the Master Course

{CUDENATION}

Backend Development Entity Relationship Diagrams





Learning Objectives

To know what an ERD is and why they are used.

To create a new Entity Relationship Diagram.

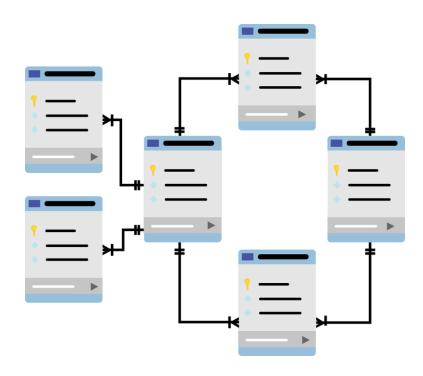
To reverse engineer a diagram from existing tables.

To consider the relationships between tables in an ERD.



What is an ERD?

An Entity Relationship Diagram is a type of flowchart that illustrates how "entities" such as people, objects or concepts relate to each other within a system.



ERDs are used to design or debug relational databases and a set of symbols and connecting lines to depict the interconnectedness of entities, relationships and their attributes.

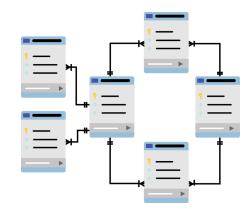


There are two ways to use ERDs...

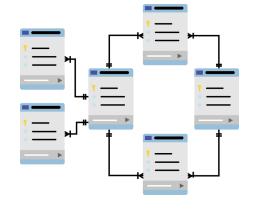
Method 1



From a database to a diagram



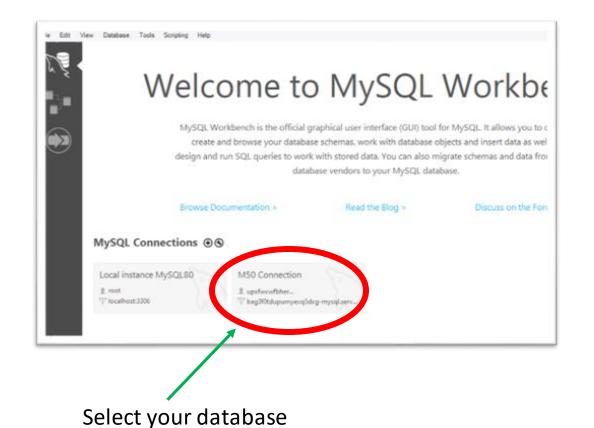
Method 2



Create a diagram which will give us the SQL

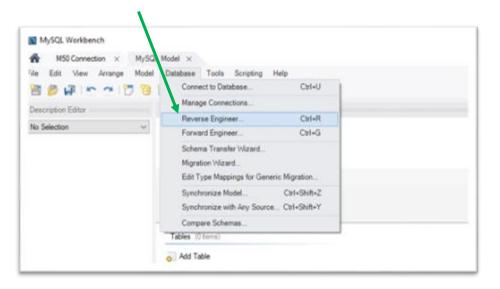


From a database to a diagram.



SQL

Click 'Database', then 'Reverse Engineer'



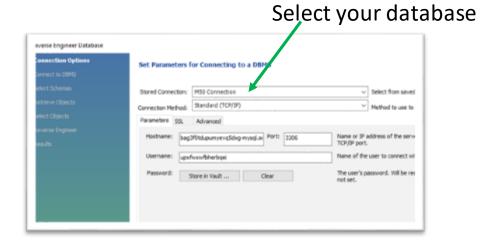
Select your database

onnection Options	Set Parameters for Connecting to a DO/IS		
elect Schemas	Stored Connection: M50 Connection		✓ Select from save
	Connection Method:	Standard (TCP/IP)	Y Method to use t
	Parameters 55L	Advanced	
	Hostname: ba	3f0tdupumyevq5dxg-mysql.sr Port: 3306	Name or IP address of the ser TCP/IP port.
	Username: up:	rfvxwfbherbqei	Name of the user to connect v
	Password:	Store in Vault Clear	The user's password. Will be not set.

SQL

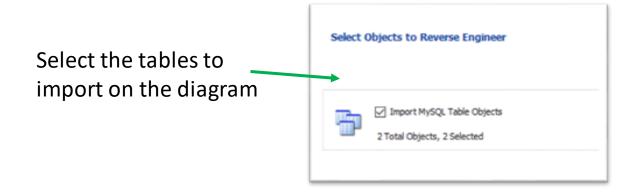
Method 1

From a database to a diagram.



After it has fetched your database information, click on the schema to include in the diagram.

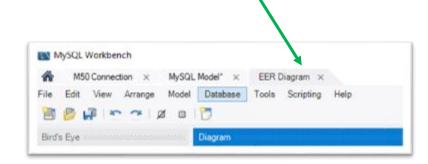






From a database to a diagram.

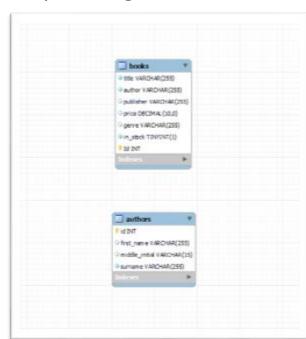
A new tab appears called **EER Diagram**.



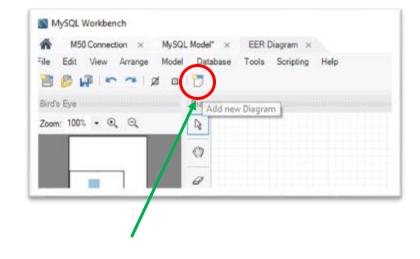
This is your diagram

The tables and any connecting lines have been organised for you.

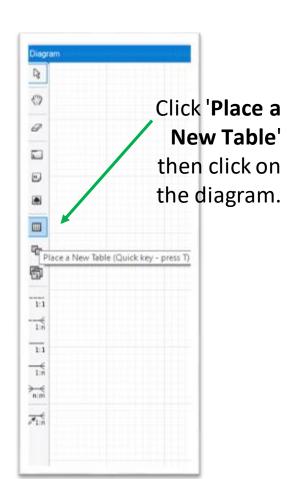
Each table shows the column names with icons to represent the different properties



Create a diagram from scratch.



Click on the 'Add New Diagram' button.



A new table should appear in the diagram.

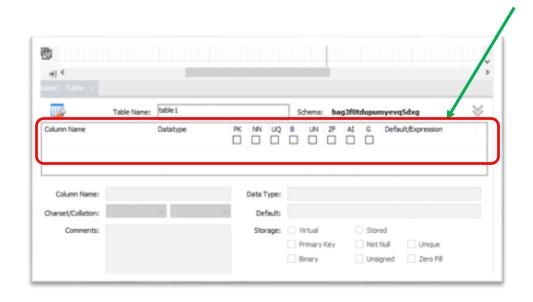
table1 "

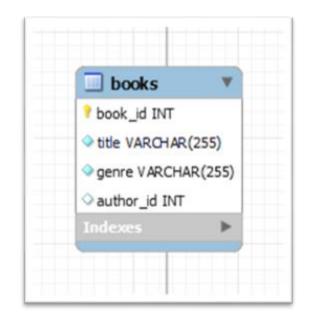
Double-click on the table to start adding your table columns.

SQL

Create a diagram from scratch.

After double-clicking on the table diagram, you can then add some columns – one-by-one. As you did earlier, give the column a name, datatype and any constraints.

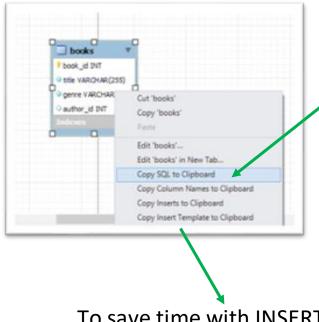




Add in the rest of your column names and details.

Show how to add a foreign key(s) to a table using ERDiagrams??????

Create a diagram from scratch.



When your table design is done, you can right-click on it to copy the SQL commands

to create it.

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REATE TABLE IF NOT EXISTS 'bag3f@tdupumyevqSdxg'.'books' (
'book_id' INT UNSIGNED NOT NULL AUTO_INCREMENT,
'title' VARCHAR(255) NOT NULL,
'genre' VARCHAR(255) NOT NULL,
'author_id' INT NULL,

PRIMARY KEY ('book_id'))

NGINE = InnoO8

To save time with INSERT statements,

you can copy this Template.

```
"Untitled - Notepad

File Edit Format View Help

INSERT INTO `bag3f0tdupumyevq5dxg`.`books` (`book_id`, `title`, `genre`, 
`author_id`)

VALUES (NULL, NULL, NULL);
```





Activity 1

Experiment with the 'Reverse Engineer' features of MySQL Workbench to create your ER Diagram from your own tables from yesterday.

Use the table Diagrams to create the SQL statements that would be helpful when writing SQL Queries.

Stretch

Workbench has a 'Forward Engineer' feature which allows us to create a database for tables in a diagram. Investigate how his work by creating some tables using ERD, then selecting the Database -- > Forward Engineer option.



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