Lee Moriarity

Professor Kelly

CIS 245 ONL01

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Lab #1

1.6 Describe: the purpose of a database.

The purpose of a database is to store, organize and process data for use in web applications and smartphone apps. This can include any type of information such as user credentials, user data, product information, and many more. It is the most effective way to store and process data for use in web applications and smartphone apps.

1.7 What is a modification problem? What are the three possible types of modification problems?

A modification problem is “a situation that exists when the storing of one row in a table records facts about two themes or the deletion of a row removes facts about two themes, or when a data change must be made in multiple rows for consistency.” (Kroenke, p. 523). The three possible types of modification problems are update problems – inconsistent data, delete problems – data loss, and insert problems – missing data.

1.8 Figure 1-35 shows a list that is used by a veterinary office. Describe three modification problems that are likely to occur when using this list.

The first modification problem would be a delete problem. If pet data is deleted then the owner data would also be deleted, causing data loss. The second modification problem is an update problem. If you update data, it may cause inconsistent data across multiple rows. The third modification problem would be an insert issue. There is no way to add a pet without an owner or an owner without a pet.

1.9 Name the two themes in the list in Figure 1-35.

The two themes in the list are Pet and Owner.

1.10 What is an ID column?

An ID column is a numerical column of ID’s that is automatically populated each time a new row is inserted. They are typically incremental in value and are used to provide a unique ID number for each new row of data.

1.11 Break the list in Figure 1-35 into two tables, each with data for a single theme. Assume that owners have a unique phone number but that pets have no unique column. Create an ID column for pets like the one created for customers and courses for the Art Course database tables in Figure 1-12.

Pet Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | King | Dog | Std. Poodle | 27-Feb-16 |
| 2 | Teddy | Cat | Cashmier | 1-Feb-15 |
| 3 | Fido | Dog | Std. Poodle | 17-Jul-17 |
| 4 | AJ | Dog | Collie Mix | 5-May-17 |
| 5 | Cedro | Cat | Unknown | 6-Jun-14 |
| 6 | Wooley | Cat | Unknown | ??? |
| 7 | Buster | Dog | Border Collie | 11-Dec-13 |
| 8 | Jiddah | Cat | Abyssinian | 1-Jul-18 |

Owner Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | Downs | Marsha | 201-823-5467 | Marsha.Downs@somewhere.com |
| 2 | James | Richard | 201-735-9812 | Richard.James@somewhere.com |
| 3 | Downs | Marsha | 201-823-5467 | Marsha.Downs@somewhere.com |
| 4 | Frier | Liz | 201-823-6578 | Liz.Frier@somewhere.com |
| 5 | James | Richard | 201-735-9812 | Richard.James@somewhere.com |
| 6 | James | Richard | 201-735-9812 | Richard.James@somewhere.com |
| 7 | Trent | Miles | 201-634-7865 | Miles.Trent@somewhere.com |
| 8 | Evans | Hilary | 201-634-2345 | Hilary.Evans@somewhere.com |

1.12 Show how the tables you created for question 1.11 solve the problems you described in question 1.8.

The tables created in question 1.11 solve the modification problems listed in question 1.8. Since each theme is split up into its own table. You can insert pet and owner data as needed. You can also change and delete data without missing data or data loss.

1.13 What does SQL stand for, and what purpose does it serve?

SQL stands for Structured Query Language. SQL is the standard language for dealing with Relational Databases. The purpose of SQL is to perform tasks like insert, update, delete, and search database records.

1.14 Another version of the list used by the veterinary office is shown in Figure 1-36. How many themes does this list have? What are they?

The list in Figure 1-36 has three themes. These themes include Pet, Owner, and Service.

1.15 Break the list in Figure 1-36 into tables, each with a single theme. Create ID columns as you think necessary.

Pet Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | King | Dog | Std. Poodle | 27-Feb-16 |
| 2 | Teddy | Cat | Cashmier | 1-Feb-15 |
| 3 | Fido | Dog | Std. Poodle | 17-Jul-17 |
| 4 | AJ | Dog | Collie Mix | 5-May-17 |
| 5 | Cedro | Cat | Unknown | 6-Jun-14 |
| 6 | Wooley | Cat | Unknown | ??? |
| 7 | Buster | Dog | Border Collie | 11-Dec-13 |
| 8 | Jiddah | Cat | Abyssinian | 1-Jul-18 |

Owner Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | Downs | Marsha | 201-823-5467 | Marsha.Downs@somewhere.com |
| 2 | James | Richard | 201-735-9812 | Richard.James@somewhere.com |
| 3 | Downs | Marsha | 201-823-5467 | Marsha.Downs@somewhere.com |
| 4 | Frier | Liz | 201-823-6578 | Liz.Frier@somewhere.com |
| 5 | James | Richard | 201-735-9812 | Richard.James@somewhere.com |
| 6 | James | Richard | 201-735-9812 | Richard.James@somewhere.com |
| 7 | Trent | Miles | 201-634-7865 | Miles.Trent@somewhere.com |
| 8 | Evans | Hilary | 201-634-2345 | Hilary.Evans@somewhere.com |

Service Table

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | Ear Infection | 17-Aug-18 | $65.00 |
| 2 | Nail Clip | 5-Sep-18 | $27.50 |
| 3 |  |  |  |
| 4 | One-year shots | 5-May-18 | $42.50 |
| 5 | Nail Clip | 5-Sep-18 | $27.50 |
| 6 | Skin Infection | 3-Oct-18 | $35.00 |
| 7 | Laceration Repair | 5-Oct-18 | $127.00 |
| 8 | Booster Shots | 4-Nov-16 | $111.00 |

Works Cited

Kroenke, David; Auer, David; Vandenberg, Scott; Yoder, Robert.

*Database Concepts,* 9th edition, Pearson, 2020*.*