Pre-requisites for

Data Wrangling with SQL

Recitation Class

April 25, 2024

Installation Guide for MySQL and PostgreSQL

- Linux (Ubuntu)

a. Install MySQL

To install MySQL on your Ubuntu system, you can follow these steps to set it up from the beginning. This will include installing the MySQL server, the client, and optionally the Workbench if you need a GUI for managing your databases.

- Open Terminal (Ctrl + Alt + T)

Step 1: Update Your Package Index

```
sudo apt update
```

Step 2: Install MySQL Server

```
sudo apt install mysql-server
```

Step 3: Secure MySQL Installation

This step is not mandatory for installation, but it's a good practice to run this for security purposes.

```
sudo mysql_secure_installation
```

This script will guide you through several options:

- Setting up a root password (if not already set)
- Removing anonymous users
- Disallowing root login remotely

- Removing test databases and access to them
- Reloading privilege tables

Step 4: Check MySQL Service Status

```
sudo systemctl status mysql
```

You can start or stop the service using `sudo systemctl start mysql` or `sudo systemctl stop mysql`, respectively.

Step 5: Log into MySQL

To start using MySQL from the CLI, log into the MySQL shell:

```
sudo mysql -u root -p
```

You'll be prompted to enter the root password you set during the secure installation.

Once logged in, you can execute SQL commands, create databases, and manage users and permissions.

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b. Install PostgreSQL:

Step 1: Install PostgreSQL

You can install PostgreSQL along with the postgresql-contrib package which includes some additional utilities and functionality:

```
sudo apt install postgresql postgresql-contrib
```

Step 2: Configure PostgreSQL

1. Switch to the PostgreSQL user:

   By default, PostgreSQL creates a user named postgres. Switch to this user to perform administrative tasks:

   ```
   sudo -i -u postgres
   ```

2. Access the PostgreSQL prompt:

   Once you're the postgres user, you can access the PostgreSQL prompt by typing:

   ```
   psql
   ```

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c. Install MySQL Workbench & Dbeaver

If you prefer a graphical interface to manage your MySQL databases, install MySQL Workbench. While MySQL Workbench is specifically designed for MySQL databases, **Dbeaver** can be used for several other databases like PostgreSQL, MariaDB, Oracle, Microsoft SQL Server, SQLite, NoSQL Databases, and many other databases as well. For learning purposes, you can install both tools.

a. MySQL Workbench

   ```
   sudo snap install mysql-workbench-community
   ```

b. Dbeaver

   Here's how to install DBeaver Community Edition on your Ubuntu system:

Option 1: Install DBeaver Using the Official DEB Package

DBeaver offers a DEB package that you can download and install directly.

1. Download the DEB package:
   - Visit the DBeaver official download page.
   - Download the .deb **file for the latest release suitable for your Ubuntu version** *(https://dbeaver.io/files/dbeaver-ce_latest_amd64.deb)*
2. Install the downloaded package:

Open your terminal and navigate to the directory where the .deb file is downloaded (usually the Downloads folder). Then use the following command:

```
sudo dpkg -i dbeaver-ce_<version>.deb
```

Replace <version> with the version number of the downloaded file.

3. Resolve dependencies:
   Sometimes dpkg might not handle dependencies automatically. To ensure all dependencies are installed, run:

```
sudo apt-get install -f
```

Option 2: Install DBeaver as a Snap Package

Ubuntu supports Snap packages out of the box, and DBeaver is available as a snap package.
Simply run the following command in your terminal:

```
sudo snap install dbeaver-ce
```

Once DBeaver is installed, you can launch it from your applications menu or by typing dbeaver in the terminal.

Connect MySQL and PostgreSQL to DBeaver:

Connect to MySQL Database:

1. Open DBeaver and go to the "Database" menu then select "New Database Connection."
2. Choose MySQL as the database type and click "Next."
3. Fill in the connection settings:
   - Host: typically localhost if your database is on the same machine.
   - Port: default is 3306.

- Database/Schema: you can specify this now or leave it blank to decide later.
- User: your MySQL username.
- Password: your MySQL password.

4. Test the connection to ensure everything is set up correctly, then click "Finish."

Connect to PostgreSQL Database:

1. Open DBeaver and go to the "Database" menu then select "New Database Connection."
2. Choose PostgreSQL as the database type and click "Next."
3. Fill in the connection settings:
4. Host: usually localhost.
    - Port: default is 5432.
    - Database: the name of your database if you created one, or you can use the default postgres.
    - User: myuser (or postgres if you didn't create a new user).
    - Password: the password for your user.
5. Test the connection to ensure all settings are correct and then click "Finish."

- Windows

a. MySQL

- Go to the MySQL website and download the MySQL Installer for Windows. Choose the appropriate version based on your system architecture (32-bit or 64-bit).
- Download MySQL Installer
- Once the download is complete, double-click on the installer file to launch the MSI MySQL Installer.

- In the MySQL Installer, select the "Developer Default" or "Full" setup type to install MySQL Server along with necessary components.
- Follow the on-screen instructions to set up MySQL. You will be prompted to choose the MySQL Server version and configure the installation.
- During installation, you'll be asked to configure MySQL Server. Set a root password and configure other options as per your requirements.
- Continue with the installation process until it's complete. Once done, MySQL Server should be installed on your Windows system.
- Open Command Prompt and type `mysql -u root -p`. Enter the root password you set during installation. If you're able to log in without errors, MySQL is successfully installed.

b. PostgreSQL

- Visit the PostgreSQL website and download the installer for Windows. Choose the version suitable for your system architecture (32-bit or 64-bit).
- https://www.postgresql.org/download/windows/
- Double-click on the downloaded installer file to start the PostgreSQL installation process.
- In the installer, select the components you want to install. By default, the PostgreSQL Server and pgAdmin are selected. You can keep them selected for a typical installation.
- During installation, you'll be asked to choose a data directory. You can keep the default or choose a custom directory.
- During installation, set a password for the superuser (postgres) account.
- Proceed with the installation process until it's complete. PostgreSQL Server along with pgAdmin should be installed on your Windows system.

- After installation, you can verify PostgreSQL installation by launching Pgadmin/DBeaver and connecting to the PostgreSQL server using the credentials you set during installation.

a. MySQL Workbench

- Go to the official MySQL website and navigate to the MySQL Workbench download page. Choose the appropriate version for your Windows system (32-bit or 64-bit) and click on the download link.
- Download MySQL Workbench
- After the installation is finished, you can launch MySQL Workbench from the Start menu or desktop shortcut.
- Upon launching MySQL Workbench, you'll be prompted to create a new MySQL connection. Enter the connection details such as hostname, port, username, and password to connect to your MySQL server.

b. Dbeaver

- Go to the official DBeaver website (https://dbeaver.io/) and navigate to the download page. Choose the appropriate version for your Windows system (32-bit or 64-bit) and click on the download link
- Once the download is complete, locate the downloaded file and double-click on it to start the installation process.
- Select the setup type. The typical installation should be suitable for most users. Click "Next" to continue.
- Choose the destination folder where you want to install DBeaver or keep the default location. Click "Next" to proceed.

- Wait for the installer to complete the installation process. This may take a few moments.
- Once the installation is complete, click "Finish" to exit the setup wizard.
- Upon launching DBeaver, you can start configuring your database connections and using the tool to interact with your databases, run queries, manage schemas, and more.

- MacOS

a. MySQL

- Visit the MySQL website and download the MySQL Community Server for macOS.
- Once the download is complete, open the downloaded .dmg file and follow the instructions in the installer.
- During the installation process, you'll be prompted to set up MySQL. Follow the instructions to configure MySQL, set a root password, and complete the installation.
- After installation, MySQL Server should start automatically. If not, you can start it manually using System Preferences or the command line.
- Open Terminal and type `mysql -u root -p`. Enter the root password you set during installation. If you're able to log in without errors, MySQL is successfully installed

a. PostgreSQL

- Go to the PostgreSQL website and download the PostgreSQL installer for macOS.

- Open the downloaded .dmg file and follow the instructions in the installer to install PostgreSQL on your macOS system.
- During installation, you'll be prompted to set up PostgreSQL. Follow the instructions to configure PostgreSQL and complete the installation.
- After installation, PostgreSQL Server should start automatically. If not, you can start it manually using System Preferences or the command line.
- Open Terminal and type `psql -U postgres`. You'll be prompted to enter the password for the `postgres` user. If you're able to log in without errors, PostgreSQL is successfully installed.

a. MySQL Workbench

- Both MySQL and PostgreSQL typically come with graphical user interfaces (GUIs) for macOS, such as MySQL Workbench for MySQL and pgAdmin for PostgreSQL. You can download and install these tools separately to manage your databases more easily.

a. Dbeaver

- Go to the official DBeaver website (https://dbeaver.io/) and navigate to the download page. Choose the macOS version and click on the download link.
- Once the download is complete, locate the downloaded file (usually a .dmg file) in your Downloads folder or wherever you saved it.
- Double-click on the downloaded .dmg file to mount the disk image. This will open a new window with the DBeaver application icon.
- Drag the DBeaver application icon to the "Applications" folder shortcut in the opened window. This will copy DBeaver to your Applications folder.

- If you want to create a shortcut for DBeaver on your desktop, you can drag the DBeaver icon from the Applications folder to your desktop.
- After copying DBeaver to your Applications folder (and optionally creating a desktop shortcut), you can eject the disk image by clicking the "Eject" button next to the mounted disk image in Finder.
- Navigate to your Applications folder and double-click on the DBeaver icon to launch the application.
- Upon launching DBeaver for the first time, you may be prompted to configure some settings, such as choosing a workspace location. Follow the on-screen instructions to complete the initial setup.
- Once DBeaver is configured, you can start using it to connect to your databases, run queries, manage schemas, and more.