Introduction to MySQL Workbench (LAB Lecture)

Department of Information Technology

Database Systems II (IT216)

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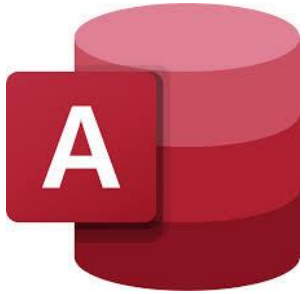
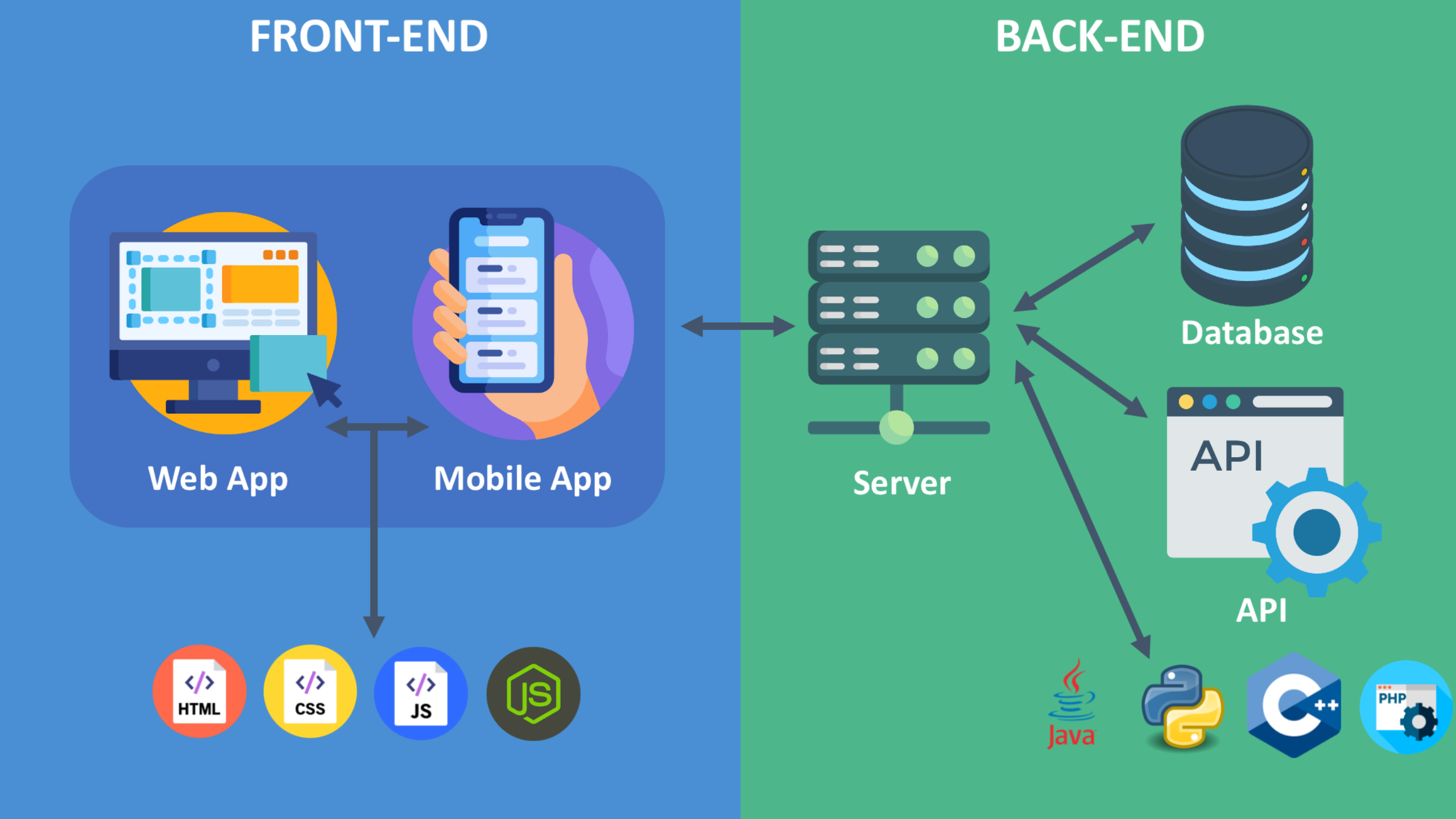
Contents

- MySQL and MySQL Workbench
- Create a Database and Create Table

RDBMS Software




FRONT-END
BACK-END
Web App
Mobile App
Server
Database
API
API
HTML
CSS
JS
Java
PHP

MySQL

- **MySQL** is the world's most popular open-source database management system.
- **MySQL** is an SQL-based relational database designed to store and manage structured data.
- **MySQL** is a popular database management system used in web development as a web application backend.

ARDUINO

SQL Language

- **SQL** (**Structured Query Language**) is used for
    - managing and manipulating relational databases.
- **SQL** is designed to interact with databases
    - by defining, querying, updating, and managing the data within them.

Microsoft Access vs. MySQL

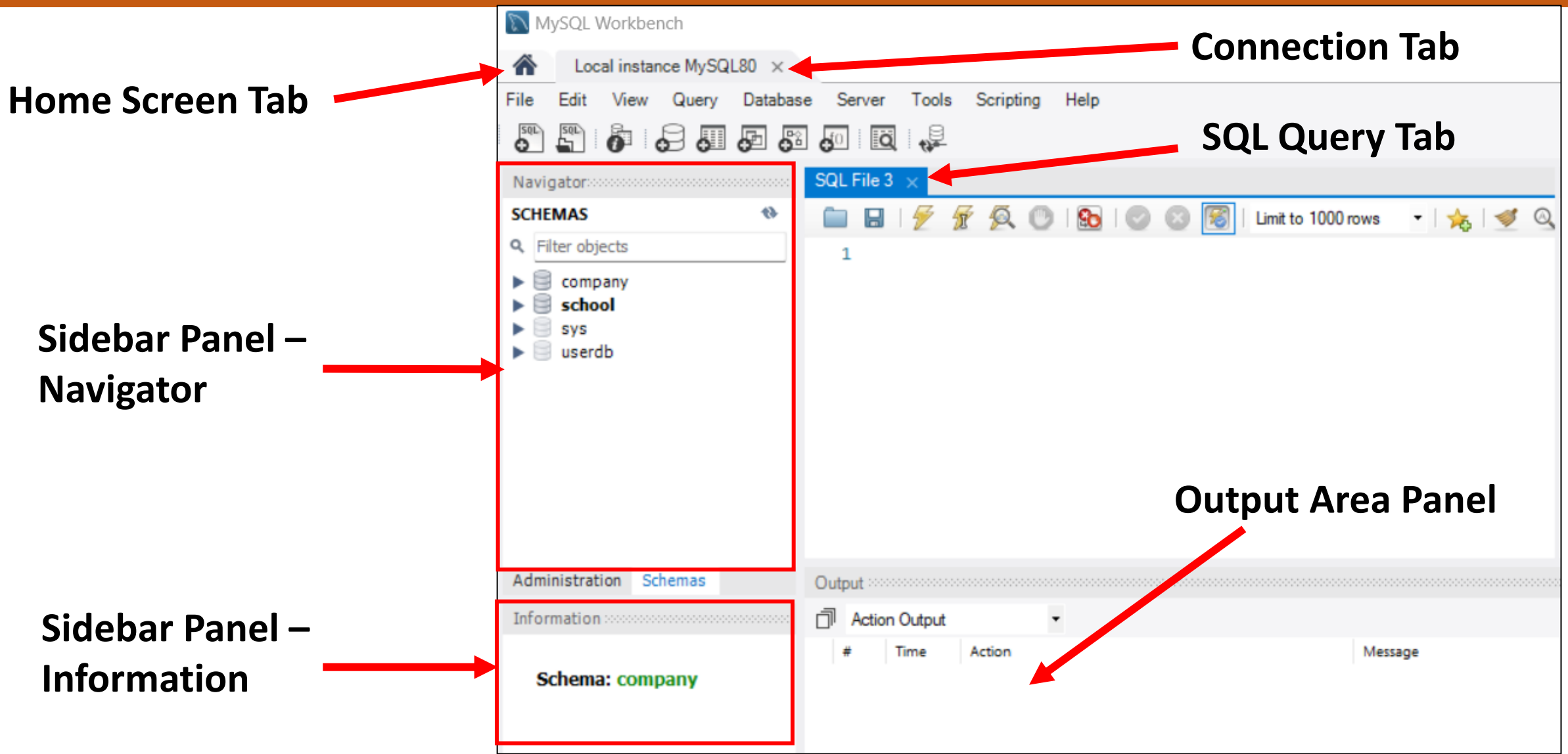
MS Access	MySQL
Slower, small number of users	Quicker, better performance for many users
Single login and password	Multiple security options
Can handle lower numbers of queries & payment transactions	Better for eCommerce - can support multiple queries and payment transactions
Cost per user licence can become expensive	No licences, more cost effective
Has a maximum storage and user number	Easily scalable for a growing business

MySQL Workbench

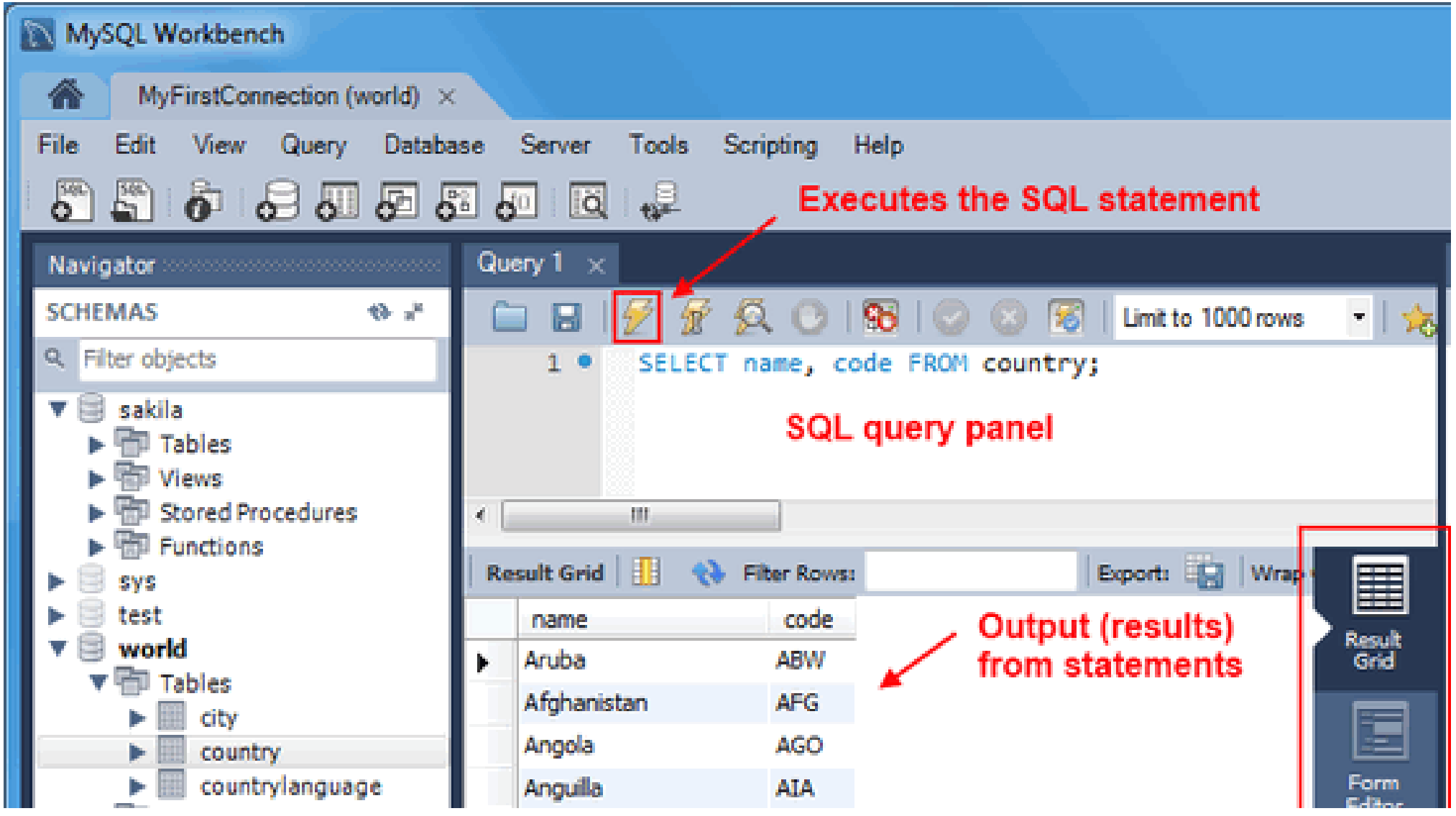
- **MySQL Workbench** is a graphical tool for working with **MySQL** servers and databases.

- **MySQL Workbench** is available in two editions:
  - **Community** Edition → free of charge
  - **Commercial** Edition → provides advanced features, not free.

MySQL Workbench Environment



SQL Editor –SQL Query Tab



Some Data Types in MySQL

Data Type	Description	Storage (Bytes)
INT	A standard integer	4 Bytes
DECIMAL	A fixed-point number	4 Bytes
NUMERIC	A fixed-point number	4 Bytes
FLOAT	A floating-point number	4 Bytes
DOUBLE	A floating-point number that stores larger values than FLOAT	8 bytes

Some Data Types in MySQL

Data Type	Description	Number of Characters
CHAR (M)	A fixed-length string	M → 0-255
VARCHAR (M)	A variable-length string	M → 0-255
TEXT (M)	A long string	M → 0-65,535

Some Data Types in MySQL

Data Type	Description	Storage
DATE	A date	3 Bytes
DATETIME	A date and time combination	8 Bytes
TIME	A time	3 Bytes
YEAR	A year in four-digit format	1 Byte
TIMESTAMP	A timestamp	4 Bytes

Create and Use a Database

- **Creating a new database in MySQL:**

  create database <database_name> ;

- **Selecting the Database for Use:**

  use <database_name> ;

- **Show list of all databases:**

  show databases;

First Database – Company Database

Department

deptName	Budget	Floor
HR	11000	3
Accounting	7000	1
Customer Services	5000	4

Employee

ID	name	salary	deptName
1	Mike	4000.5	Accounting
2	Kate	2500.75	Customer Services
3	Sandy	7000	HR

Create Table

- **Creating a new table in MySQL:**

```
create table <table_name>

(column_names   data_type,

constraints);
```