

REVIEW LESSON 6.1

MTA Course: Software Development Fundamentals

Lesson name: Software Development Fundamentals 6.1

Topic: Understand relational database management systems (One 50-minute class period)

File name: SoftDevFund_RL_6.1

Lesson Objective:

6.1: Understand relational database management systems. *This objective may include but is not limited to:* characteristics and capabilities of database products; database design; Entity Relationship Diagrams (ERDs); normalization concepts.

Preparation Details

Prerequisite student experiences and knowledge

This MTA Certification Exam Review lesson is written for students who have learned about Web design and Web application programming. Students who do not have the prerequisite knowledge and experiences cited in the objective will need additional learning opportunities.

Students should have experience with analyzing data to create a relational database and creating tables, forms, and reports. They should also be familiar with the normalization process.

Instructor preparation activities

For this lesson, you will need a computer with Microsoft® Office 2007® attached to a LCD projector to display and review the attached Microsoft PowerPoint® document.

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

- Office (preferably 2007)
- LCD projector

Teaching Guide

Essential vocabulary:

Entity Relationship Diagram (ERD)—a diagram used to represent entities and their relationships.

normalization—the process of evaluating a relation to determine whether it is in a specified normal form and, if necessary, of converting it to relations in that specified normal form.

Lesson Sequence

Activating prior knowledge/lesson staging (10 minutes)

1. Talk to the students about how they would create a database for a high school grade book system. What information would they need to capture for each student? How about each teacher? (Write down the students' ideas on the chalkboard or whiteboard.)
2. Ask the students to identify what tables are needed and what data goes into each table.
3. Now review the information to identify primary keys and foreign keys; and then check for any duplicate data to help start the normalization process.

Lesson activity (30 minutes)

1. Using the SoftDevFund_PPT_6.1 PowerPoint presentation, walk the students through the concepts for this lesson (approximately 7–10 minutes).
2. Distribute Student Activity SoftDevFund_SA_6.1.
3. This activity assesses student understanding at multiple cognitive levels:
 - Analyze and evaluate a given problem (create a database for a general contractor to help track his customers, jobs, and referrals).
4. Review the design that the students created and discuss possible database products that could be used to capture, update, and report this information.

Assessment/lesson reflection (10 minutes)

1. Ask the students to review the activity from the beginning of class to see if they would make any changes after doing Student Activity 6.1.

Suggested best practices:

- Assign students to work in pairs for the student activity. Pair students with varying abilities to encourage them to learn from each other and to practice working in teams.