REVIEW LESSON

MTA Course: Database Administration Fundamentals
Lesson name: Database Fundamentals 1.2
Topic: Understand relational database concepts (One 50-minute class period)
File name: DBAdminFund_RL_1.2

Lesson Objective:

1.2: Understand relational database concepts. *This objective may include but is not limited to:* understanding what a relational database is, the need for relational database management systems (RDBMS), and how relations are established.

Preparation Details

Prerequisite student experiences and knowledge

An understanding of relational database management systems (RDBMS) is required for this review.

This MTA Certification Exam review lesson is written for students who have learned about database administration. Students who do not have the prerequisite knowledge and experiences cited in the objective will find additional learning opportunities using resources such as those listed in the Microsoft®resources and Web links at the end of this review lesson.

Instructor preparation activities

Make five signs on 8.5 x 11 inch paper. Label each sign with a number starting with 1 and ending with 5 (or the number of the last period of the school day). Place the signs around the room in areas where students can gather.

Print enough copies of the chart on the student activity document (DBAdminFund_SA_1.2) for the entire class to use. Each student will need the number of class periods in the day times the number of students in his or her small group.

Resources, software, and additional files need for this lesson:

- Microsoft PowerPoint® viewer and projector.

- DBAdminFund_SA_1.2

- DBAdminFund_PPT_1.2

Teaching Guide

Essential Vocabulary:

Relational model—A data model in which the data is organized in relations (tables). This is the model implemented in most modern database management systems.

The three foundations of a modern database:

Entries—data

Attributes/fields—characteristics

Relationships/keys—How data ties together

One-to-one relationship—An association between two tables in which the primary key value of each record in the primary table corresponds to the value in the matching field or fields of one, and only one, record in the related table.

Many-to-many relationship—A complex association between two sets of parameters, in which many parameters of each set can relate to many others in the second set. A many-to-many relationship is most commonly used to describe an association between two tables in which one record in either table can relate to many records in the other table.

Parent/child relationship—A relationship between nodes in a tree data structure in which the parent is one step closer to the root (that is, one level higher) than the child.

Keys—Unique identifiers

Lesson Sequence

Activating prior knowledge/lesson staging (10 minutes)

1. *Say:* Today, we're focusing on RDBMS, with a including on many-to-many relationships.

2. You will use your notes and the data collected today in future lessons.

Lesson activities (30 minutes)

1. Give the PowerPoint presentation DBAdminFund_PPT_1.2. This assignment is a review of many-to-many relationships within a school database.
    The assignment is described on the last slide of the presentation.

2. Distribute the DBAdminFund_SA_1.2 materials and describe for the students how the activity will work and what they are expected to understand and be able to describe at the end.

3. Divide the class into as many groups as you have created signs for in the instructor preparation activities. Position each group at one of the numbered signs placed around the room.

4. *Say:* "The task in this activity is to gather data from each member of your small group about the class they attend each hour of the school day. Each time I say "Move," move from one numbered sign to the next. At each stop, collect the prescribed data from each group member for that particular hour and record it on the worksheet. Request the following data from each student at each stop:

    - The teacher

    - The time when the class is held

    - The subject

    - The grade level

    - A course fee directly related to this class (this could be zero)

    - Something unique about this class (the student's grade, the number of days the student is absent, etc.)

    You will collect a total of 6 pieces of data at each stop. If there are 5 stops (class periods), you will end up with 30 pieces of data for each student (5 stops x 6 pieces of data = 30).

    When all the stops are made, return to your start position. Discuss among yourselves and be ready to discuss the answers to these questions at the end of the class period:

    - What does everyone have in common about this class period?

    - Ask students to share their experiences in collecting the data. What is the only common item for *all* students for each class period?

Assessment/lesson reflection (10 minutes)

1. Reconvene the class and discuss the questions, connecting their answers to the objective of this lesson. In the activity, students reviewed the many-to-many relationship and are now ready to take part in the discussion.

2. Lead the discussion: Ask the students what they have in common about this class period (database review): 1) the teacher; 2) the time the class is held; 3) the subject; 4) the grade level; 5) a course fee directly related to this class (this could be zero). Now move on to discuss the other class period of the day. Ask them the same questions about the next class period and so on, as time allows.

3. Remind the students that the data collected today will be used in other lessons.

Microsoft resources and Web links

Faculty Connection Academic Resource Center
(*http://www.microsoft.com/education/facultyconnection/ARC/ResourceCenter.aspx?c1=e n-us&c2=0*)

MSDN Search – Relational Databases
(*http://social.msdn.microsoft.com/search/en-us/?query=relational+databases*)