

MySQL workbench—How to create ER diagram

Last amended: 28th Oct, 2025

My folder: D:\data\OneDrive\Documents\Database systems

MySQL Workbench manual [is here](#)

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Given any relational database, here is screen-by-screen help to how to draw its ER-diagram in MySQL server Workbench. We assume you already have 'employees' database or your database of interest already loaded in MySQL server.

(For Ubuntu OS only: For loading 'employees' database into mysql server, please first execute the file 'er_diagram.sh' in your virtual machine's folder: /home/ashok/Documents/erd and normalization exercises/erd_in_workbench in the Ubuntu_database VM.)

Configuration and shortcuts:

A. All SQL Editor and Workspace bench configuration changes are saved to file:

`C:\Users\ashok\AppData\Roaming\MySQL\Workbench\wb_options.xml`

(A copy saved in file at folder:

`D:\OneDrive\Documents\database_systems\mysql_workbench\workbench_configuration\`)

B. Useful Workbench shortcut summary:

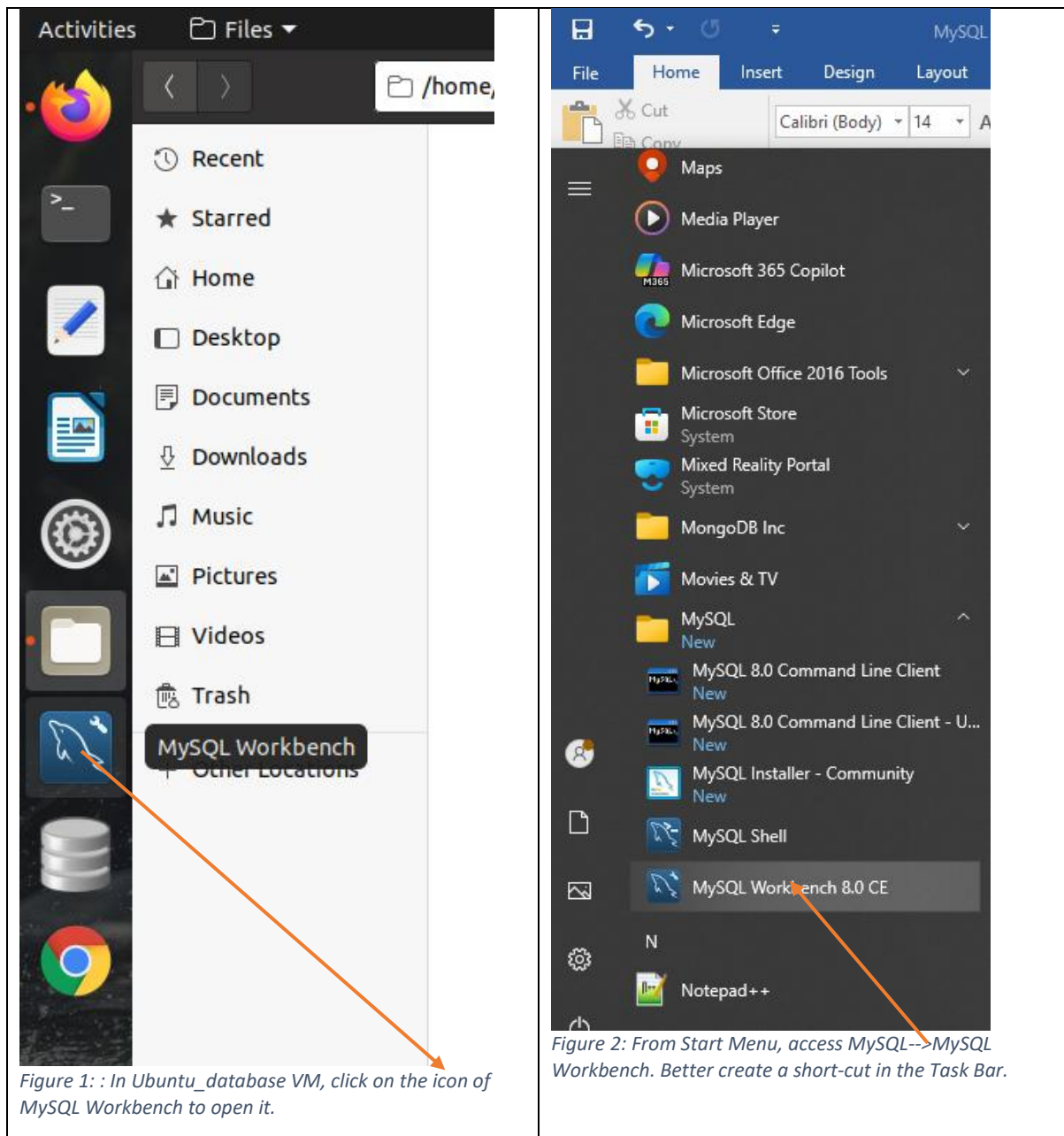
Ctrl+T	Open Query tab
Ctrl+SHIFT+O	Open sql script file
Ctrl+SHIFT+ENTER	Execute all queries
Ctrl+ENTER	Execute query in Query Editor
Ctrl+R	Reverse Engineer diablogbox
Ctrl+G	Forward Engineering
Ctrl+SHIFT+G	Write Forward Engineer code to SQL file
Ctrl+S	Save the diagram model as *.mwb (To import it double click on this file)
Ctrl+O	Open model (ERD) file

C. ERD diagram shortcuts summary:

Hit T and click on the workspace	Create table
Ctrl+S	Save the diagram model as *.mdb (To import a model, double click on this file)

Open Workbench

In Windows use Start Menu to open MySQL Workbench (right figure). In VM, click as in left-figure



When MySQL Workbench opens, click on Local Instance or (a server created by you).

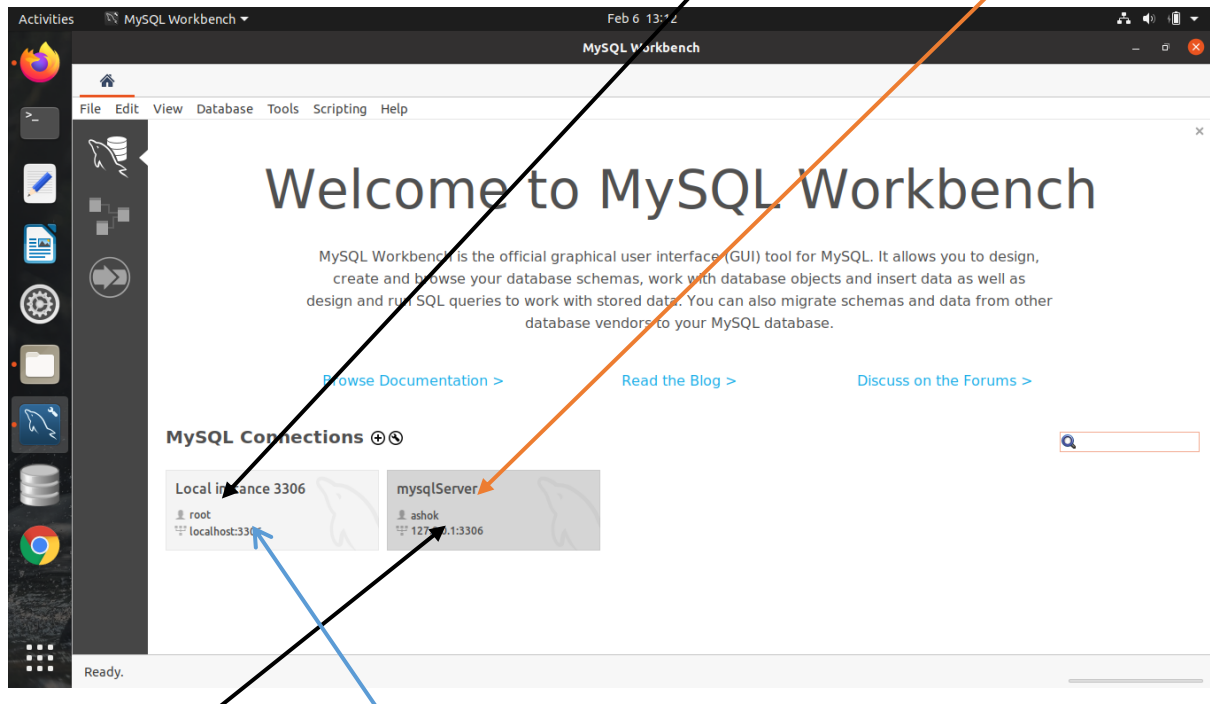


Figure 3: Click mysqlServer OR localhost link to open, as the case may be.

Workbench Configuration changes:

Click *Edit* → *Preferences* → *Fonts and Colors*. Set everything to font size of 20. Restart the Workbench.

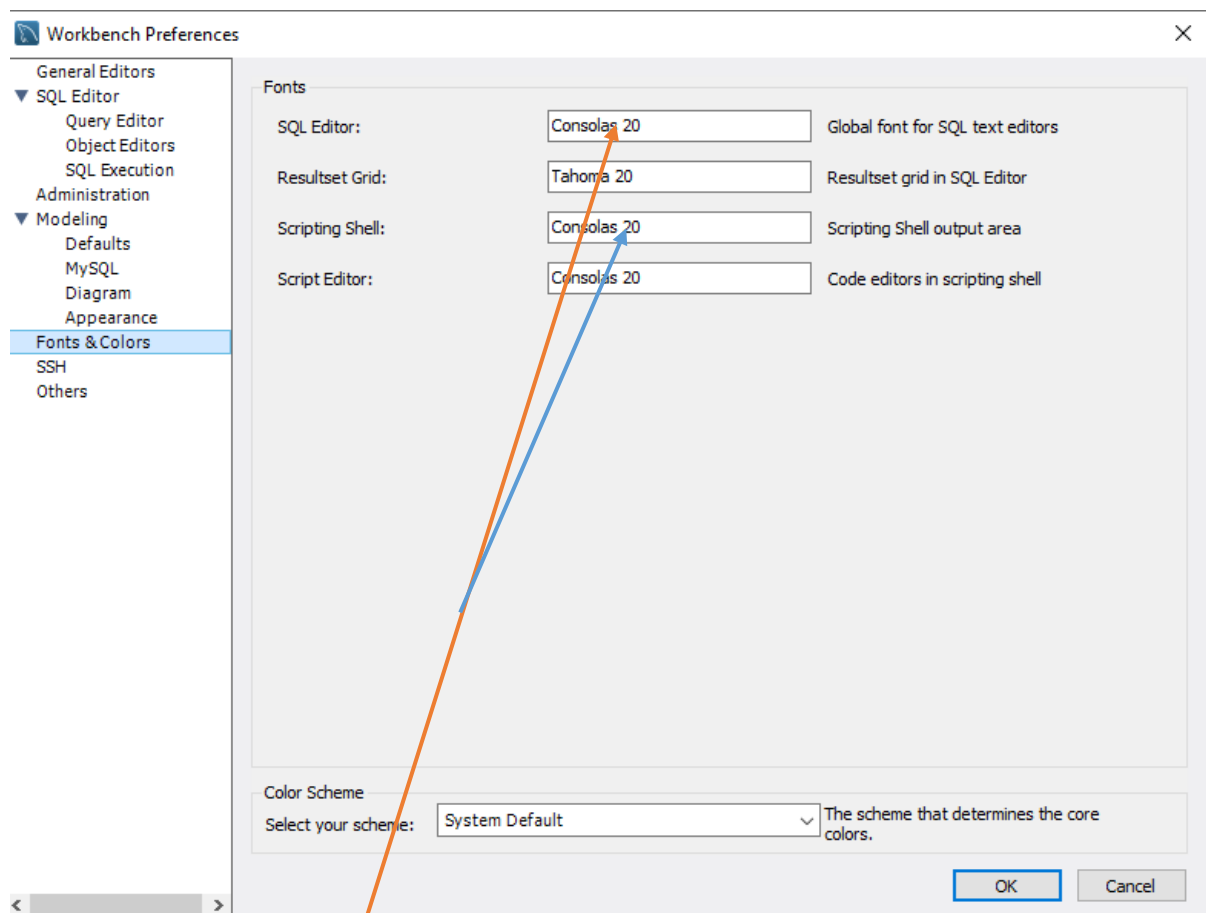


Figure 4: Change all fonts sizes to 20.. And restart Workbench.

Database creation

Press **ctrl+T** to open Query tab, if not already opened. Just create an empty database, as:

Create database college ;

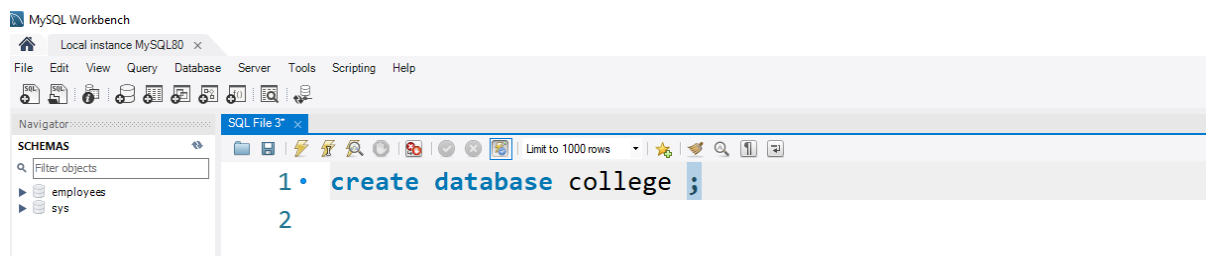


Figure 5: Press **ctrl+T** to open a query tab. Write create statement and press **ctrl+ENTER** to execute the query.

1.

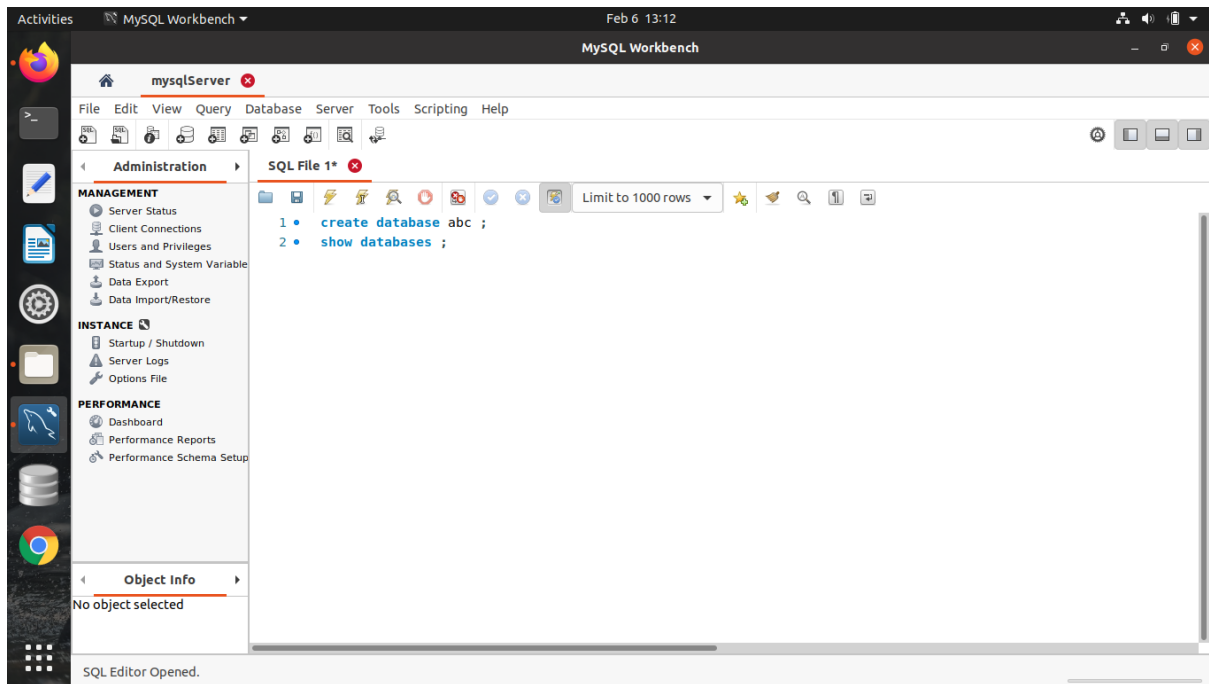


Figure 6: You will be here. Press **ctrl+R** to open another dialog box; or in the top-menu click on **Database-->Reverse Engineer**.

Reverse Engineering

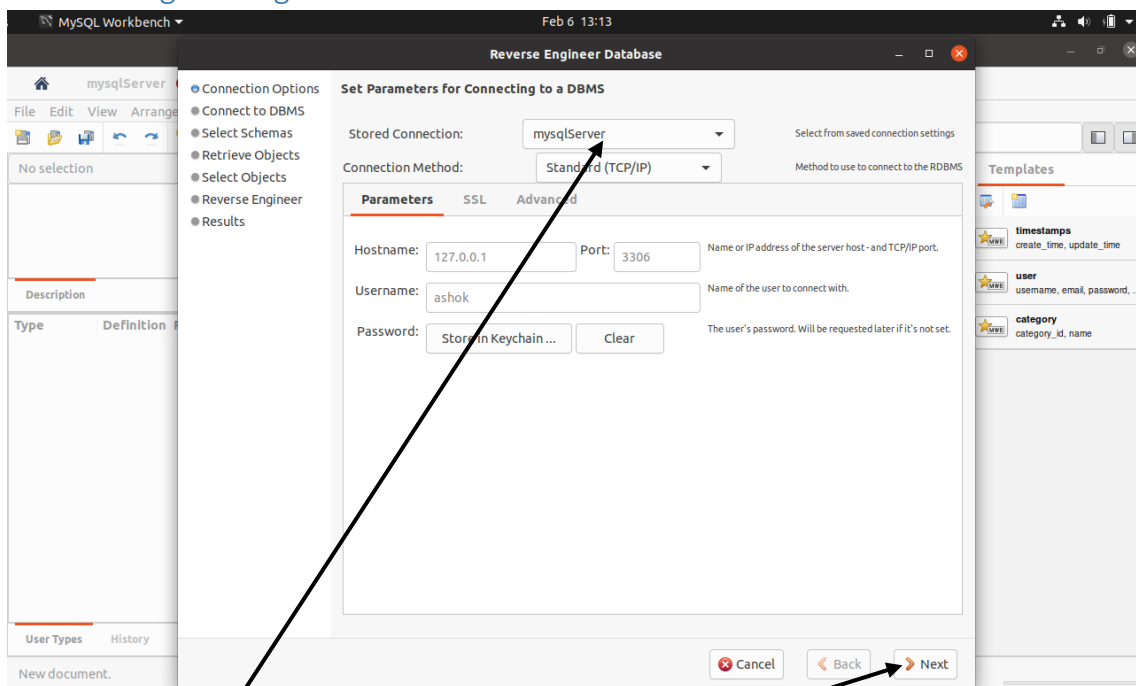


Figure 7: Select mysqlServer in the drop down, if not selected. Then click **Next** button.

2.

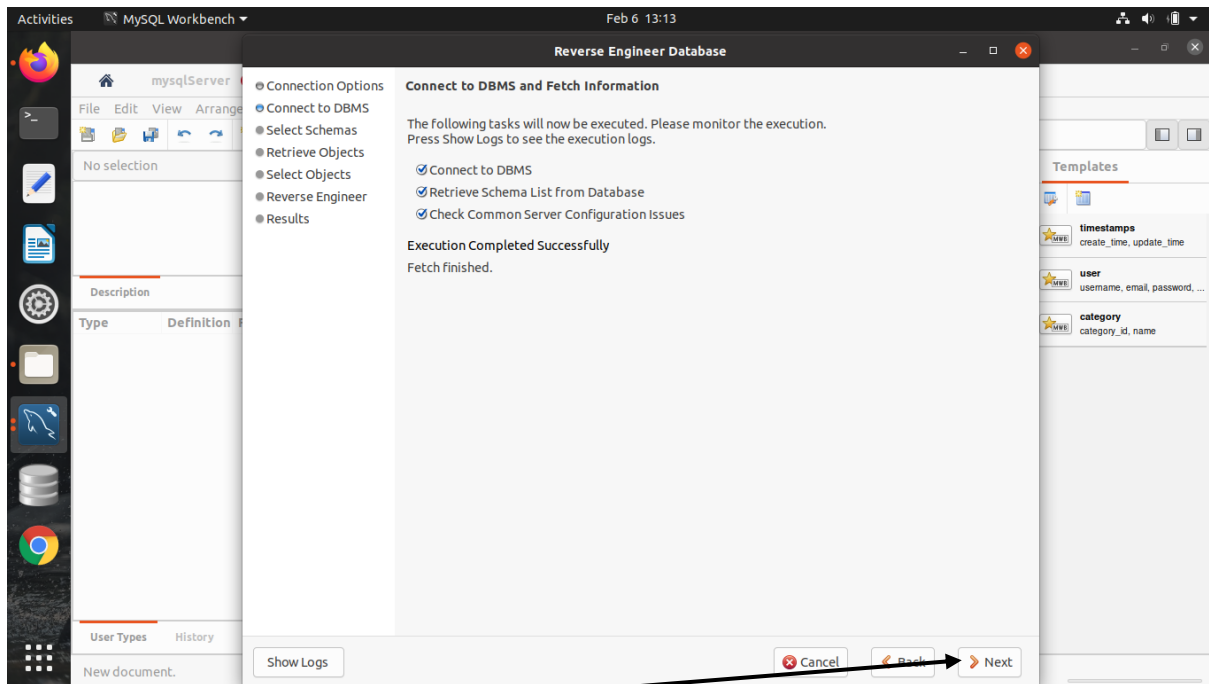


Figure 8: Nothing to do. Click **Next** button

3.

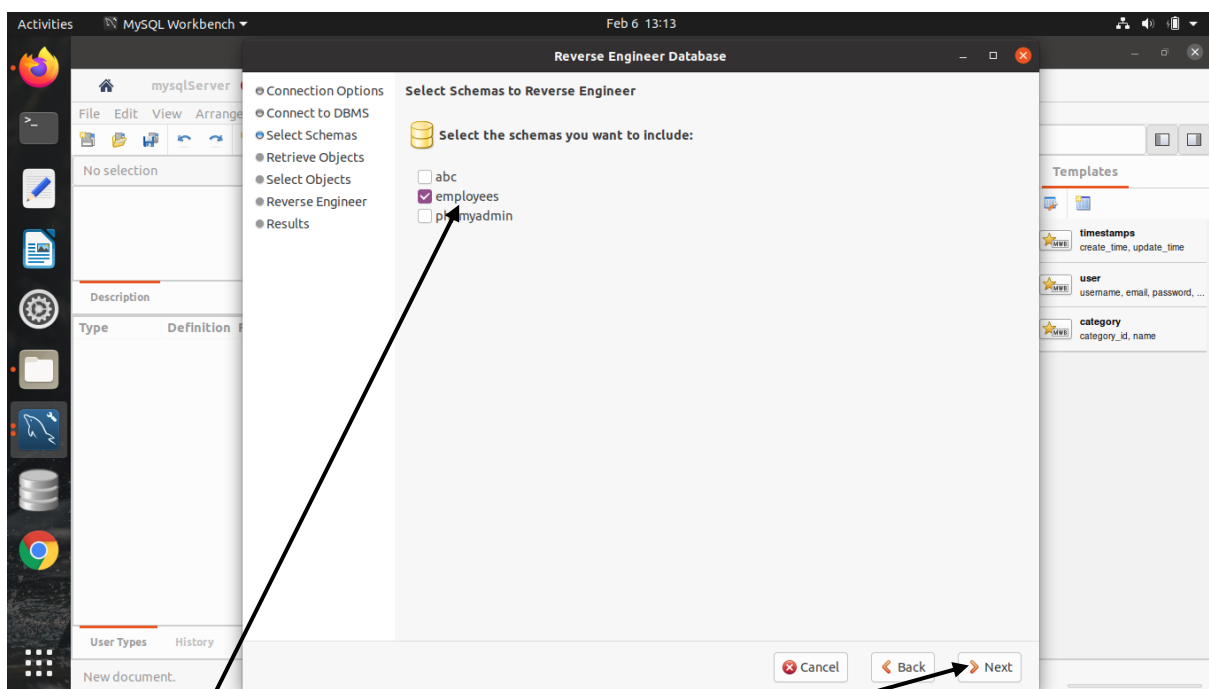


Figure 9: Select '**employees**' or '**college**' database or your database of interest and click **Next** button.

4.

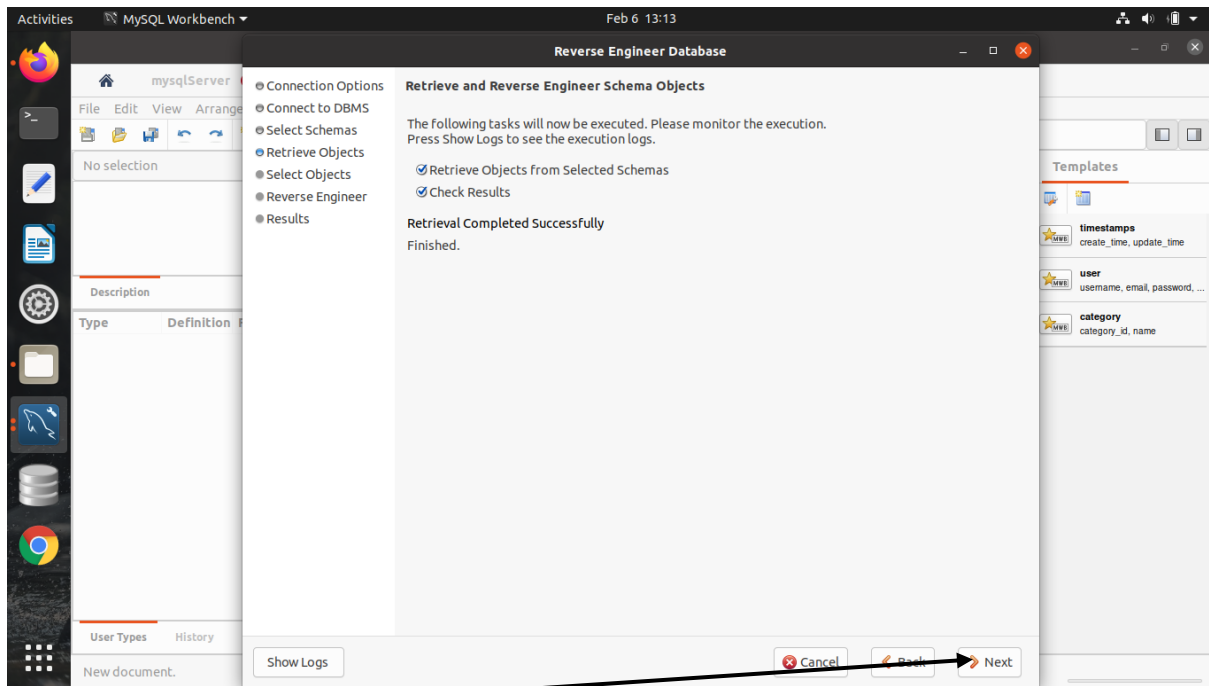


Figure 10: Click 'Next' button.

5.

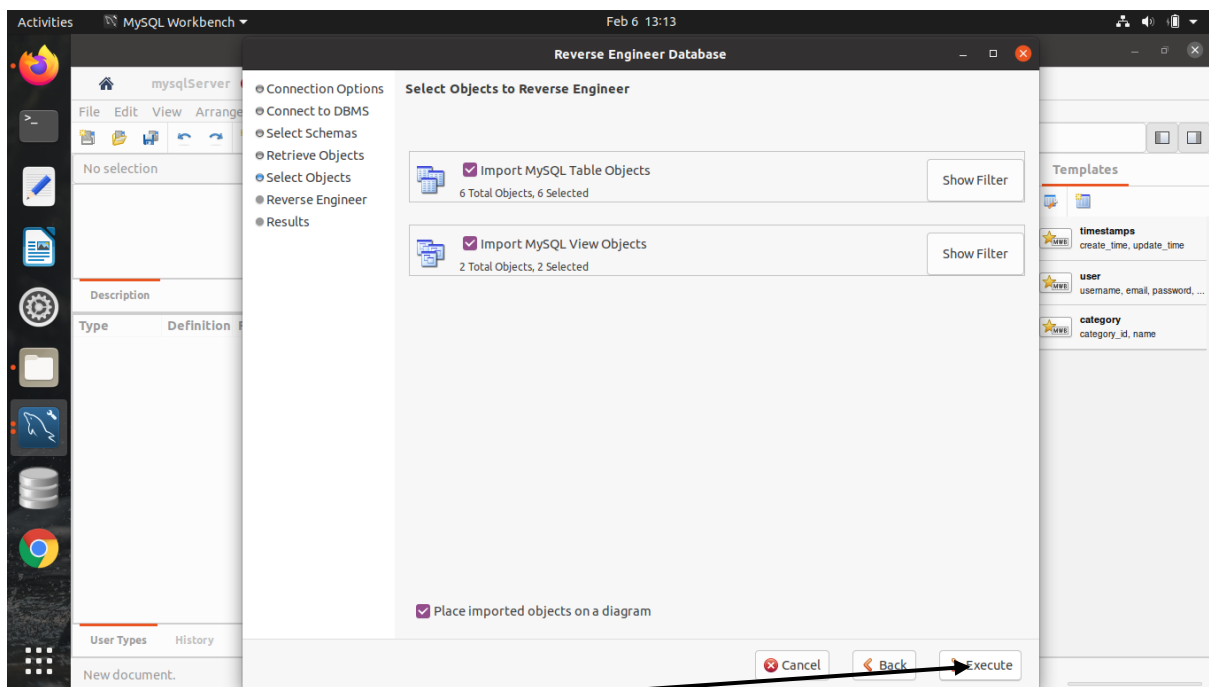


Figure 11: Click 'Execute' button

6.

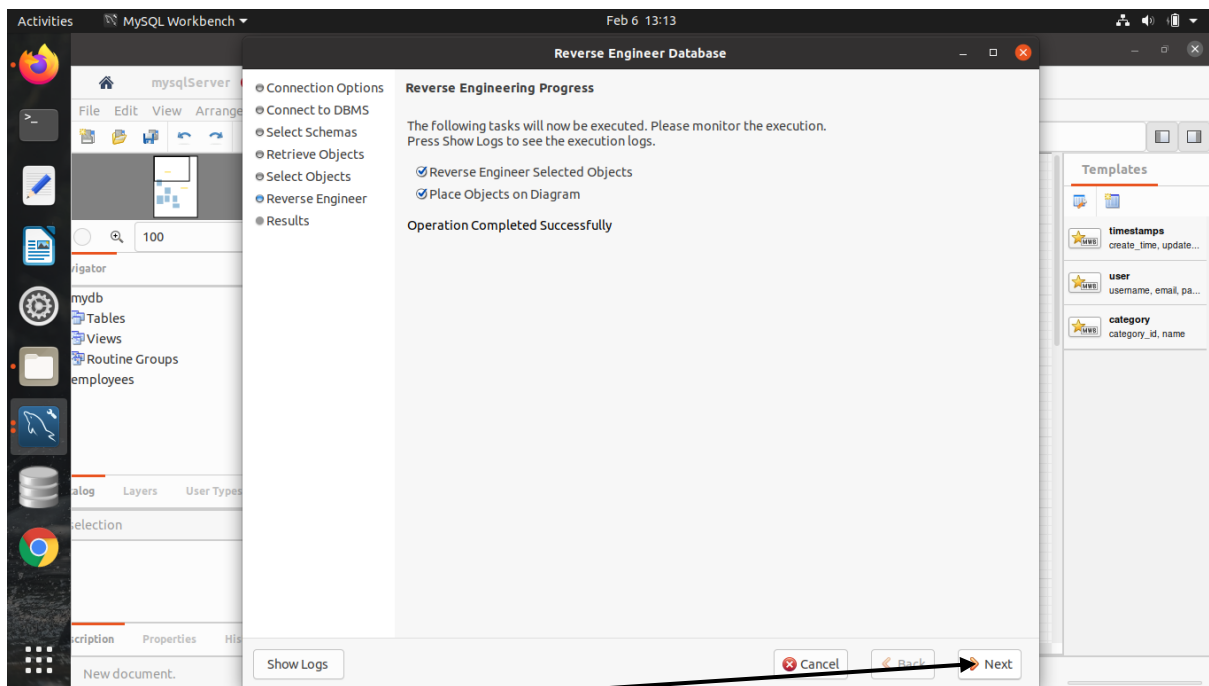


Figure 12: Click Next

7.

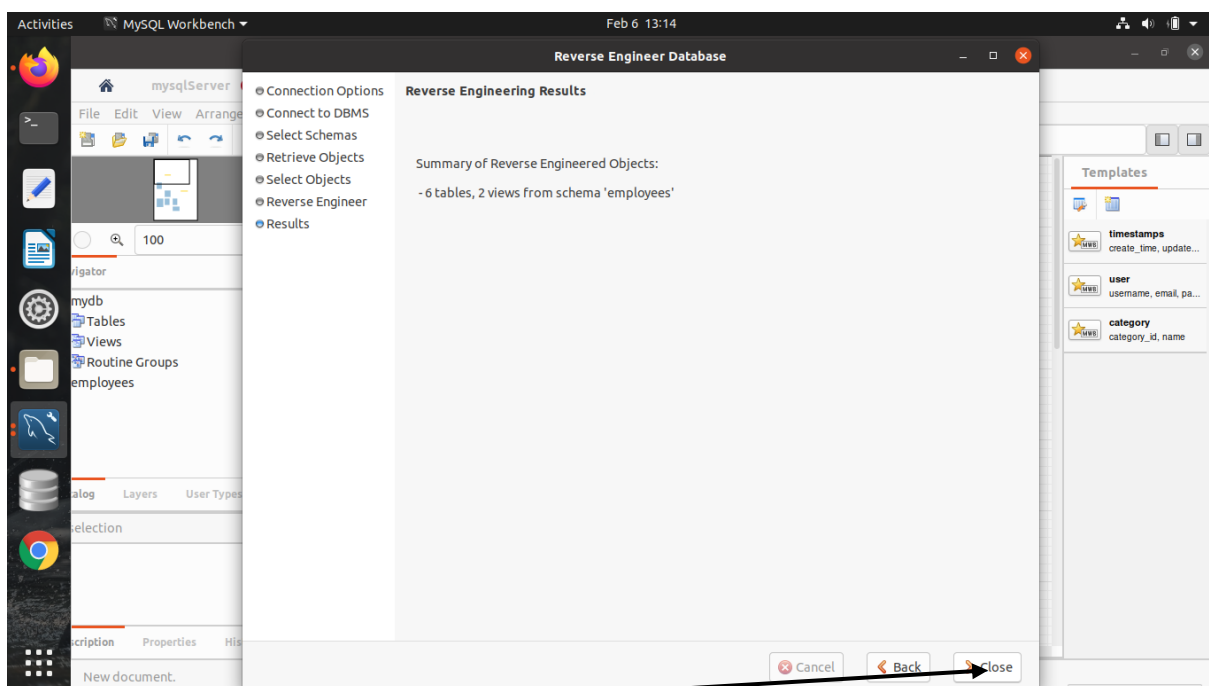


Figure 13: Click Close

8.

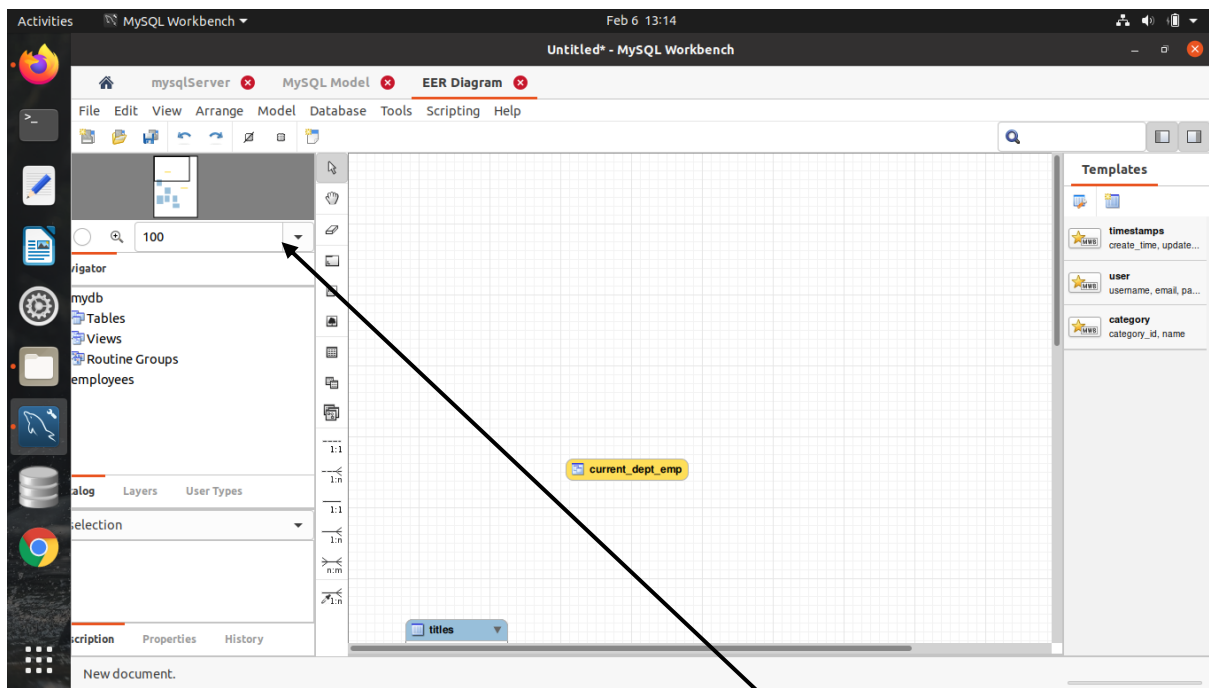


Figure 14: Change zoom level appropriately. In the drop-down, maybe change 100 to 75 to see er diagram.

9.

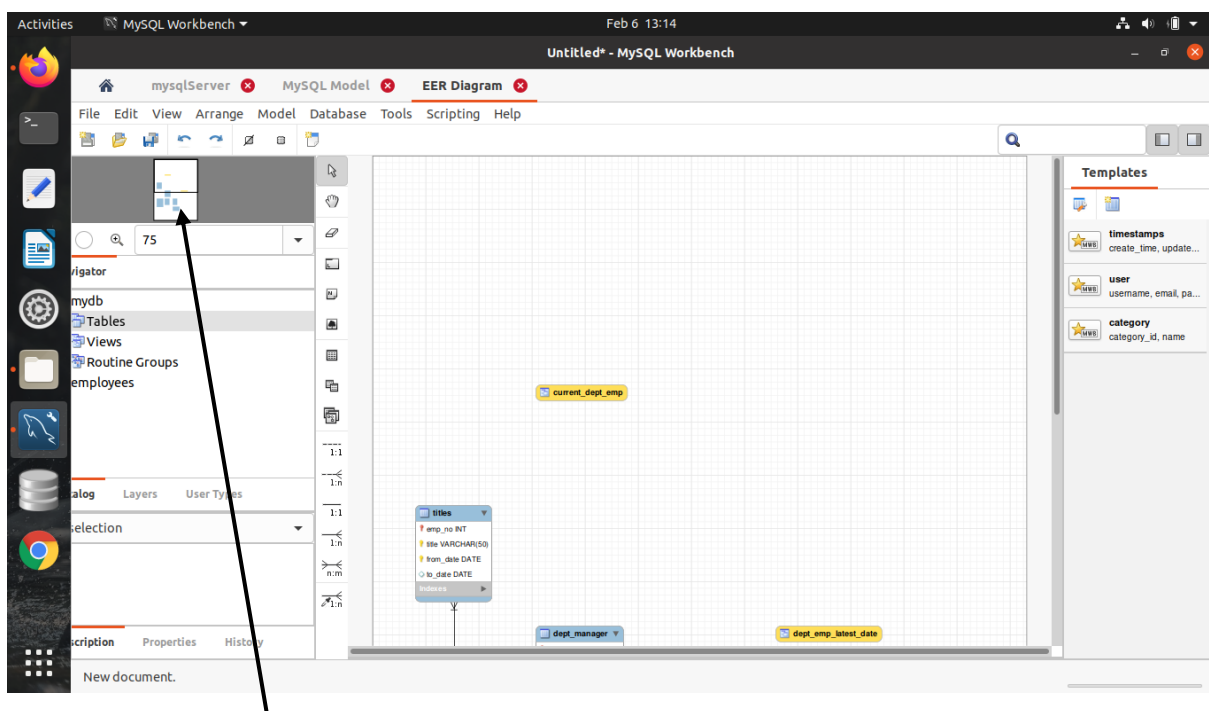


Figure 15: Drag the small rectangle down so that the blue spots are within it. It is a small pre-view of your workbench.

10.

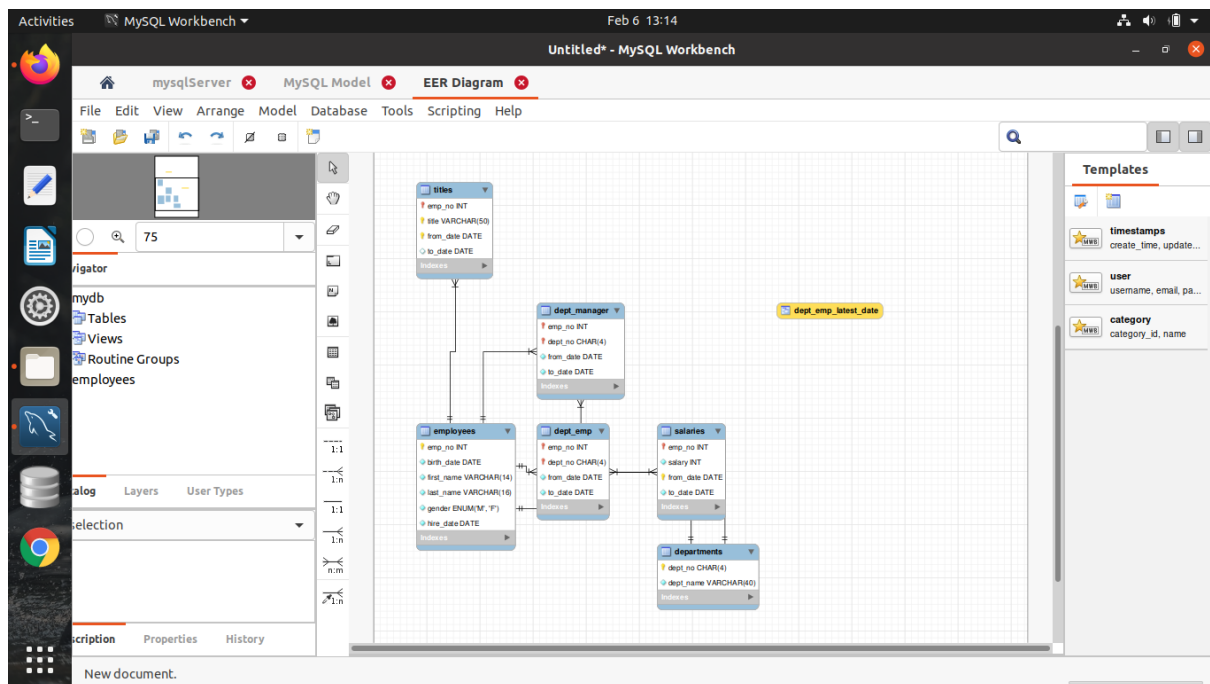


Figure 16: ER diagram. Re-arrange it so that it appears nicely and lines intersect minimum possible.

See below zoomed employees database schema

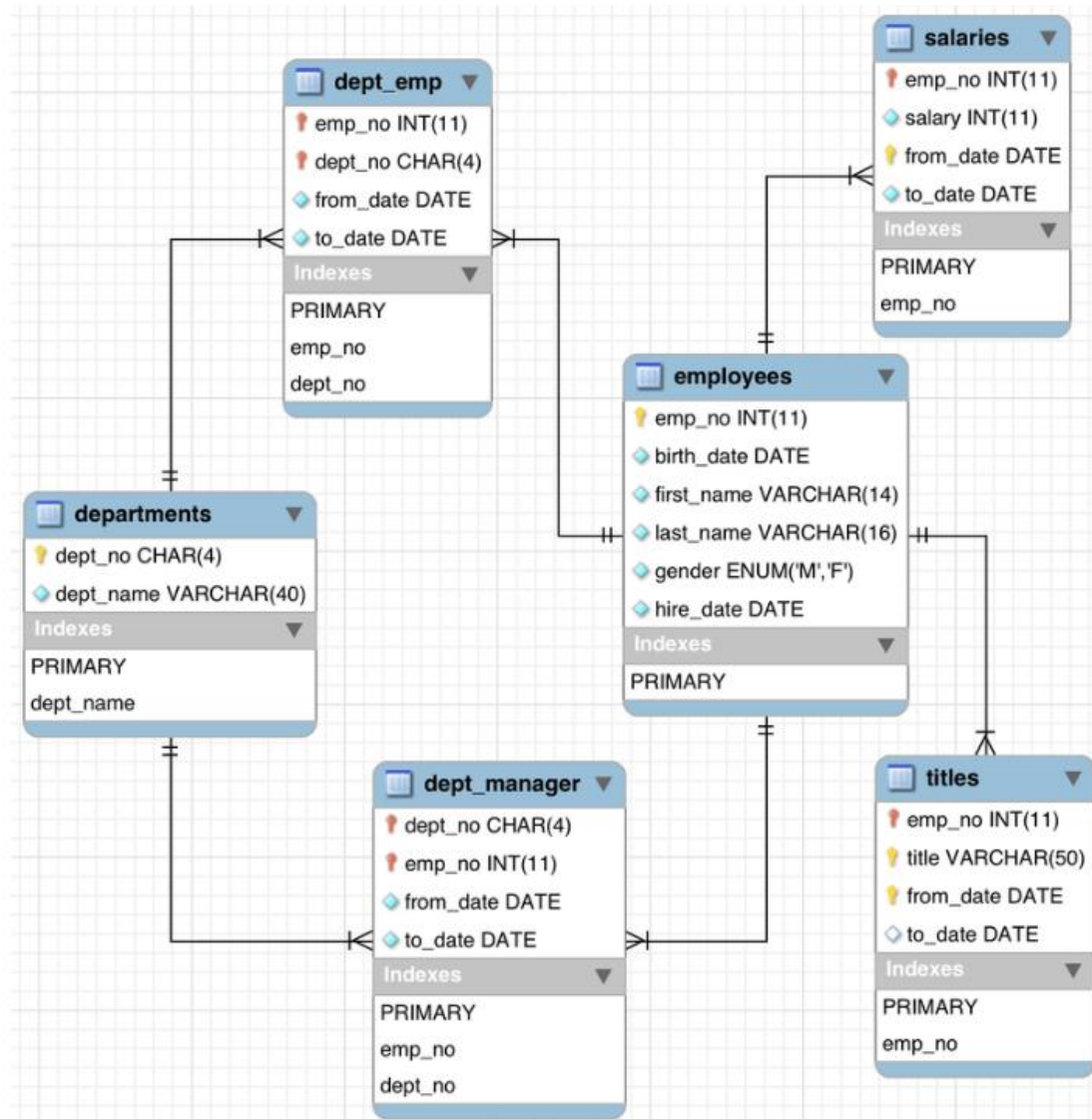


Figure 17: Employees table schema—zoomed

Identifying vs non-identifying relationships

For differences among themselves, please [see this link](#) in StackOverflow. The code generated in the two cases is different. Select a relationship that suits your needs.

THERE IS NO POINT IN CREATING 1:1 RELATIONSHIP BETWEEN TWO TABLES.
For 1:n, generally use **Identifying relationship**.



Figure 18: Dotted relationships are non-identifying. *faculty_id* is NOT a part of primary key in course table

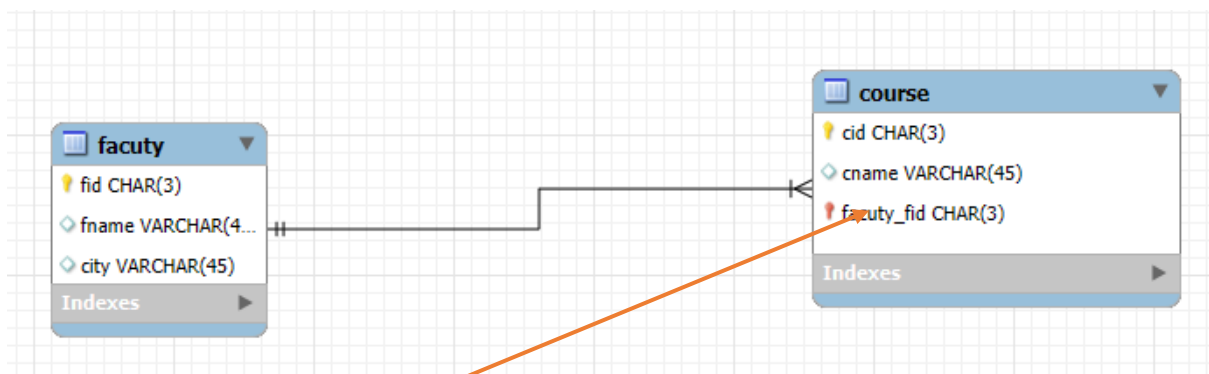


Figure 19: Identifying relationship. *faculty_id* IS a part of pk in course table.

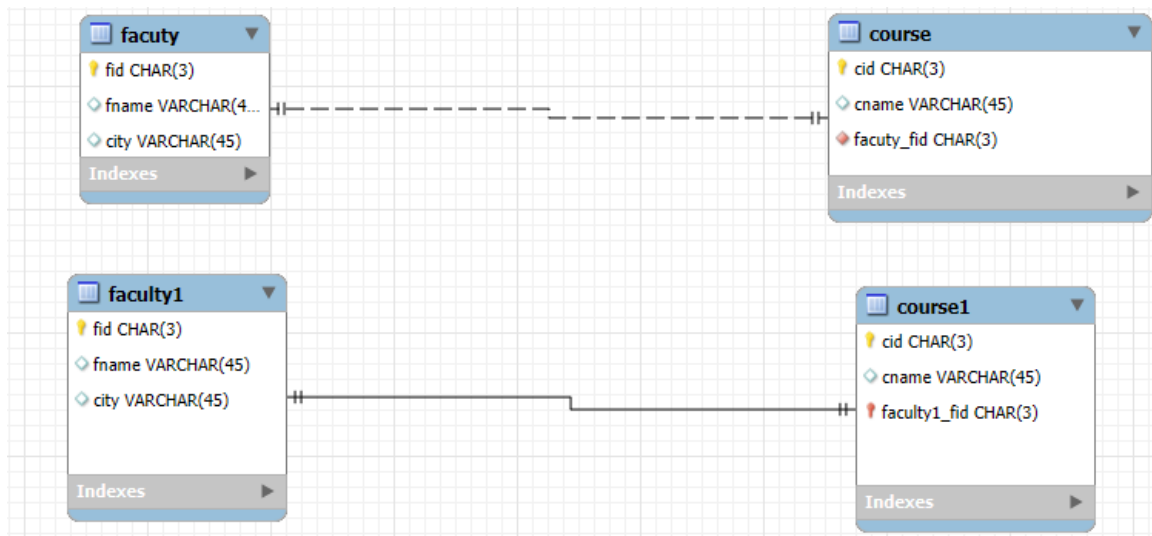


Figure 20: In the upper diagram, *faculty_id* is not a part of primary key in *course* table but in the lower diagram it is. In the upper figure, one course can be taught ONLY by one faculty. ONE-TO-ONE RELATIONSHIPS ARE MEANINGLESS.

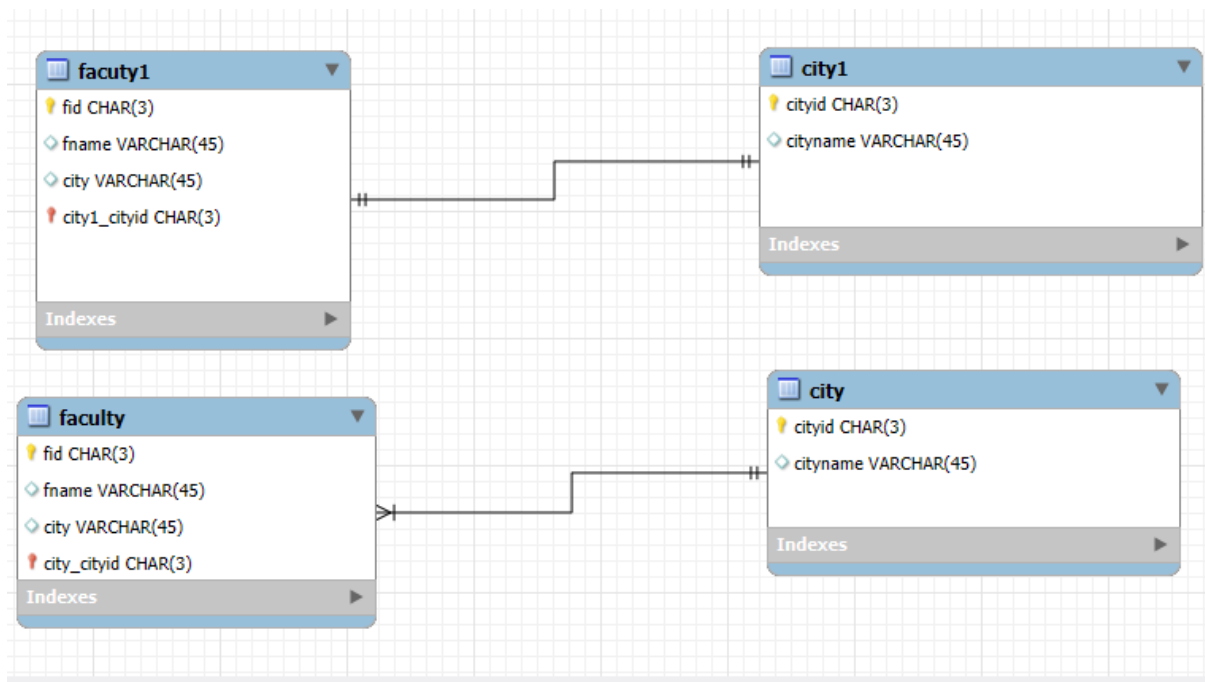


Figure 21: Note that both the above diagrams display the same relationships

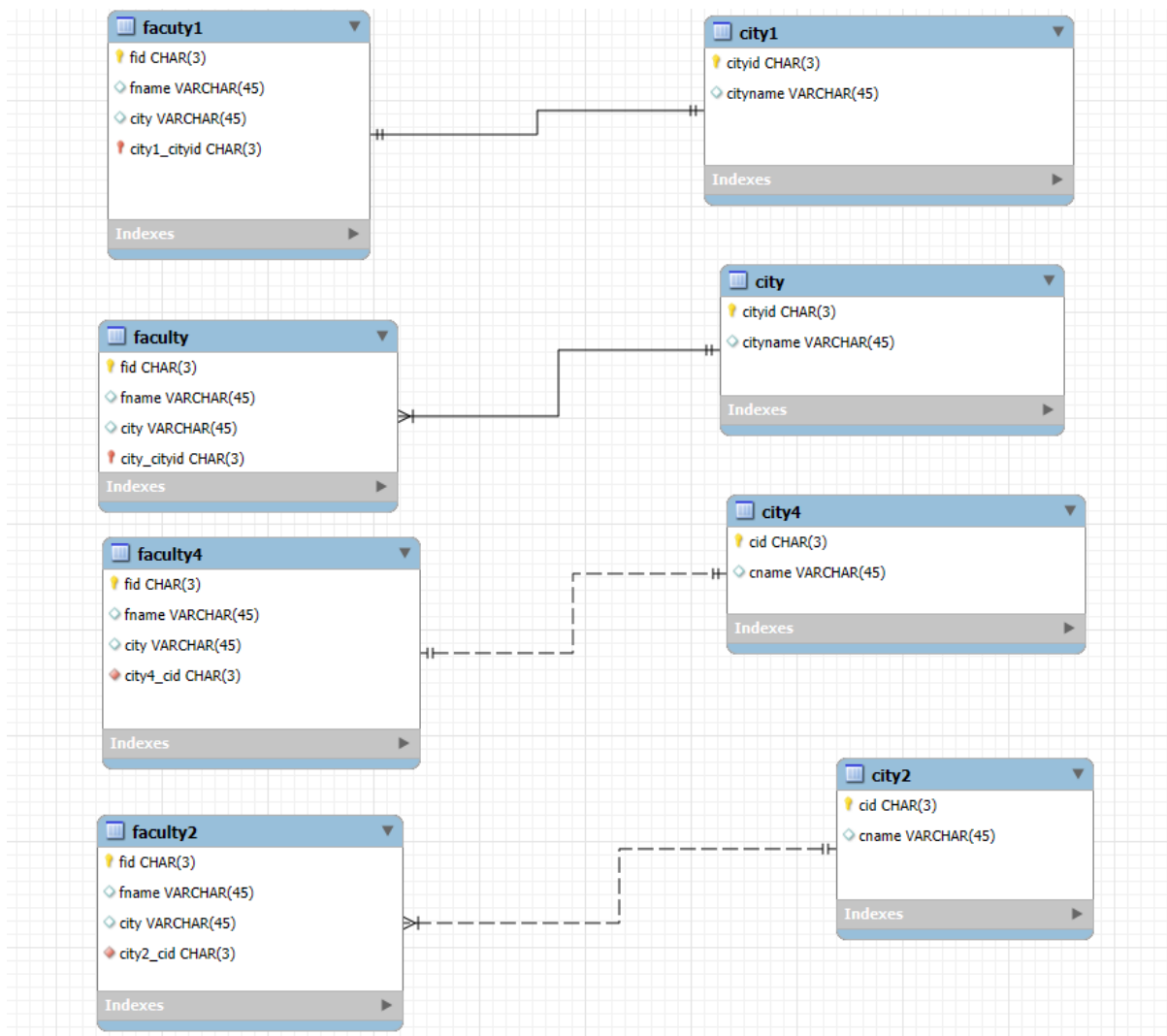


Figure 22: A comparison of different relationships

Forward Engineering

Forward Engineering: Press ctrl+G to perform Forward Engineering. And press ctrl+SHIFT+G to save forward engineered script.

Restart Workbench to find the database changed.

Row insertion

To insert a row in any table.

- under schemas,
- click your database, say, college,
- right click on a table, say city,
- then click on **Send to SQL Editor**→**Insert statement**

(See figure below)

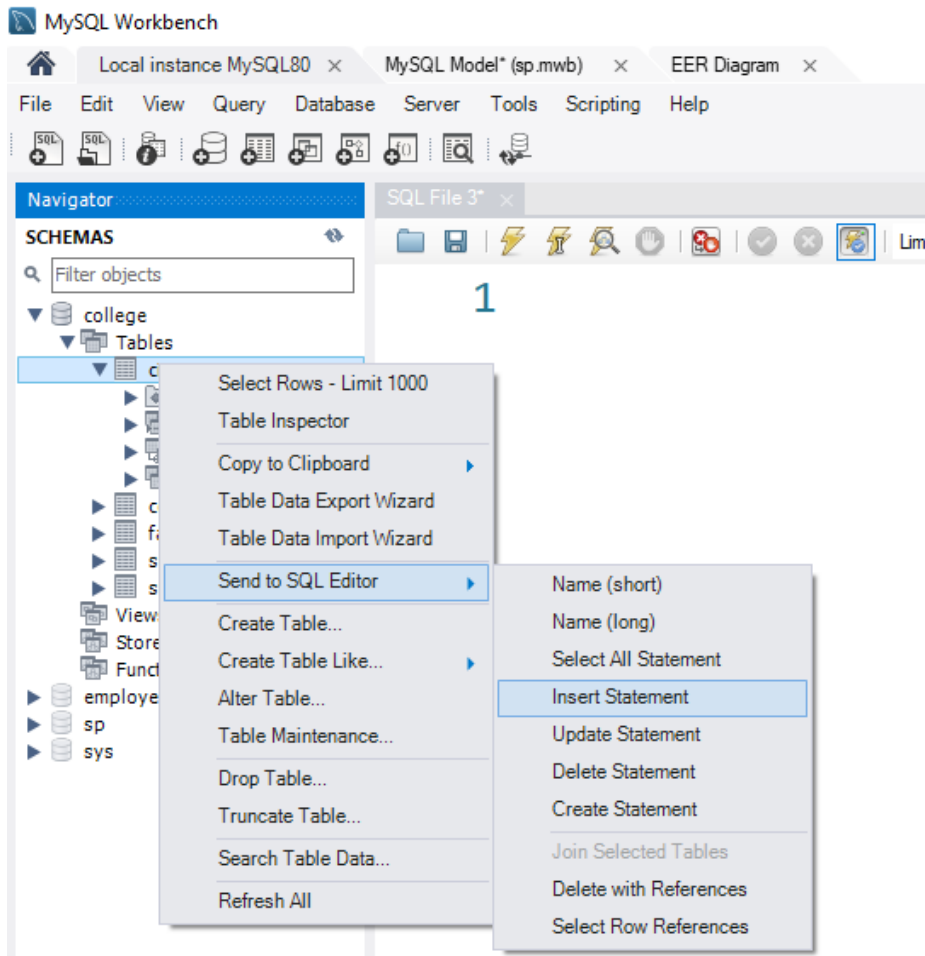


Figure 23: Generating an insert statement in SQL editor for a table

An insert statement appears, fill in values and execute:

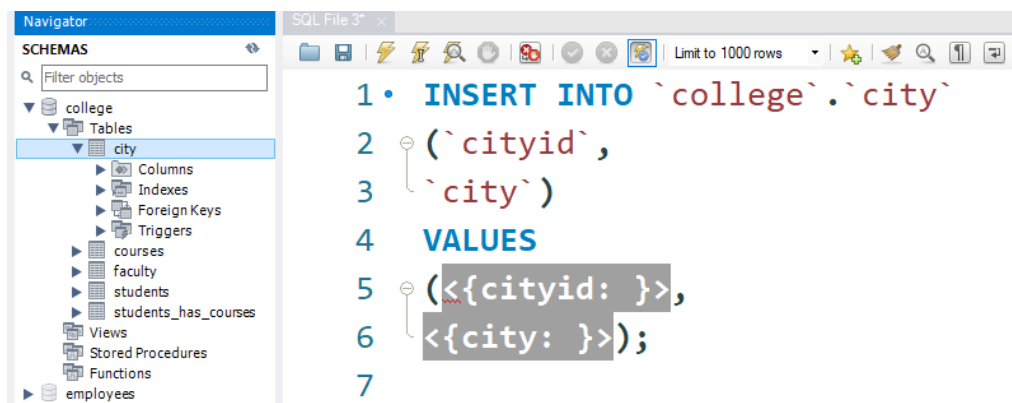


Figure 24: Replace `<{cityid: }>` and `<{city: }>` with actual values in insert statement and execute

Done