Chapter 6 Hands-on Activities

Activity 1

An entity relationship diagram (ERD) describes the relationships between entities in a database. Boxes represent entities. Lines represent relationships. Lines shaped like crow's feet indicate that an object in one entity may be linked to more than one object from the second entity. A crossbar indicates that all objects within an entity are linked to a single object in the entity closest to the crossbar. A double crossbar indicates that this relationship must occur. For example, a relationship between a child and a parent; every child must have a parent. A circle indicates that a relationship is optional. For example, the relationship between a professor and a student entity; not all professors teach classes and have students.

Create an ERD in Microsoft Word depicting the relationship between a client entity, a product orders entity and a salesperson entity. Create a text box for each entity. Then use the autoshapes under "Insert" and "Picture…" to draw the relationships. Save the document as **ch6actsol1.doc**.

Activity 2

Data warehouses provide top-level managers with historical data that allows them to conduct business analysis. To build a data warehouse, an IS professional must extract the data, cleanse it and load it into the warehouse. To cleanse data, the program must first catch the errors.

When you create a table in Microsoft Access, you can use validation rules to help you catch errors. Construct a table in Microsoft Access that checks that the age of every client is 21 or older. Use the following table structure.

Field Name	Data Type
ClientID	Autonumber
Name	Text
Address	Text
City	Text
Country	Text
Postcode	Text
Telephone number	Text
Age	Number
Gender	Text

Save the table as ClientInfo and the database as **ch6actsol2.mdb**.

To validate age data, view the table in Design View. Select the Age row and click on Validation Rule below. Click on the box with three dots that appears. An Expression

Builder pops up. Click on the greater than symbol and type in "20." Under Validation Text, type in "The age of this person is wrong."

Experiment with entering data into this table. What happens if you enter an age that is below 20?

What other data in the table do you think you could check through validation?

Activity 3

Structured query language (SQL) is used by most relational databases. It is both a data definition language and a data manipulation language.

Create a table in Microsoft Access using the following format.

Field Name	Data Type
StudentID	Autonumber
Name	Text
Class	Number
Subject	Text

Enter the following data in the table.

StudentID	Name	Class	Subject
0000001	Ralph Gotlieb	2004	Environmental Sciences
0000002	Mark Johnson	2004	Electrical Engineering
0000003	Anna Theodore	2004	Global Studies
0000004	Anita Tyler	2005	Psychology
0000005	Sheila Graves	2005	Computer Science
0000006	Clara Arduini	2005	Chemical Engineering
0000007	Xiao Chen Chang	2006	Electrical Engineering
0000008	Sarah Kohn	2006	Mathematics

Save the database as **ch6actsol3.mdb** and name the table StudentInfo.

You will now use SQL to retrieve a list of all the Electrical Engineering majors. Within Queries, click on Create query in Design view. In the Show Table window, make sure StudentInfo is selected and then click Add. Then click Close. In the first column in the Field row, select Subject. Type in = "Electrical Engineering" in the Criteria row. Enter StudentInfo.* in the second column under Field. Save the query as FindSubject. Then click on the exclamation point to run the query.

Your result should list two students: Mark Johnson and Xiao Chen Chang.

Under View, select SQL view. This is the programming statement in SQL used to run your query. Within the SQL code, practice changing the subject and running the query. This is one way to familiarize yourself with basic SQL code.