MYSQL

MYSQL

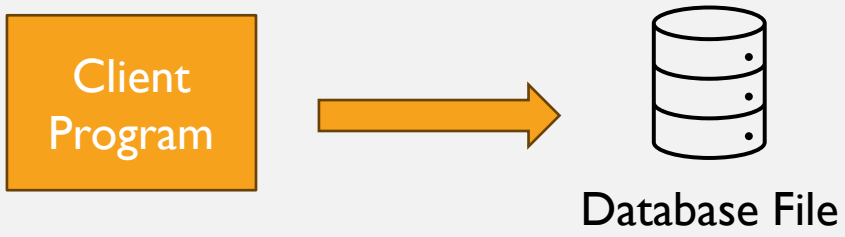
- Open Source Enterprise DBMS
- Hugely popular
- Features:
  - Runs on Windows, Mac OS, Linux, Solaris, FreeBSD
  - Client/server architecture
  - Concurrent, multiuser access

MYSQL INSTALLATION OPTIONS

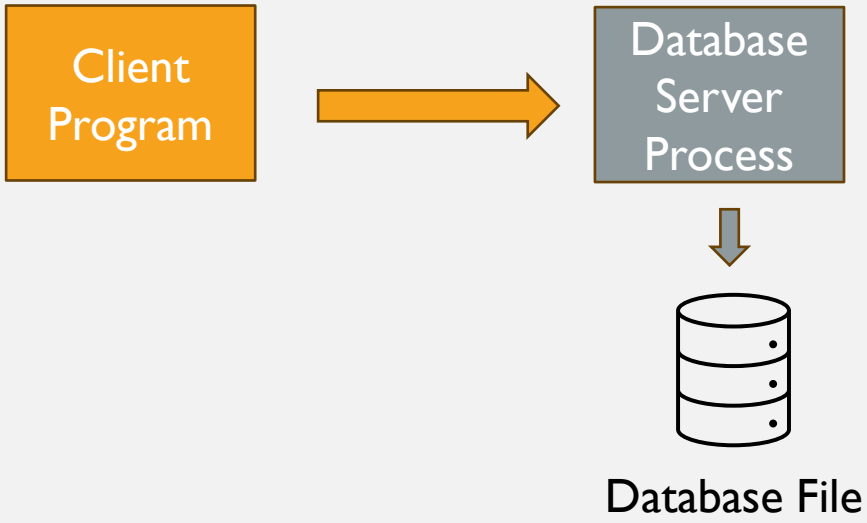
- Install MySQL on your laptop
- Install Docker on your laptop and run MySQL in a container
- Setup MySQL in the cloud

DATABASE ARCHITECTURE

DIRECT FILE ACCESS



CLIENT/SERVER



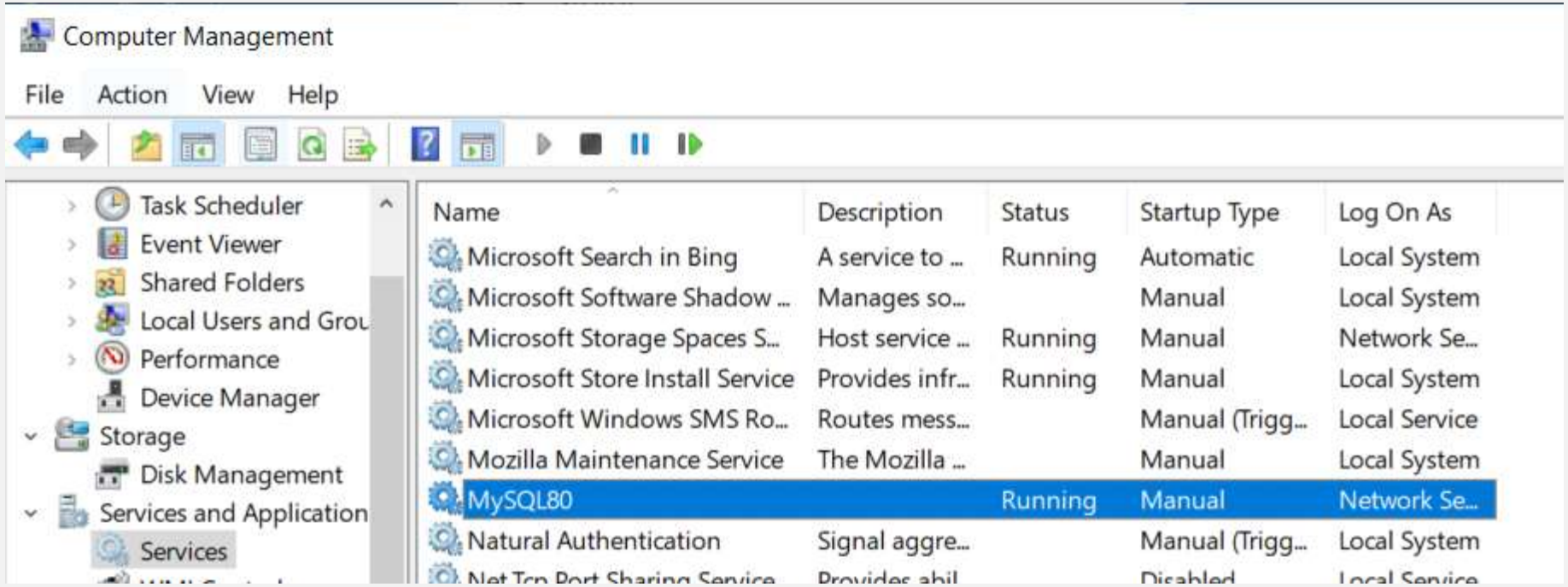
MYSQL ARCHITECTURE

- Server listens on configured TCP/IP port and processes SQL requests from clients
  - Manages a collection of databases
- Windows: Runs as Windows Service
  - Use standard Windows administration tools to start/stop MySQL server
- Linux: Runs as a background daemon

ADMINISTRATION TOOLS

- Command Line:
  - Windows: mysql.exe
  - Linux: mysql command line utility
- GUI:
  - MySQL Workbench
- Understand the difference between these administration tools and MySQL service

MYSQL WINDOWS SERVICE



COMMAND LINE MYSQL

COMMAND LINE TOOLS

- Windows has two shells
  - Powershell
  - Command shell (cmd)
- We'll use command shell
  - Works better with MySQL

CONFIGURE PATH

- We'll use two command line programs to work with MySQL:
  - mysql
  - mysqldump
- These commands aren't immediately available for use
- Configure PATH environment variable so you can use these commands

MYSQL COMMAND LINE CLIENT

- Usage (Linux and Windows):
  - mysql -u root -p
  - -u is the username (should be **root**)
  - -p prompts for the password (the password you configured when installing MySQL)
- Example:
  - mysql -u root -p

TROUBLESHOOTING

- 'mysql' is not recognized as an internal or external command, operable program or batch file.
  - Solution: Setup PATH environment variable
- ERROR 2003 (HY000): Can't connect to MySQL server on 'localhost:3306' (10061)
  - Solution: Start MySQL Service
- ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password:YES)
  - Solution: Type correct password

SAVE YOUR PASSWORD

- Use **mysql_config_editor** command to store your MySQL username and password
  - Example: mysql_config_editor set --user=root –password
- Now you can run mysql without any options, like this:
  - mysql

MYSQL DATABASES

- From mysql command line:
  - SHOW DATABASES;
- To create an empty database:
  - CREATE DATABASE *databasename*;
- To work with a database, first execute the USE command:
  - USE *databasename*;
  - All SQL commands executed in the query session now refer to the specified database
- To discover tables in currently selected database from command line:
  - SHOW TABLES;

IMPORTING DATA

To import an entire database:

1. Create an empty database (ex. univdb)
2. Use mysql command to execute the exported SQL script to populate the database

   Example: mysql univdb < univdb.sql

EXPORTING DATA

- Use **mysqldump** command to export a database to a SQL script
- At Windows command prompt (NOT mysql command prompt):
  - cd Documents
  - mysqldump univdb > univdb.sql
    Exports entire database

IMPORTING AND EXPORTING TABLES

- MySQL can import and export individual tables
- Command:
  - cd Documents
  - mysqldump univdb faculty > faculty.sql
    Exports faculty table from univdb database
  - mysql univdb < faculty.sql
    Imports faculty table into univdb

USING MYSQL WORKBENCH

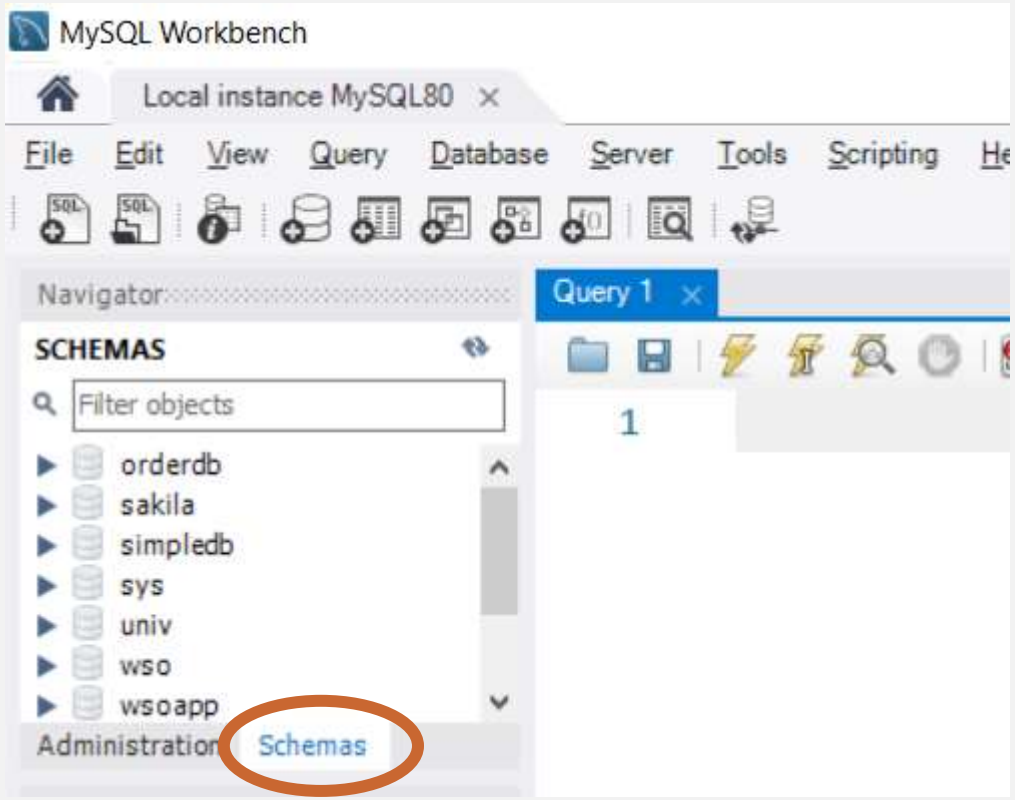
MYSQL WORKBENCH

- Connect to MySQL Server
- View databases
- Modify data
- Create a new database
- Execute queries and scripts
- Export and Import databases and tables

CONNECT TO MYSQL SERVER

VIEW DATABASES

- Select the Schemas tab to view databases



MODIFY DATA

CREATE A NEW DATABASE

EXECUTE QUERIES AND SCRIPTS

EXPORT AND IMPORT DATABASES