

# Task-by-Task Guide

*If you would like a little more support while completing this project, explore this step-by-step resource to get additional hints and resources to help you along each task.*

## Task 1 – Design a Relational Database

For this task you will carefully review the grocery store data in the GreenspotDataset.csv file provided. Look for fields that should be stored together in tables. *Hint: Remember that each table should contain data about a specific entity. For example, in a college database the STUDENT table contains one row for each student.*

As your tables begin to form, begin to look at the relationships between the tables. Those relationships may require the addition of foreign keys, and in some cases an “intersection” or “join” table.

Document your design by creating a New Model (under the File option) in MySQL Workbench. When completed, your EER (Extended Entity-Relationship) Diagram should include:

- A table object for each table, including:
  - A meaningful table name
  - Fields listed – each with a field name and applicable datatype
  - One or more fields marked as primary key(s)
  - A foreign key, if applicable
- Connectors between related tables  
*(Hint: tables are related by common columns/fields. In a good relational database, each table is directly connected/related to at least one other table, and all the tables are related directly or indirectly. For example, you should be able to follow a path from table “A” to table “C”, even if they are not connected, because table “A” is connected to table “B”, and table “B” is connected to table “A”.)*

Note that your database will be available for prospective employers to view. Take care to use sensible, applicable, and consistent names for tables and fields.

### Resources:

[Database Design and Modeling – MySQL Workbench Manual](#)

[SQL Database Design Basics with Examples - devart](#)

[Creating Foreign Key Relationships – MySQL Workbench Manual](#)

[Table Relationships - Metabase](#)

[Generate a Model and Forward Engineer – Video by Anshuman Biswal](#)

## Task 2 – Build Database Tables

Now that your database design is complete, it's time to create it in MySQL Workbench and generate the tables you have included in the EER diagram.

At this point you have options for database creation.

1. You can create a database and its tables manually using menu options or the toolbar in MySQL Workbench.
2. You can use the Forward Engineer option from the Database menu to create the database and tables from your EER diagram.

In either case, you should have a new schema that includes all the tables, fields, primary keys, and foreign keys you designated in your data model (EER diagram).

### Resources:

[Generate a Model and Forward Engineer – Video by Anshuman Biswal](#)

[Creating a New Table – MySQL Workbench Manual](#)

[Create a Schema and Table – Video by Amit Thinks](#)

## Task 3 – Load Database Tables with Sample Data

Work through each row of the sample data in the .csv file, keying the data into the appropriate tables/fields in your new database. Each table should include at least one row before you begin writing queries to test your database design.

However, by the time you finish the project you should have all the data from the .csv file represented in the tables in your database.

*Hint: If you have trouble when keying data into a field, check the following:*

- *Is the datatype correct? Too short? Missing decimal places?*
- *If it is a foreign key, does the primary key to which it refers already exist?*
- *If it is a primary key, it must be unique. Is that value already used in another row in the same table?*

Note that your database will be available for prospective employers to view. Take care when adding data. Maintaining correct spelling and case sensitivity is critical in generating clean data.

### Resources:

[Create Database Tables and Enter Data](#) – Video by TechGeekyArti

## Task 4 – Test the Database Design using SQL Queries

The main goal here is to prove that the tables and table relationships you have selected can allow the retrieval of data from all the tables in the database. Typically, this is done through the use of SQL JOIN queries. You will write your SQL code in an SQL tab so that you can save each query as a script. The scripts will then be uploaded as a part of your portfolio.

You can approach this task in a variety of ways. Here are two options to consider:

1. Write SQL code that joins all of the tables together in one complex query.
2. Formulate three or four business questions where the answer to each question would require that data be retrieved from multiple tables. Be sure to cover multiple combinations of tables, with all the tables participating in at least one query.

Keep in mind that overall goal is to produce correct and impressive SQL code for your portfolio. Accurate and complete query results are critical in proving that your database design is sound and that your SQL skills are impressive.

### Resources:

[SQL Joins – W3Schools](#)

[SQL Inner Joins - MySQLTutorial](#)

## Task 5 – Describe Conclusions

Write a conclusion about your process and any key findings.

This is your opportunity to impress your prospective employer with your critical thinking and problem-solving skills. You may want to discuss the process you followed and share your struggles and how you overcame them. What do you think sets your portfolio project apart from those of other candidates?

You may even want to offer ideas for improving the design for future business endeavors.

At this point, you can prepare the project artifacts for uploading into your portfolio. You should include:

- An image file of your EER diagram with all of the tables, fields, and connectors displayed
- One or more SQL queries (saved as scripts) used to test/prove the validity of your database design
- A script that can be used to recreate your database (obtained through the Data Export option on the Server menu) so that your prospective employer can view your database and run your query scripts