**Competency 4 – Design and implement a basic database solution**

Top of Form

Bottom of Form

**Content**

* Item

**Learning Objectives**

Design and implement a basic database solution.

* + Design and normalize a database.
  + Implement a database design in MySQL.
* Item

**Learning Procedures / Assignments**

**Step 1: Read it**

SQL for MySQL Developers: Read Chapter 27.

SQL for MySQL Developers: Skim Chapters 21, 28, 29, and 30.

Read the Database Normalization PDF.

[Database Normalization.pdf](https://acconline.austincc.edu/bbcswebdav/pid-10070811-dt-content-rid-21360980_1/xid-21360980_1)

**Step 2: Do it**

When the book has an example for trying out a SQL example, DO IT.

The chapters also have exercises which have answers at the end of each chapter, try these out as time permits.

Before doing Homework 6 try out the EER Diagram component of MySQL Workbench. Import the Tennis database into the EER Diagram window.

* + Select from the Home window **Create EER Model from Existing Database**
  + Follow the steps of the wizard
  + Move the Tables around so that you can view them
  + You can save and modify this design view without affecting the original database

EER Diagram Modeling Tutorials

<https://dev.mysql.com/doc/workbench/en/wb-tutorials.html>

**Step 3: Practice it**

Homework 6 - Database normalization

Project 2 - Design and create a database

**Homework 6**

Top of Form

Bottom of Form

**Content**

* Item

**Requirements**

* 1. Download the following design file [employee.mwb](https://acconline.austincc.edu/bbcswebdav/pid-10070833-dt-content-rid-21360983_1/xid-21360983_1" \t "_blank)

Normalize the database in the design file and save your changes (50% of grade).

* + 1. Be aware of the possibility of duplicate data.
    2. Name in **Role** and **Employee** and Emp\_Contact\_name all refer to the same data.
    3. Name and Email in **Vendor** refer to the Vendor.
  1. Assumptions made:
     1. An employee works with one or more vendors.
     2. An employee may have none or many dependents.
     3. An employee may have many roles over the employee's work history and a record should be retained for each role.
  2. Make sure to have a primary key for each table (25% of grade).
  3. Make sure to include the relationships between the tables (25% of grade).
  4. Submit the updated design file using the below name.

YourLastName\_hw6.mwb

Hint: This is an example design file reverse engineered from the Tennis database [tennis.mwb](https://acconline.austincc.edu/bbcswebdav/pid-10070833-dt-content-rid-21360984_1/xid-21360984_1" \t "_blank)

* Assignment

[**Homework 6 Submit Here**](https://acconline.austincc.edu/webapps/assignment/uploadAssignment?content_id=_10070834_1&course_id=_769848_1&group_id=&mode=view)

Submit the saved results file using the below name.

YourLastName\_hw6.mwb

**Project 2**

Top of Form

Bottom of Form

**Content**

* Item

**Requirements**

* 1. Open and examine the following ERR design file [people.mwb](https://acconline.austincc.edu/bbcswebdav/pid-10070836-dt-content-rid-21360985_1/xid-21360985_1" \t "_blank)
     1. Each person is described by their name and email.
     2. Each person can be registered in multiple countries.
     3. Ensure it is in 3rd normal form.
     4. Ensure the relationships and primary and foreign keys are correct.
  2. Create a database from the design.
  3. Import the following data into the database [people.txt](https://acconline.austincc.edu/bbcswebdav/pid-10070836-dt-content-rid-21360986_1/xid-21360986_1)
     1. You may have to modify the data to match your design
  4. Execute the following commands and save the results.
     1. SHOW TABLES
     2. Execute DESCRIBE for each table in the database
     3. Export the database using MySQL Workbench

<https://dev.mysql.com/doc/workbench/en/wb-admin-export-import-management.html>

* 1. Each part; the correct design, correct database, imported data, and execute commands is each worth 25% of the homework grade.
  2. Submit the updated design file, saved results file, and the exported database file.

YourLastName\_people.mwb

YourLastName\_p2.txt

YourLastName\_database.txt

* Assignment

[**Project 2 Submit Here**](https://acconline.austincc.edu/webapps/assignment/uploadAssignment?content_id=_10070837_1&course_id=_769848_1&group_id=&mode=view)

Submit the updated design file, saved results file, and the exported database file.

YourLastName\_people.mwb

YourLastName\_p2.txt

YourLastName\_database.txt