Tutorial 1 Software Installing

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- Database: PostgresSQL

- Client: Datagrip
- Database Design (Design ER Diagram): MySQL workbench

Part 1. Environment Configuration

For MacOS users

Installation & Usage

Here are alternative ways to install postgresql.

By Homebrew (Recommended)

1. Install Homebrew. (If you already have it, skip this step.)
    1. Prerequisites according to Requirements:
        1. 64-bit Intel CPU 1
        2. macOS High Sierra (10.13) (or higher) 2
        3. Command Line Tools (CLT) for Xcode: `xcode-select --install`, developer.apple.com/downloads or Xcode 3
        4. A Bourne-compatible shell for installation (e.g. `bash` or `zsh`) 4
    2. Open the “Terminal” application
    3. Enter the following command into a single line of the terminal

        ```
        /usr/bin/ruby -e "$(curl -fsSL
        https://raw.githubusercontent.com/Homebrew/install/master/install)"
        ```

    4. If you meet the problem: "Failed to connect to raw.githubusercontent.com port 443: Operation". You can solve it by the link.
2. Install PostgreSQL.
    1. Enter the command to update brew home.

        ```
        brew update
        ```

    2. Enter the command to install PostgreSQL.

        ```
        brew install postgresql
        ```

    3. Check your PostgreSQL version.

        ```
        postgres --version
        ```

        After the initial installation, it would generate a database named **postgres**.
3. Start & Stop.

    Run `brew info postgres` for details.

1. Manually (will not start after system startup), in command line:

```
pg_ctl -D /usr/local/var/postgres start # To start
pg_ctl -D /usr/local/var/postgres stop  # To stop
```

2. Automatically (will start after system startup), in command line:

```
brew services start postgresql    # To start
brew services stop postgresql   # To stop
```

By Postgres.app

It is a brand new installation method, it's reaaaaaaly simple but there may be some potential issues. Visit PostgresApp for details and optional versions.

1. Installation
    1. Download the .dmg file. (Be patient...) Download Link
    2. Mount the file, move Postgres to Applications folder, double click Postgres in Applications folder, the dmg file is useless and can be removed.
    3. Click "Initialize" to create a new server.
    4. You can change path and port in "Server settings" when stopped.
2. Start & Stop
    1. Click "Start" to start server.
    2. When server is started, double clicking schema can open a command line client connected to this schema.
    3. Click "Stop" to stop server.

By Installer

1. Go to Postgresql Download Page, download installer. When the wizard prompts you to choose where to install PostgreSQL, point it to the **apps** subdirectory of your i.e. /Library/PostgreSQL/12.
2. Keep track of the **database superuser** name and **password**. You'll need these to initially create the LabKey database, the LabKey database user, and grant that user the owner role.
3. Keep track of the **database port**. (5432 for default)

By Docker

See For Docker users

Uninstallation

By Homebrew

```
brew uninstall postgres
```

By Postgres.app

1. Open **Finder**.

2. Go to Applications.
3. Move Postgres.app to Trash.

By Installer

There is a uninstall-postgresql.app in your installation directory. (i.e. /Library/PostgreSQL/12)

```
open /Library/PostgreSQL/12/uninstall-postgresql.app
```

For rest files, see this sof answer.

By Docker

See For Docker users

For Linux users

Installation

By Package manager

Take **Ubuntu** as an example.

1. Following command will access each URL in the source list and read the software list and save it on the local computer.

   ```
   sudo apt update
   ```

2. Install PostgreSQL client first

   ```
   sudo apt install postgresql-client
   ```

   Then Install PostgrsSQL server

   ```
   sudo apt install postgresql
   ```

   Generally, after the installation, the postgreSQL server will automatically open on port **5432** of the machine.

3. Check your PostgreSQL version

   ```
   postgres --version
   ```

4. Noticed that, after the initial installation, it would generate three elements:
   1. a database named **postgres**.
   2. a database user named **postgres**.
   3. a Linux system user named **postgres**.

By Docker

See For Docker users

Uninstallation

By Package manager

```
sudo apt remove postgresql postgresql-client
```

By Docker

See For Docker users

For Windows users

Installation

By Installer

1. Go to Postgresql Download Page, download installer. When the wizard prompts you to choose where to install PostgreSQL, point it to the **apps** subdirectory of your i.e. C:\labkey\apps\postgresql-10.6\
2. Keep track of the **PostgreSQL Windows Service** account name and password. LabKey Server needs to ask for it so that we can pass it along to the PostgreSQL installer.
3. Keep track of the **database superuser** name and password. You'll need these to initially create the LabKey database, the LabKey database user, and grant that user the owner role.

By Chocolatey

If you haven't chocolatey, go and get one.

```
choco install postgresql
```

By Docker

See For Docker users

Uninstallation

Universal way (by installer or choco)

1. Click "Start Menu", Go to "Settings" > "Apps" > "Apps & features".
2. Select "PostgreSQL", click "Remove".

By choco

```
choco uninstall postgresql
```

By Docker

See For Docker users

For Docker users

If you haven't Docker environment, please choose another installation method.

Installation

In command line:

```
docker run --name some-postgres -p 5432:5432 -e
POSTGRES_PASSWORD=mysecretpassword -d postgres
```

Uninstallation

If your postgres container names "some-postgres"

```
docker stop some-postgres # Stop container
docker rm some-postgres   # Remove container
docker rmi postgres     # Remove image
```

Part 2. How to use PostgreSQL

In command line:

1. Enter command to visit postgres database:

Mac OX user:

```
psql postgres
```

Linux user:

Step1: Changed to Postgres database user

```
sudo su - postgres
```

Step2: connect PostgreSQL database by input psql command:

```
psql
```

Then system prompt would be postgres=#, which means you have connected to postgres database

2. Finding all roles in postgreSQL

```
\du
```

3. Create a superuser named checker

```
create user checker with superuser
```

4. Change password, and then enter password 123456

```
\password checker
```

5. Create a database named cs307

```
create database cs307;
```

6. Exit database from command line

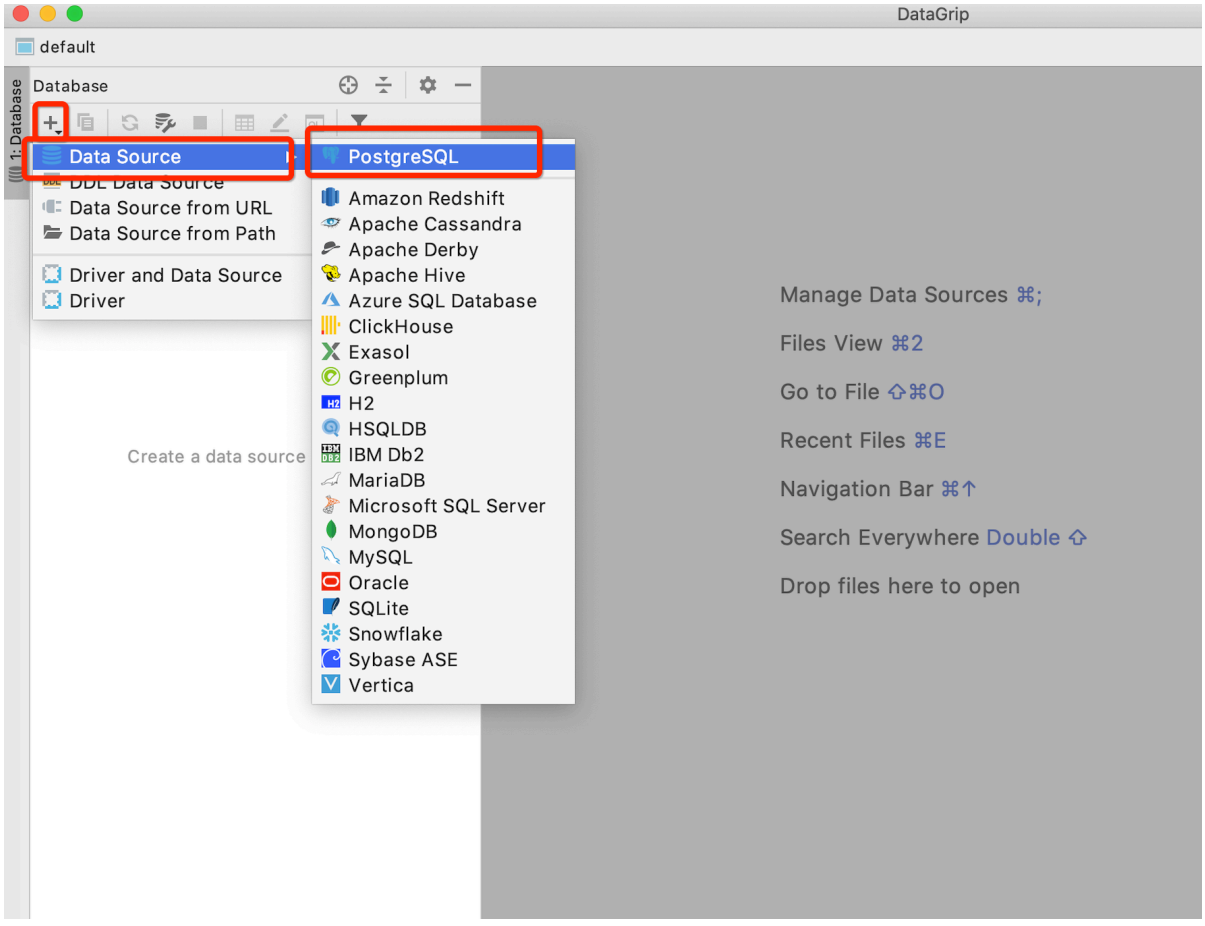
```
\q
```

Part 3. Datagrip

Here to download Datagrip, and then install it.

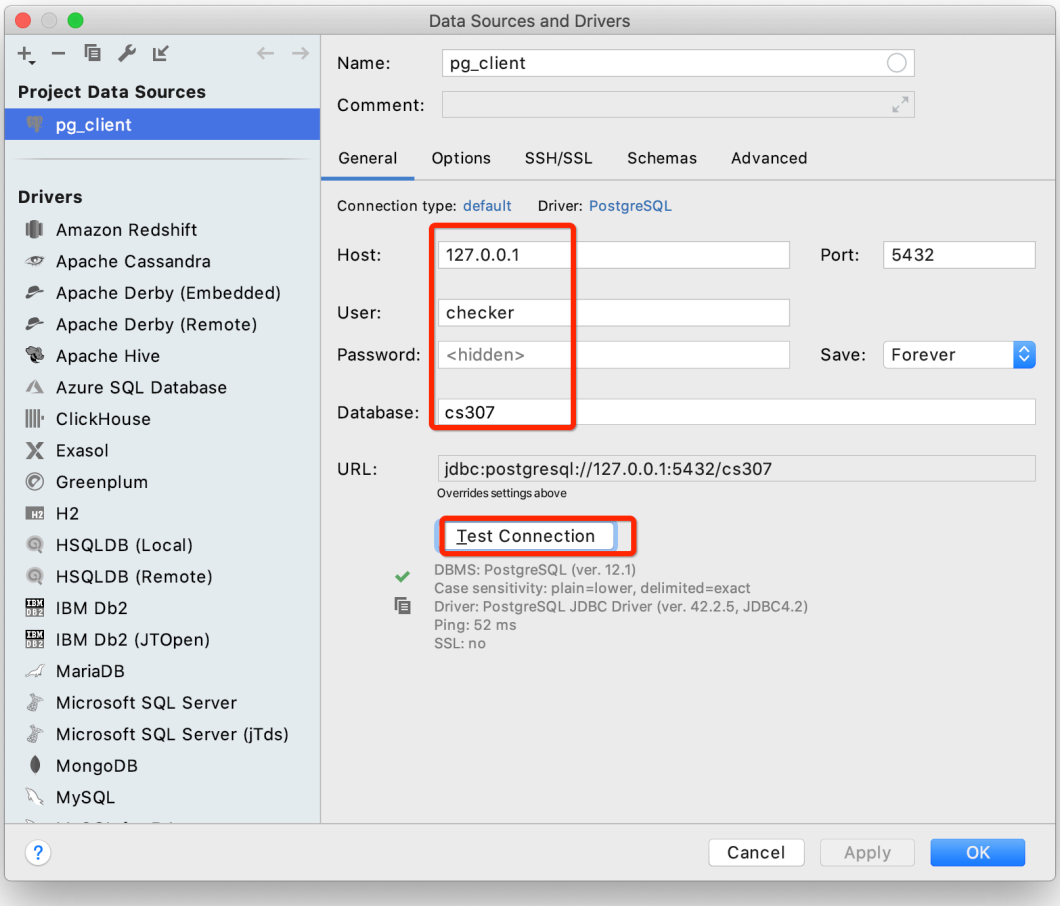
How to use datagrip?

1. Add a postgreSQL client

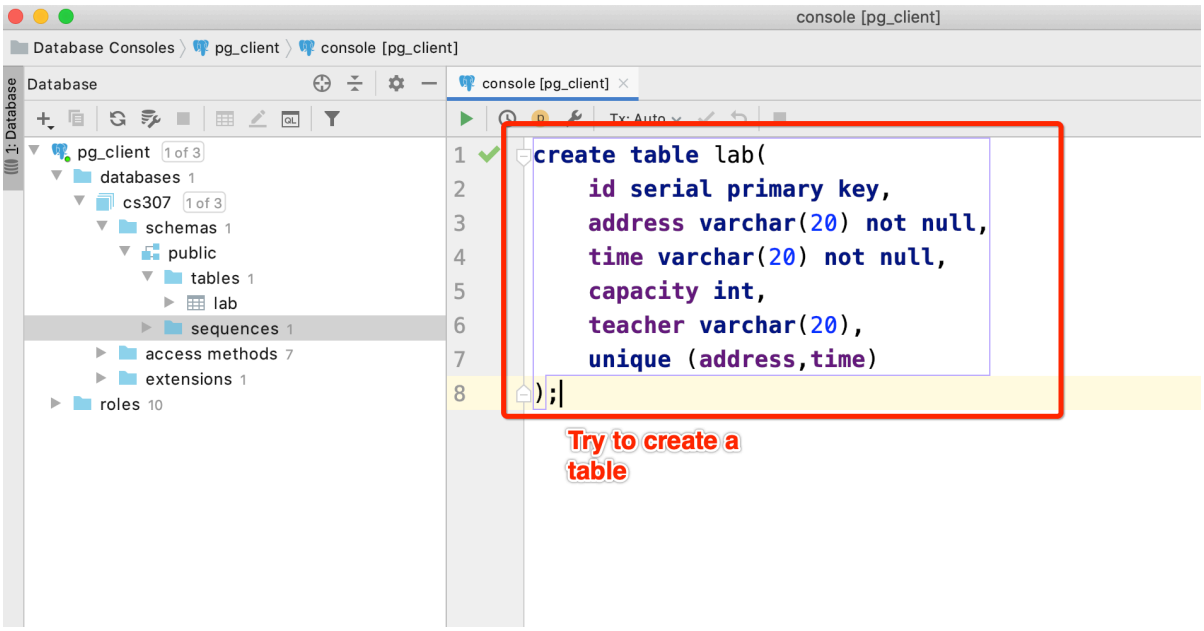


2. Download Driver

3. Fill in Host, User, Password and Database, and then click **Test Connection**



4. Try to create a table as follows in datagrip



Part 4. What to Submit

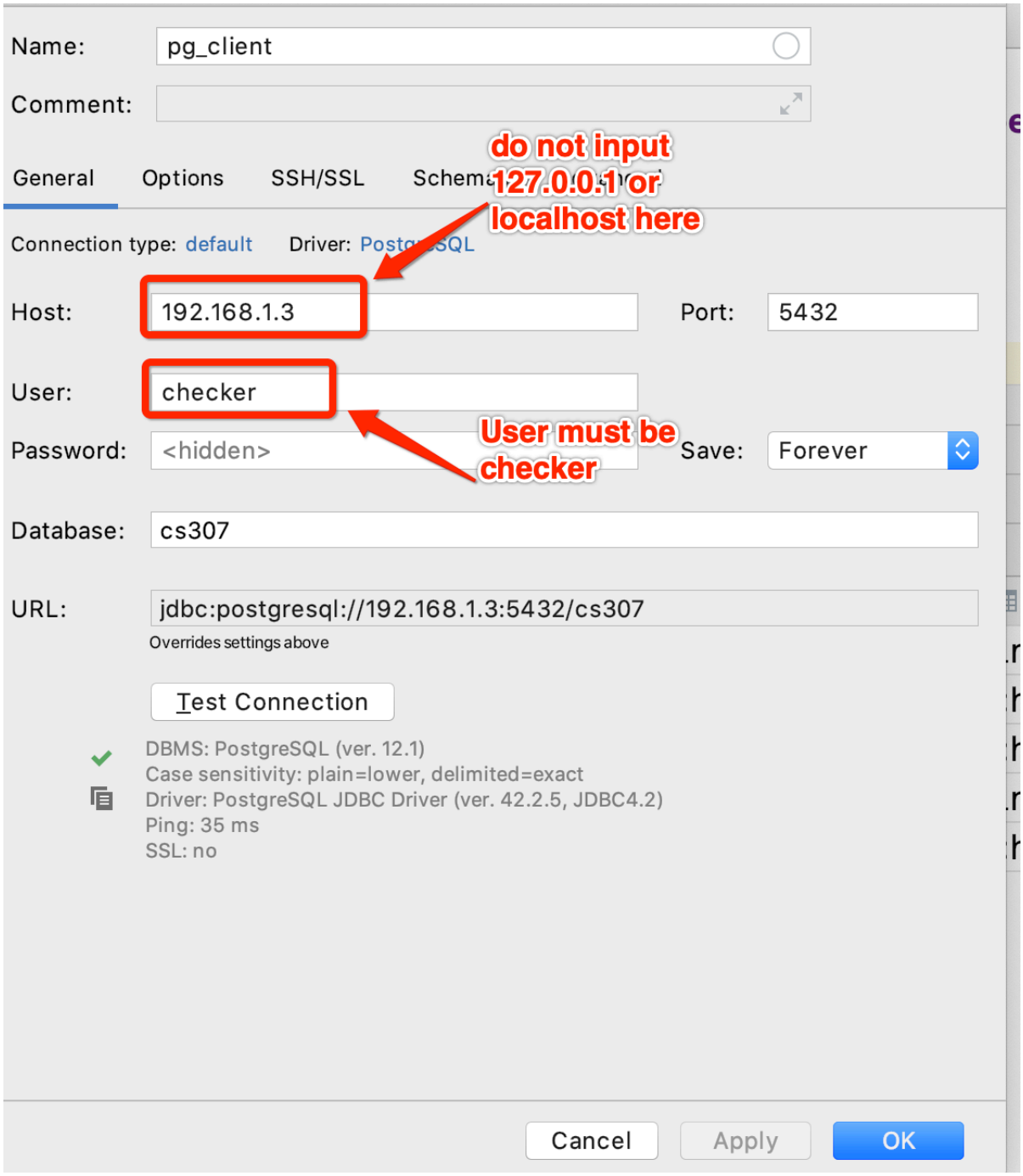
1. Install PostgreSQL in your own computer (any system can be accepted).

2. Create a database named cs307 with a owner named checker
3. Create a table in cs307 by the query below

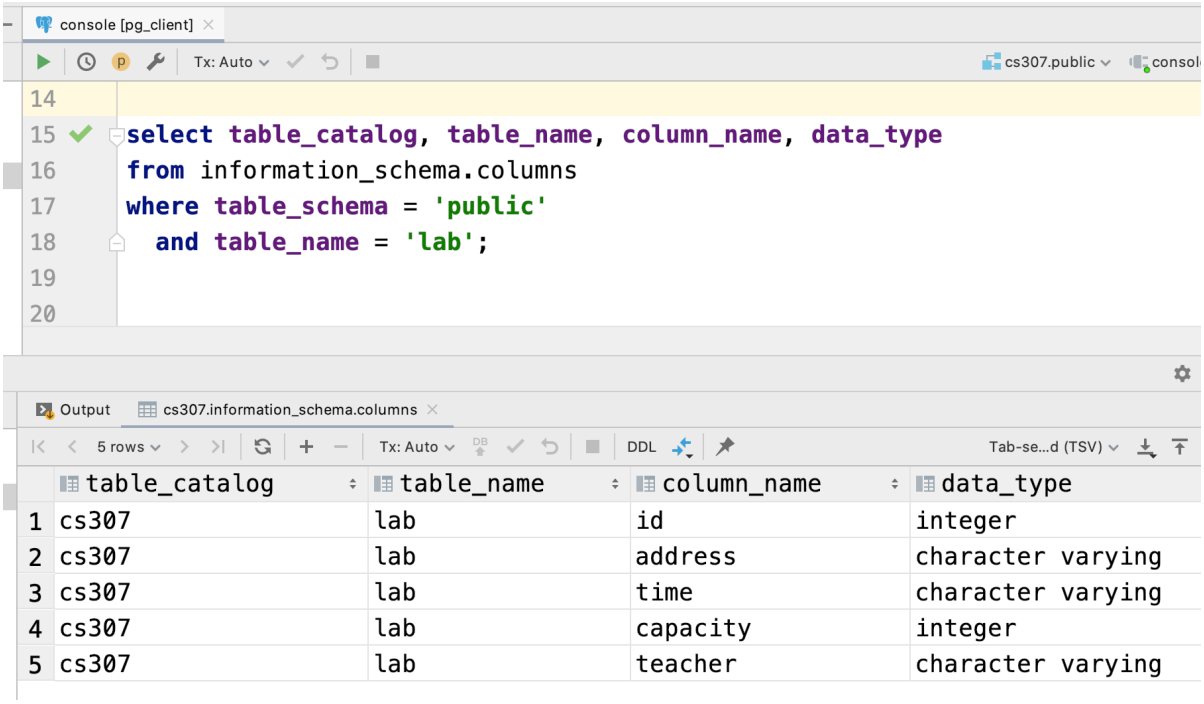
```
create table lab(
    id serial primary key,
    address varchar(20) not null,
    time varchar(20) not null,
    capacity int,
    teacher varchar(20),
    unique (address,time)
);
```

4. Install datagrip successfully, and using your datagrip to connect database cs307.
5. Accessing postgreSQL database by network, which means you should connect database cs307 by other ip address instead of 127.0.0.1. Do not use original superuser, you can use checker as a username. Now, you need search for any solutions to accomplish this task, and I think you, to be a student of CSE, can accomplish this task.
6. Please submit a merged **pdf** file which contains **two screenshots** as follows. The deadline of this submisstion is March 9th.

   Screenshot 1 is about connection:



Screenshot 2 is a result of a query:

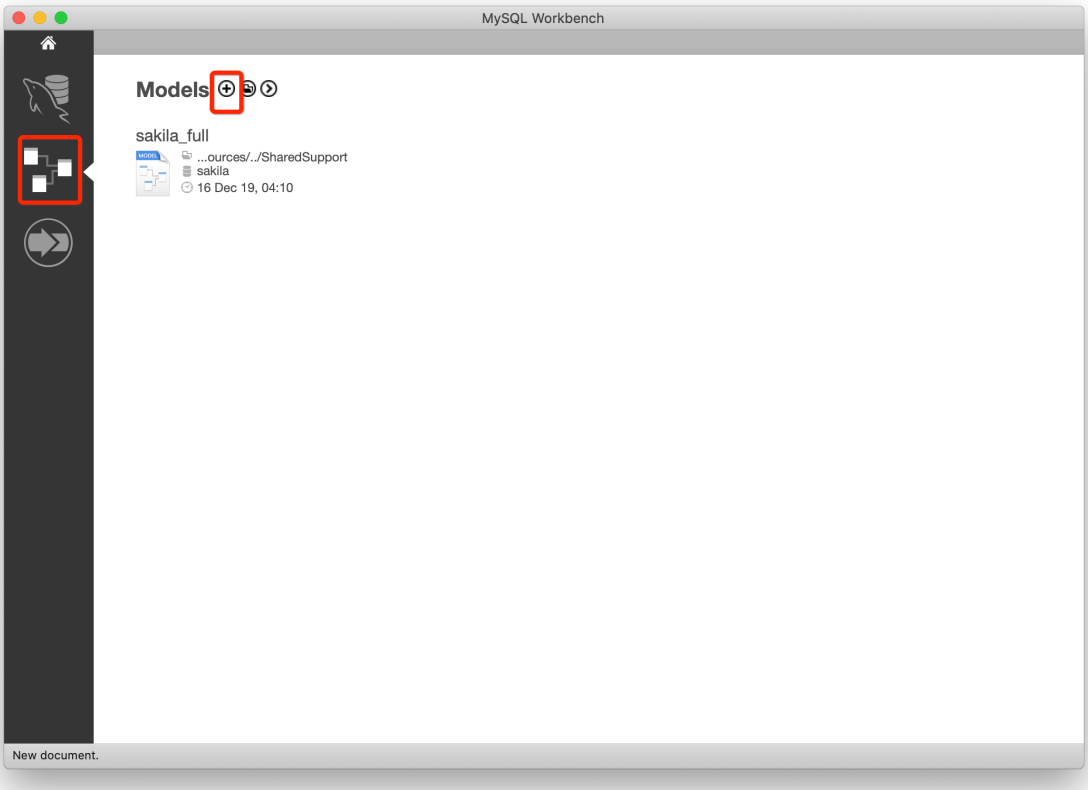


Part 5. Install MySQL workbench

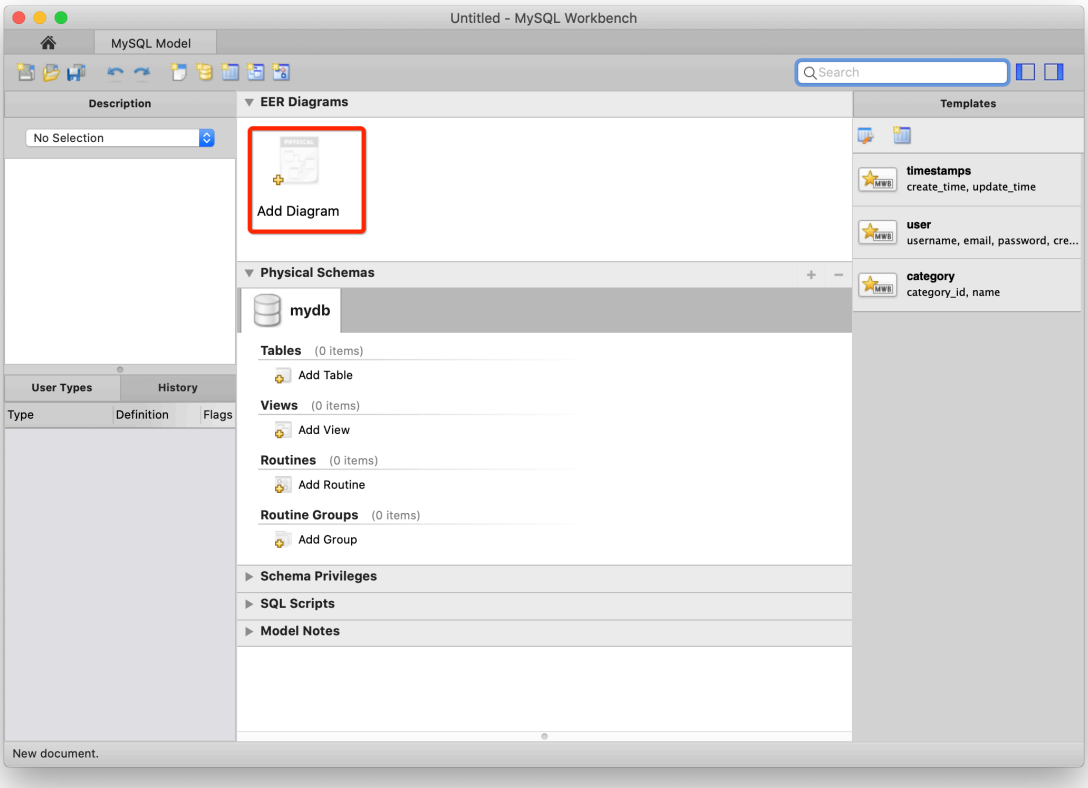
If you only want to download mysql workbench, you can download from this link, and then install it. It is only mysql workbench without mysql server.

How to use MySQL workbench ?

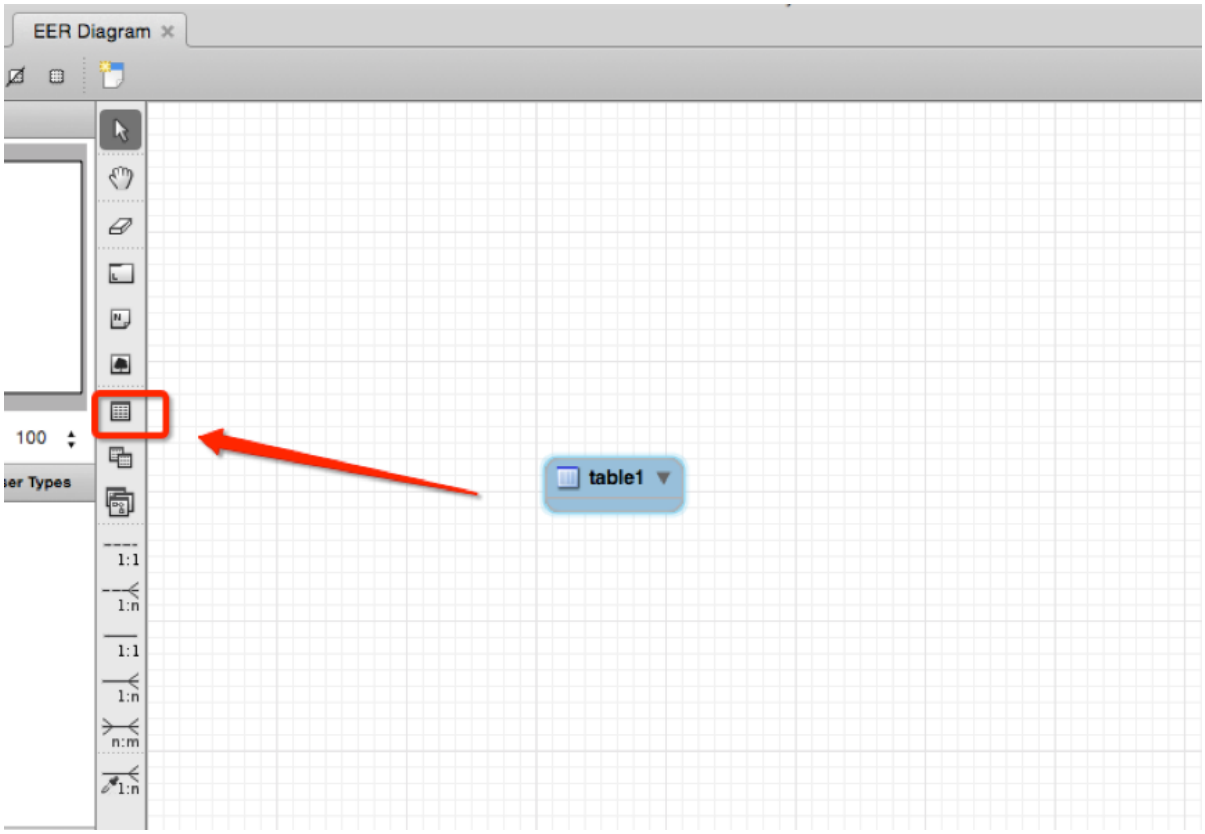
1. File—New Model



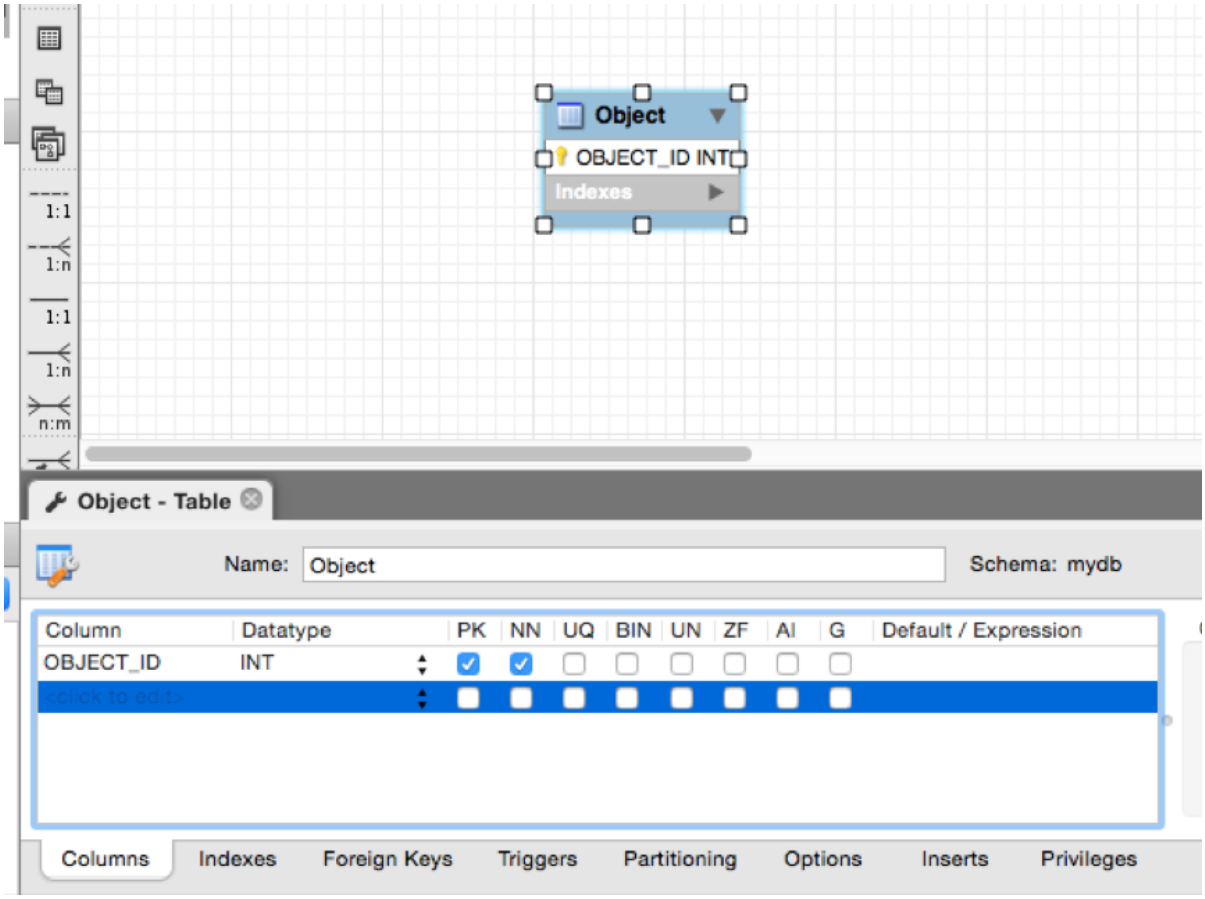
2. Double click Add diagram



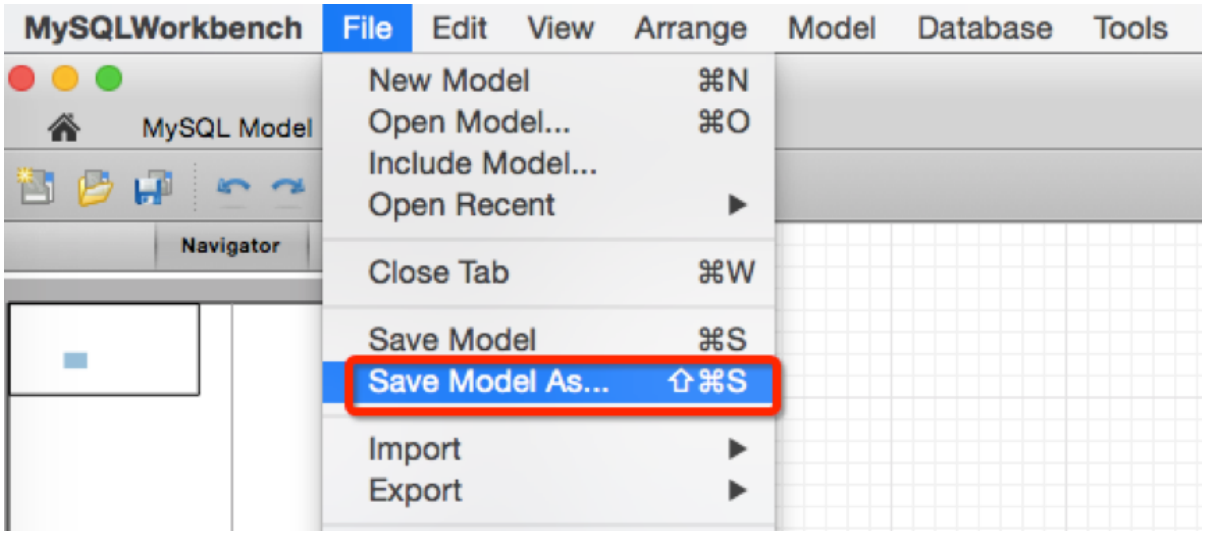
3. Add table to ER diagram by clicking this button



4. Double click table in ER diagram and edit it. Give it a name and add other columns.



5. When you finish editing your ER diagram, do not forget to save it.



Tips: I suggest you edit relationship between tables by setting foreign key from one table to another. Don't create relationships by adding lines directly in ER diagram.