



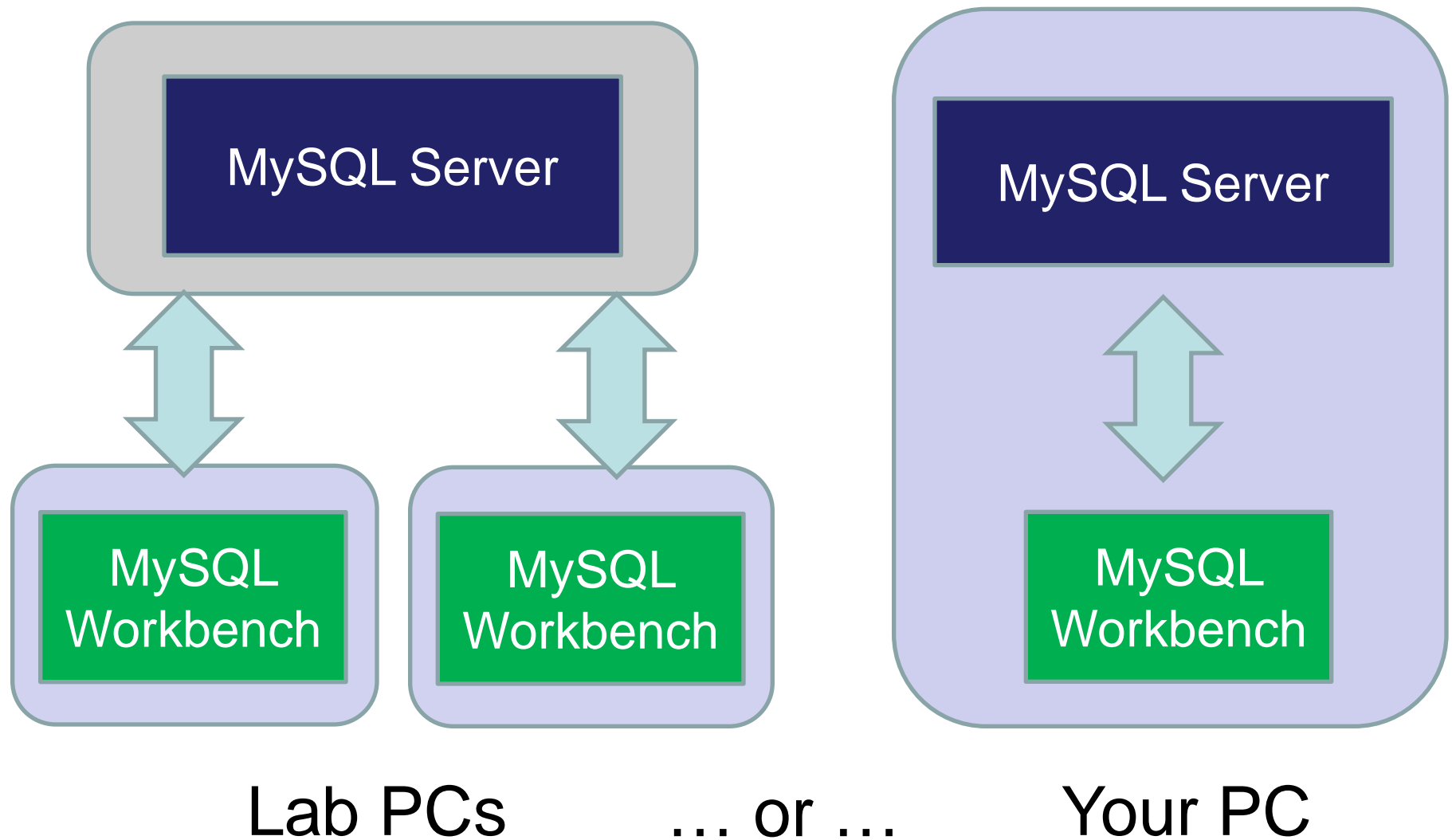
INFO 90002

Database Systems & Information Modelling

Introduction to MySQL



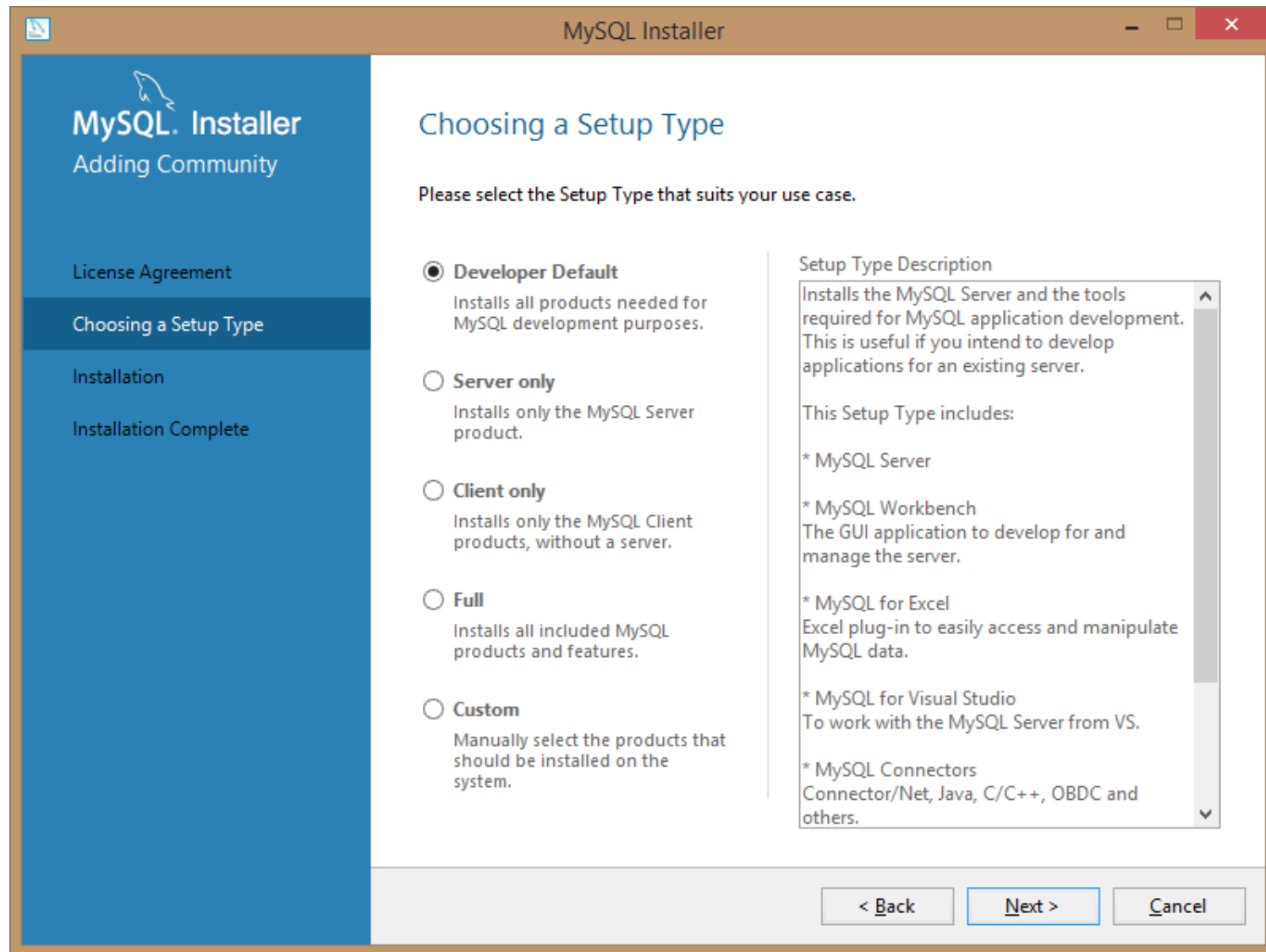
- MySQL server and client
- installing MySQL
- creating an E-R diagram
- connecting to a server
- creating tables
- inserting/updating/deleting data
- reading data from tables

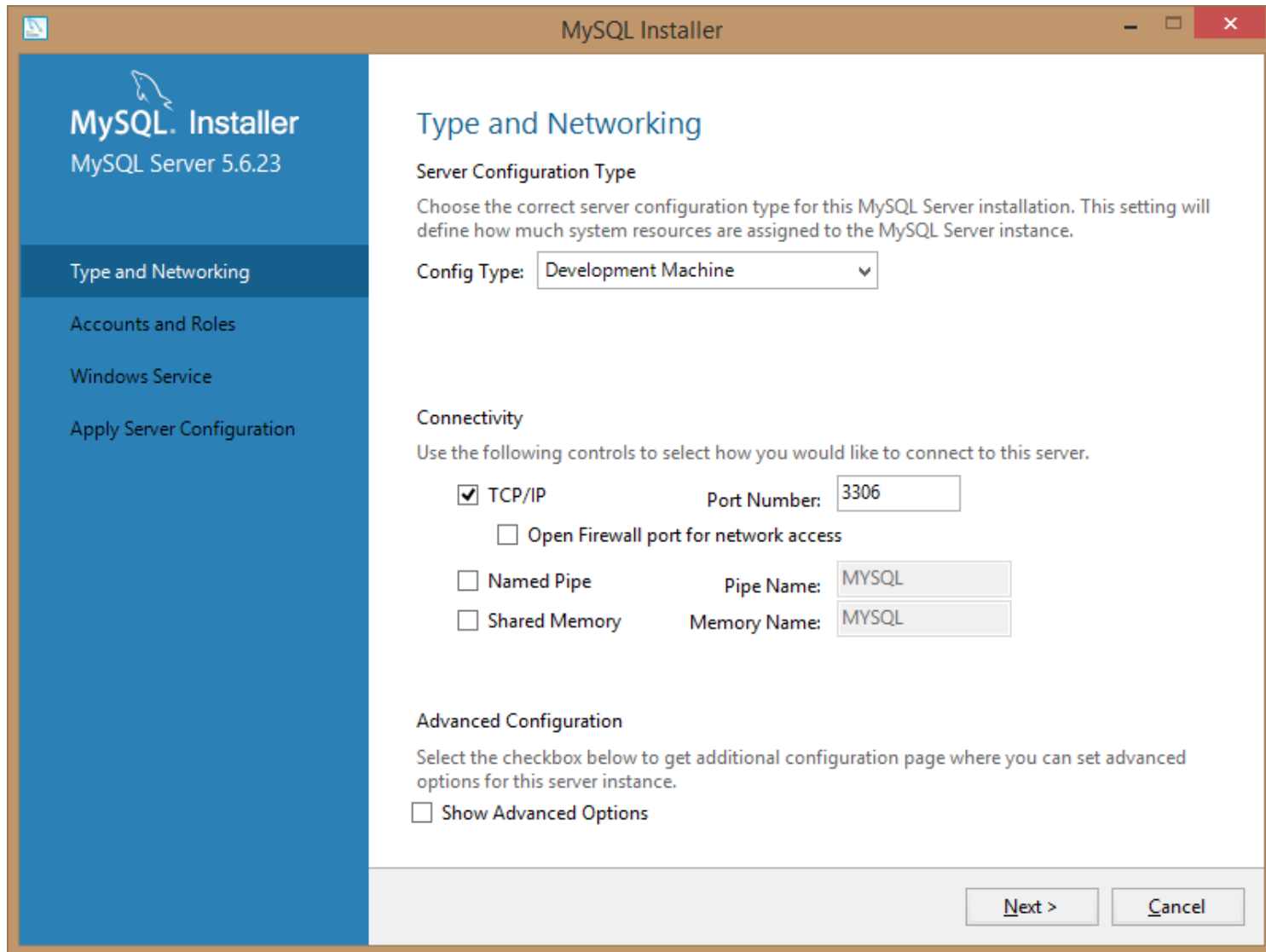


- what you can do with the **client alone**:
 - create E-R diagrams
- what you can do when **connected to a server**
 - create a working database
 - convert E-R diagram to a database
 - insert/update/delete/read data
- where servers might be
 - localhost (software running on your PC)
 - network (software running on a server host)



- It may be useful to install the free MySQL Server and Workbench software on your own computer.
- **Important note: MySQL recently released a new "version 8". In this subject we will stay with version 5.7 for the time being.**
- Download the appropriate installer from <http://dev.mysql.com/downloads/mysql/>
- (free 'Community' version vs pay-for 'Enterprise' version)
- Mac users may get better results from MAMP
 - <https://www.mamp.info/en/downloads/>
- Web developers may prefer (or already have) XAMPP
 - <https://www.apachefriends.org/download.html>
- Start the installation and proceed through several steps.
(Some are illustrated in the following pages.)

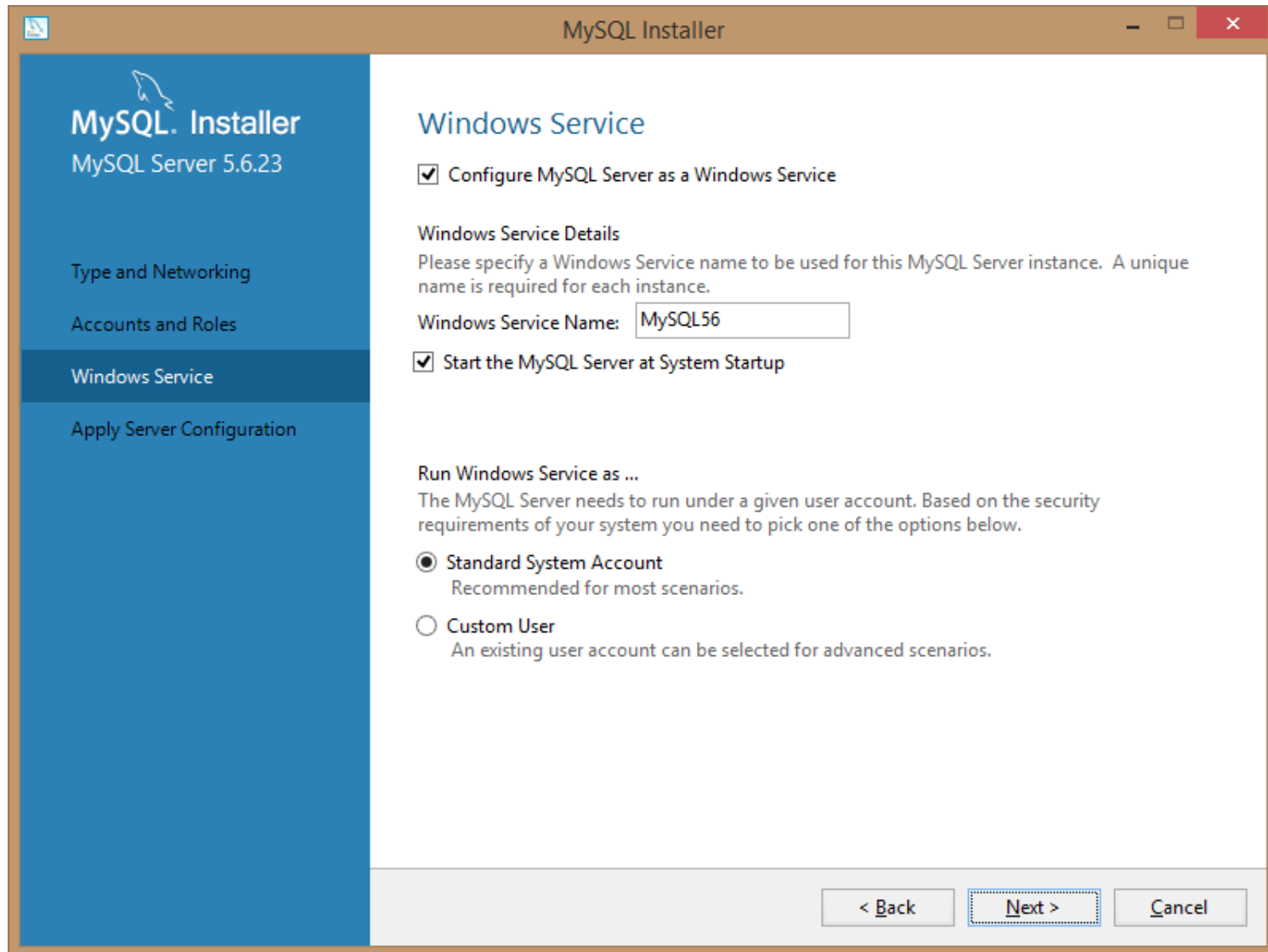




The image shows the MySQL Installer window for MySQL Server 5.6.23. The window has a title bar with the MySQL logo and the text 'MySQL Installer'. On the left is a blue sidebar with the MySQL logo and the text 'MySQL. Installer MySQL Server 5.6.23'. Below this are four menu items: 'Type and Networking' (selected), 'Accounts and Roles', 'Windows Service', and 'Apply Server Configuration'. The main area is titled 'Type and Networking' and contains the following sections:

- Server Configuration Type**
Choose the correct server configuration type for this MySQL Server installation. This setting will define how much system resources are assigned to the MySQL Server instance.
Config Type:
- Connectivity**
Use the following controls to select how you would like to connect to this server.
 - ☒ TCP/IP Port Number:
 - ☐ Open Firewall port for network access
 - ☐ Named Pipe Pipe Name:
 - ☐ Shared Memory Memory Name:
- Advanced Configuration**
Select the checkbox below to get additional configuration page where you can set advanced options for this server instance.
 - ☐ Show Advanced Options

At the bottom right are two buttons: 'Next >' and 'Cancel'.



The image shows the MySQL Installer window for Windows Service configuration. The window has a title bar "MySQL Installer" and a sidebar on the left with the following options: "MySQL. Installer MySQL Server 5.6.23", "Type and Networking", "Accounts and Roles", "Windows Service" (which is selected and highlighted in dark blue), and "Apply Server Configuration". The main content area is titled "Windows Service" and contains the following elements:

- A checked checkbox labeled "Configure MySQL Server as a Windows Service".
- A section titled "Windows Service Details" with the text: "Please specify a Windows Service name to be used for this MySQL Server instance. A unique name is required for each instance."
- A text input field labeled "Windows Service Name:" containing the text "MySQL56".
- A checked checkbox labeled "Start the MySQL Server at System Startup".
- A section titled "Run Windows Service as ..." with the text: "The MySQL Server needs to run under a given user account. Based on the security requirements of your system you need to pick one of the options below."
- Two radio button options:
 - ☒ "Standard System Account" with the subtext "Recommended for most scenarios."
 - ☐ "Custom User" with the subtext "An existing user account can be selected for advanced scenarios."

At the bottom right of the window, there are three buttons: "< Back", "Next >" (which is highlighted with a dashed border), and "Cancel".



MySQL Installer

MySQL. Installer
Samples and Examples

Connect To Server

Apply Server Configuration

Connect To Server

Here are the compatible servers installed. If more than one, please select one.

Server	Architecture	Status
MySQL Server 5.6.23	X86	Running

Now give us the credentials we should use (needs to have root privileges). Click check to make sure they work.

User: Credentials provided in Server configuration

Password:



The screenshot displays the MySQL Workbench interface. The main window is titled 'Query 1' and contains the following SQL query:

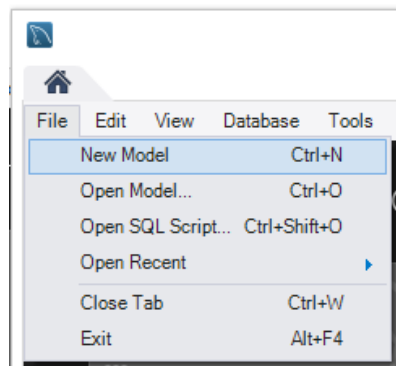
```
1 • SELECT *
2 FROM post;
```

The 'Result Grid' shows the results of the query, displaying a table with 4 columns: Id, Text, WhenPosted, and Username. The data is as follows:

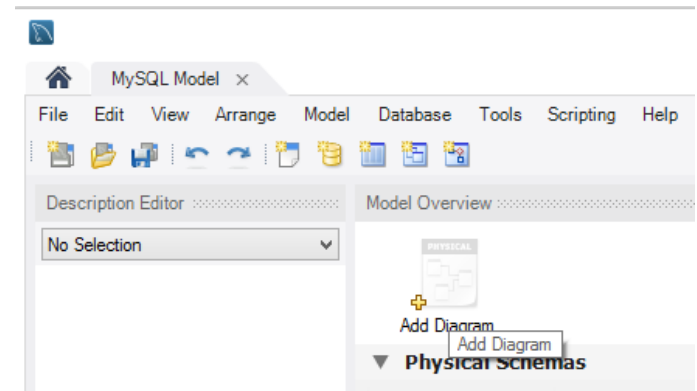
Id	Text	WhenPosted	Username
1	Here's what I had for lunch	2018-02-25 12:05:01	Bill
2	What's everyone doing tonight?	2018-02-25 12:05:01	Anne
3	check out this great CAT VIDEOZ!!!	2018-02-25 12:05:01	David
4	now look what I had for dinner	2018-02-25 12:05:01	Bill
5	I love Game of Thrones	2018-02-25 12:05:01	Anne
6	I am posting a lot today...	2018-02-25 12:05:01	Anne

The 'SQL Additions' panel on the right provides information about the SELECT statement, including its syntax and common clauses. The 'Output' panel at the bottom shows the execution of the query, indicating that 6 rows were returned.

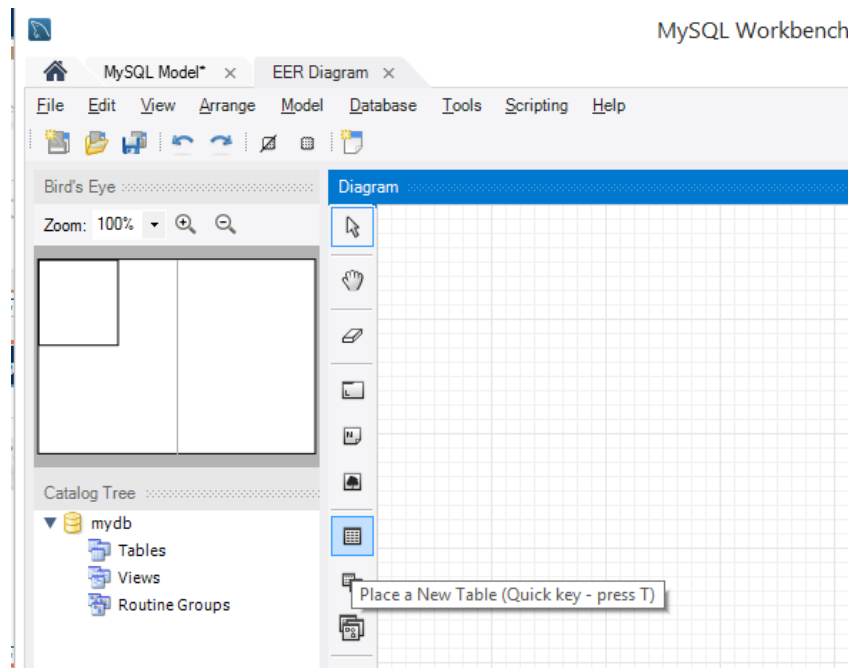
1



2

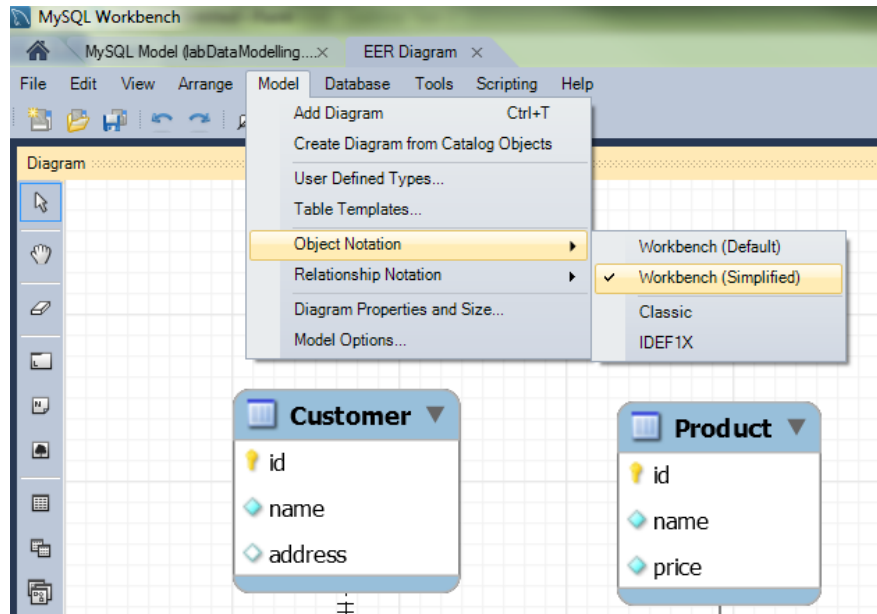


3

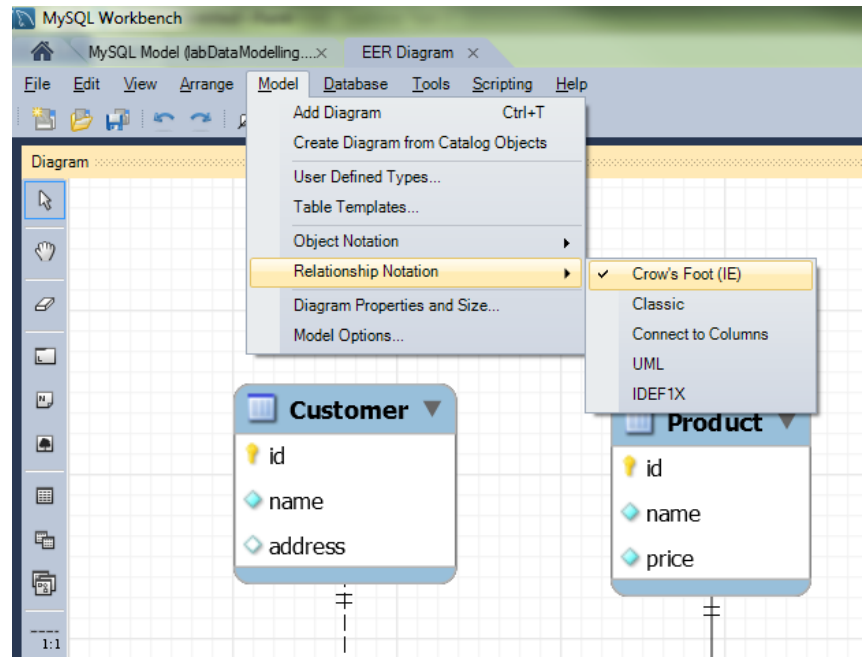


MySQL Workbench

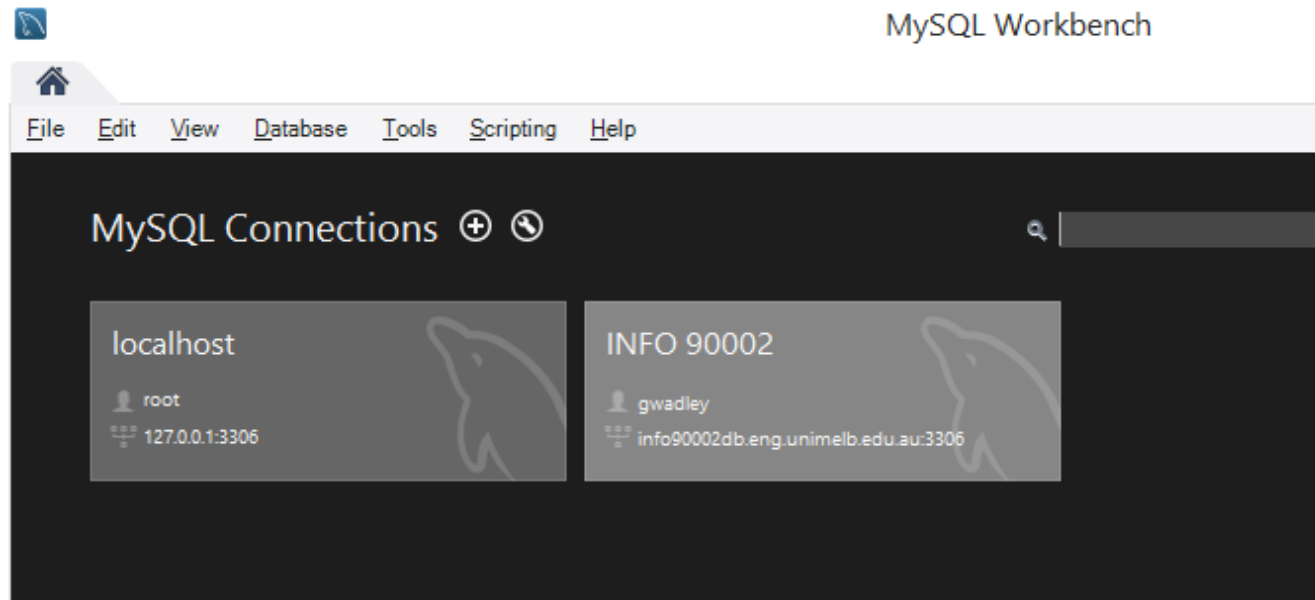
Object notation



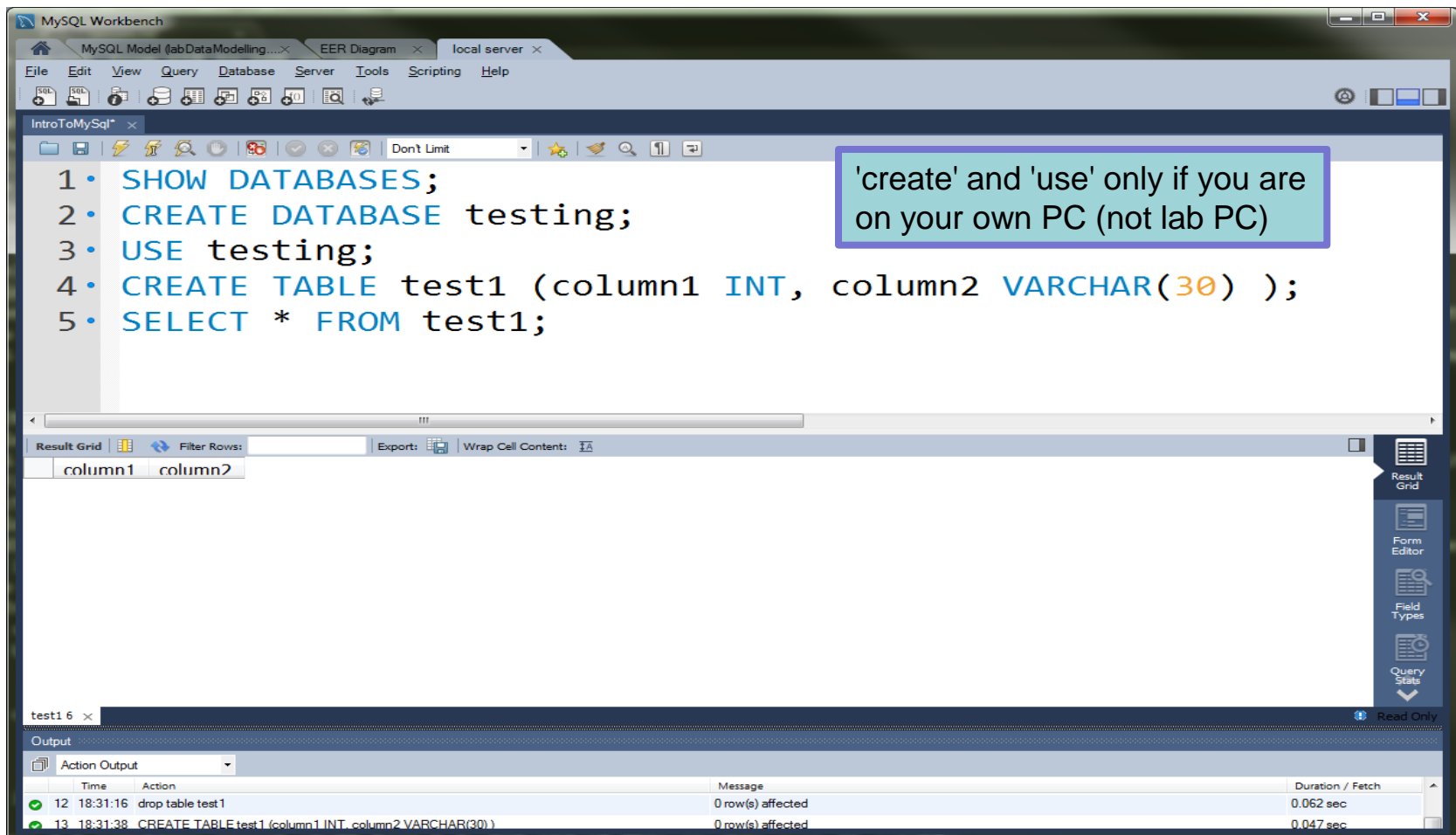
Relationship notation



- create (store locally) one or two connections to servers
 - to the University database server
 - to your localhost (the server on your PC, if you installed MySQL)
 - (use the + sign to add a new connection)
 - click on the connection to connect to that server



- run these SQL statements one at a time
- to run a statement, place cursor on it and hit Ctrl-Enter



The screenshot shows the MySQL Workbench interface. The main window displays a list of SQL statements in the 'IntroToMySQL' tab:

1. `SHOW DATABASES;`
2. `CREATE DATABASE testing;`
3. `USE testing;`
4. `CREATE TABLE test1 (column1 INT, column2 VARCHAR(30));`
5. `SELECT * FROM test1;`

A callout box highlights the instruction: 'create' and 'use' only if you are on your own PC (not lab PC).

The bottom panel shows the 'test1' table structure with columns 'column1' and 'column2'. The 'Output' panel at the bottom displays the execution results:

	Time	Action	Message	Duration / Fetch
✓	12 18:31:16	drop table test1	0 row(s) affected	0.062 sec
✓	13 18:31:38	CREATE TABLE test1 (column1 INT, column2 VARCHAR(30))	0 row(s) affected	0.047 sec



- run these SQL statements one at a time
- to run a statement, place cursor on it and hit Ctrl-Enter

The screenshot shows the MySQL Workbench interface. The main editor window contains the following SQL statements:

```
5 • SELECT * FROM test1;
6 • INSERT INTO test1 VALUES (1, 'my first row');
7 • INSERT INTO test1 VALUES (2, 'my second row');
8 • SELECT * FROM test1;
9 • UPDATE test1 SET column2 = 'my second row, changed' WHERE column1 = 2;
10 • SELECT * FROM test1;
11 • DELETE FROM test1 WHERE column1 = 2;
12 • SELECT * FROM test1;
13
14
```

Below the editor, the 'Result Grid' is visible, showing the results of the last executed query (SELECT * FROM test1):

	column1	column2
1	1	my first row



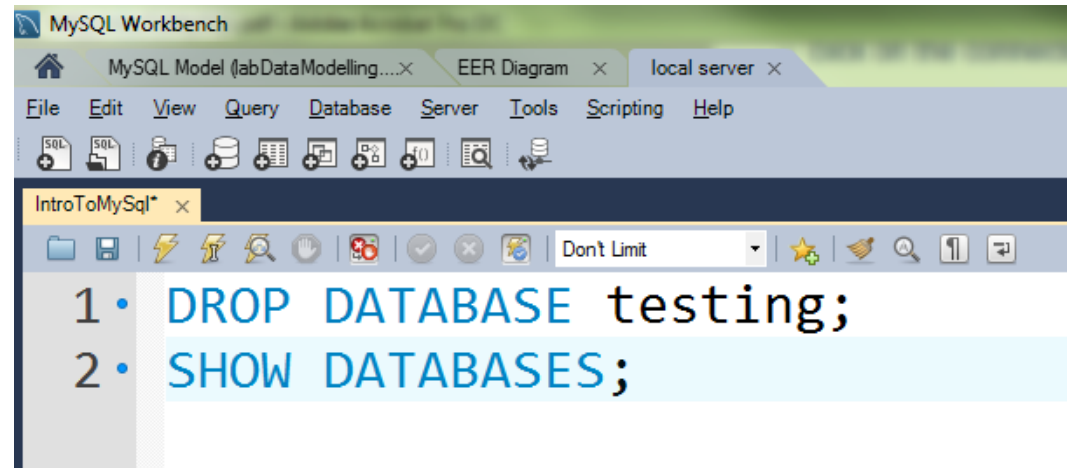
The screenshot shows the MySQL Workbench interface. The main editor window contains a list of SQL queries numbered 12 to 20. The queries are as follows:

```
12. SELECT * FROM test1;
13. INSERT INTO test1 VALUES (2, 'second row');
14. INSERT INTO test1 VALUES (3, 'third row');
15. INSERT INTO test1 VALUES (4, 'fourth row');
16. SELECT * FROM test1;
17. SELECT column2 FROM test1;
18. SELECT column2 FROM test1 WHERE column1 = 1;
19. SELECT * FROM test1 WHERE column1 > 2;
20. SELECT * FROM test1 WHERE column2 like 'thir%';
```

Below the queries, the 'Result Grid' tab is active, displaying the results of the last query (Query 20). The result grid shows two columns: 'column1' and 'column2'. The first row of data has '3' in the 'column1' column and 'third row' in the 'column2' column.

column1	column2
3	third row

if you like, clean up what we did this lesson with these commands ->



- For a comprehensive overview of MySQL Workbench features, read the manual at <https://dev.mysql.com/doc/workbench/en/wb-intro.html> or watch the official tutorial video.

(Note that the video shows a slightly older version of Workbench: the home screen looks different.)

https://youtu.be/X_umYKqKaF0