Assignment 5

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Rick's Question

1)

Query:

```
insert into schools (name, province, language, level) values ('University of New Brunswick', 'New Brunswick', 'EN', 'University');

insert into schools (name, province, language, level) values ('Leo Hayes', 'New Brunswick', 'EN', 'High School');

insert into schools (name, province, language, level) values ('Fredericton High School', 'New Brunswick', 'EN', 'High School');

insert into schools (name, province, language, level) values ('Liverpool Elementary', 'New Brunswick', 'EN', 'Elementary');

insert into schools (name, province, language, level) values ('Forest Hill', 'New Brunswick', 'EN', 'Elementary');

insert into schools (name, province, language, level) values ('Bliss Carmen', 'New Brunswick', 'EN', 'Middle School');
```

Table After:

schoolId	name	province	language	level
1	University of New Brunswick	New Brunswick	EN	University
2	Leo Hayes	New Brunswick	EN	High Schoo
3	Fredericton High School	New Brunswick	EN	High Schoo
4	Liverpool Elementary	New Brunswick	EN	Elementary
5	Forest Hill	New Brunswick	EN	Elementary
6	Bliss Carmen	New Brunswick	EN	Middle Sch

2)

Query:

```
update schools set province = 'Manitoba' where (schoolId = 2);
```

Table After:

ishoebot.schools: 6 rows total (approximately)

schoolId	name	province	language	level
1	University of New Brunswick	New Brunswick	EN	University
2	Leo Hayes	Manitoba	EN	High Schoo
3	Fredericton High School	New Brunswick	EN	High Schoo
4	Liverpool Elementary	New Brunswick	EN	Elementary
5	Forest Hill	New Brunswick	EN	Elementary
6	Bliss Carmen	New Brunswick	EN	Middle Sch

3)

Query:

```
delete from schools where province = 'Manitoba';
```

Table After:

ishoebot.schools: 5 rows total (approximately)

schoolId	name	province	language	level
1	University of New Brunswick	New Brunswick	EN	University
3	Fredericton High School	New Brunswick	EN	High Schoo
4	Liverpool Elementary	New Brunswick	EN	Elementary
5	Forest Hill	New Brunswick	EN	Elementary
6	Bliss Carmen	New Brunswick	EN	Middle Sch

Problem 1

A)

1. Obtain General Description of company operations
2. Interview the shop manager
3. Interview the mechanics.
4. Create a description of each system process.
5. Draw a data flow diagram and system flowcharts.
6. Create a conceptual model using ER diagrams.
7. Normalize the conceptual model.
8. Create the file (table) structure
9. Load the database
10. Test the system.
11. Create the application programs.

B)

There should be modules called Employees which contain employee hours, salary, payroll, and a unique id, as well as position and name, another module called Repairs which contain parts used, a unique repair id, cost, date of repair and owner of car and bill. There would be one more module named Inventory which contains cost of part, date purchased, transaction id, parts name, and part code.

C)

A data dictionary will help develop the system in that it can account for types of information that exist in the database and define default values for tables as well as types. So, for example if you maintained a type-less, default value-less database, your database might (and probably will) become filled with entries that do not fit the table they were entered in, and rows might contain nulls in tables that should never have null, which will produce errors and become more unmaintainable over time.

D)

I would recommend that the system stay in in the modular format it is. The only time the company will need to change the way it operates this database is if they decide to modify the structure of the way they store data/way the company works. There would be no benefit to integrating this database.

E)

The best database design for this specific case would be a bottom-up design, since the information the company needs to store is already known due to the manual filing system.

F)

A payroll report will show the employee hours * salary and payroll information for payment and should be used by managers.

An inventory report should show the current stocks of products sorted by least amount and should be used by managers and mechanics.

A purchases report should show the purchases on a given date, with a count of the parts on that date grouped by name. Used by managers.

A repair report should show all the information relating to a given repair id.

Review Question 13

A stateless system in terms of the web means that in terms of a database knowing who is interacting with it, and their previous transactions, it cannot be known. This means that upon seeing something from a database it cannot know who the request is from and must request authentication, if configured to do so.

Review Question 16

XML is extensible markup language, is a way of representing data in a way that can be queried, or transformed, very useful for storing data/information locally. It is important due to the fact that it is easily user definable, and it is “human readable” (not binary data)

Review Question 18

An XML schema is a way to define a way that an xml document should be created, and how data should be stored. They do nothing inherently, but other applications may use them to easily create XML documents which store data according to the schema

Review Question 19

JDBC is a java library with enables code written for the JVM to interact with databases very easily, and to use the data in a java application.