table has the information about the skill Ids, skill names and their descriptions. This data allows us to describe the experience and skills of the employees.

3. What might you do with this data? Name three potential uses of the data, questions a company might ask that could be answered by this data set. Do not use questions that are nearly identical to the ones asked in this assignment or each other.

    Uses:
    1) We could find who has knowledge in a field.
    2) We could use the skill table to know about the skill descriptions.
    3) And we could identify the designations of the employees using the Employee table.

    Question a company might ask:
    1) Who has the experience of more than 5 years, and has skills of basic database design and basic database design manipulation?
    2) Who is more experienced employee?
    3) Who has a greater number of Skills?

4. How many records are contained in the Employee table?

    Nine

5. How many fields are there per record?

    Five in case of the Employee table

6. What is the domain of the Employee_HireDate attribute of the Employee relation?

The domain of an attribute is the set of values it could take. So, its domain is from 2/14/99 to 3/12/16 inclusive.

7. The information in this database is divided into three tables. The data could be divided up differently, into more or fewer tables. Suggest an alternative design, with at least one benefit and one limitation of staring the data in that format.

   -We could club the skill table and certified table as skill and certified table which would make easier to identify skills for an employee and would also decrease the space occupied, but it results in larger table.

Employee Table

Employee_ID	Employee_Name	Employee_HireDate	Employee_Title
2345	Brian Oates	2/14/99	DBA
3373	Franklin Johnson	3/15/06	Purchasing Agent
4893	Patricia Richards	6/11/08	DBA
6234	Jasmine Patel	8/10/09	Programmer
8273	Marco Bienz	7/28/10	Analyst
9002	Wade Gather	5/20/14	Clerk
9283	Juan Chavez	7/4/14	Clerk
9382	Susan Mathis	8/2/14	Database Programmer
13383	Raymond Matthews	3/12/16	Programmer

Skill and certified Table

Employee_ID	Skill_ID	Certified_Date	Skill	Skill_Description
2345	100	2/14/04	Basic Database Management	Create and manage database user accounts
2345	110	8/9/05	Basic Web Design	Create and maintain HTML and CSS documents
2345	180	2/14/07	Advanced Database	Manage Database Server Clusters

			Management	
3373	120	6/20/13	Advanced Spreadsheets	Use of advanced functions, user-defined functions, and macroing
4893	180	6/11/08	Advanced Database Management	Manage Database Server Clusters
4893	220	9/20/14	Advanced Database Manipulation	Use of advanced data manipulations methods for multi-table inserts, sets operations and correlated subqueries.
6234	110	8/10/09	Basic Web Design	Create and maintain HTML and CSS documents
6234	200	8/10/09	Advanced C# Programming	Create multi-tier applications using multi-threading
6234	210	1/29/14	Basic Database Manipulation	Create simple data retrieval and manipulation statements in SQL
8273	110	3/8/11	Basic Web Design	Create and maintain HTML and CSS documents
8273	190	8/19/14	Advanced Process Modeling	Evaluate and Redesign cross-functional and external business processes
9002	110	5/16/15	Basic Web Design	Create and maintain HTML and CSS documents
9002	120	5/16/15	Advanced Spreadsheets	Use of advanced functions, user-defined functions, and macroing
9382	140	8/2/14	Basic Database Design	Create simple data models
9382	210	8/2/14	Basic Database Manipulation	Create simple data retrieval and manipulation statements in SQL
9382	220	5/1/15	Advanced Database Manipulation	Use of advanced data manipulations methods for multi-table inserts, sets operations and correlated subqueries.
13383	170	3/12/16	Basic C# Programming	Create single-tier data aware modules

8. What skill(s) is Jasmine Patel certified in? List the names of the skills.

   Jasmine Patel is certified in the following skills:
   a) Basic Web Design
   b) Advanced C# Programming
   c) Basic Database Manipulation

9. Who are the employee(s) who are certified in Advanced Database Management?

    Patricia Richards and Brian Oates are the ones who are certified in Advanced Database Management.

10. Is there an employee who has been working at the company for more than 10 years (as of today's date) and has training in Advanced Database Manipulation?
    - Yes. Patricia Richards