

STUDENT ACTIVITY 6.1

MTA Course: Software Development Fundamentals

Topic: Understand relational database management systems

File name: SoftDevFund_SA_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.

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

- None

Directions to the student:

As a review of the concepts in this lesson, please read the content section of the activity and then complete the following activities:

1. Read the content and identify all the data fields and data types required for the application.
2. Group the data and identify the necessary database tables for the project.
3. Use the process of normalization to get the database in Second Normal Form (2NF).
4. Create an Entity Relationship Diagram (ERD) for the new database.

Content:

Heinrich Fisher is the owner and general contractor for a construction company called Contoso, Ltd. Heinrich normally has three to five different types of construction jobs going at a given time. Recently, he has been having trouble keeping track of the jobs, so he wants to create some type of reporting system to help manage his business.

Many of the jobs are repeat work for the same *customer* or a *referral* from various sources, such as local electricians, excavators, real estate agents, and previous customers. When he gets a job with a customer, he keeps track of the *name*, *address*, and *phone number* of the customer.

The referrals also have *name*, *address*, and *phone number*, but also it has a *business name* when appropriate.

Contoso offers a wide variety of services, such as post and beam construction, siding, roofs, stonework, and additions. For each job, he needs to know the *start date*, *end date*, *job description*, *amount due*, and *amount paid*. If there was a referral, they need to also keep track of who referred this customer.

Complete the following tables and include primary keys, foreign keys, and ERD relationships. (*Note:* the ZIP code table is already filled in.)

Customer Table

ZipCodeTable
ZipCode (primary key)
City
State

ReferralTable

JobInfo