

MySQL설치 및 기본 SQL문

Database Laboratory

차 례

- ▶ MySQL Server Installation
 - ▶ 설치 단계별 설명
- ▶ Database 생성 및 활용
 - ▶ MySQL를 사용해서 생성, 수정 및 삭제
- ▶ 기본 SQL문

MySQL Server Installation

▶ MySQL 공식 홈페이지

▶ <https://dev.mysql.com/downloads/windows/installer/>

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◀ [MySQL Installer](#)

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MySQL Installer 8.0.23

Select Operating System:
Microsoft Windows ▼

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Windows (x86, 32-bit), MSI Installer (mysql-installer-web-community-8.0.23.0.msi)	8.0.23	2.4M	Download
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MySQL Server Installation

▶ Step 1 : 설치파일 다운로드

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MySQL Installer

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MySQL Installer 8.0.23

Select Operating System:
Microsoft Windows

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Windows (x86, 32-bit), MSI Installer (mysql-installer-web-community-8.0.23.0.msi)	8.0.23	2.4M	Download
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MD5: a3af6d91f93e046452b38a1e2589534c | [Signature](#)

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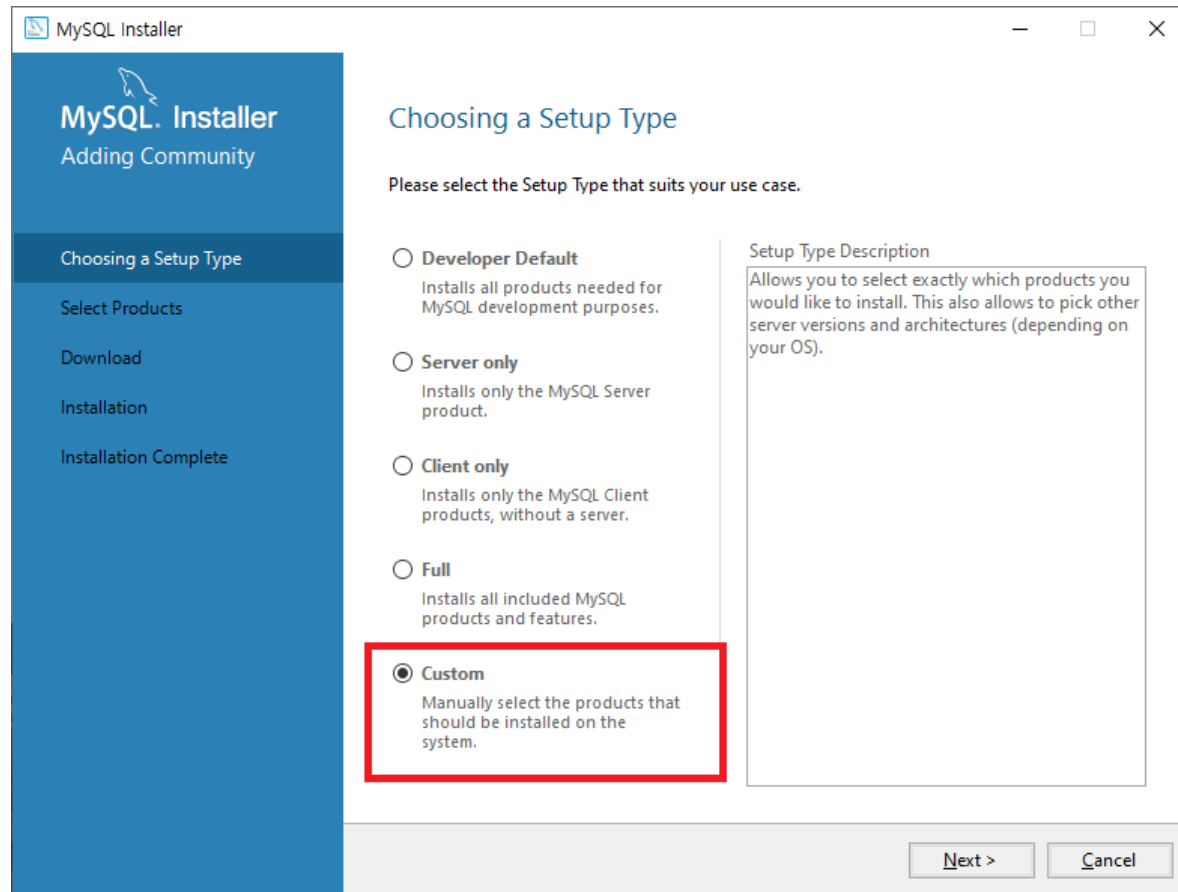
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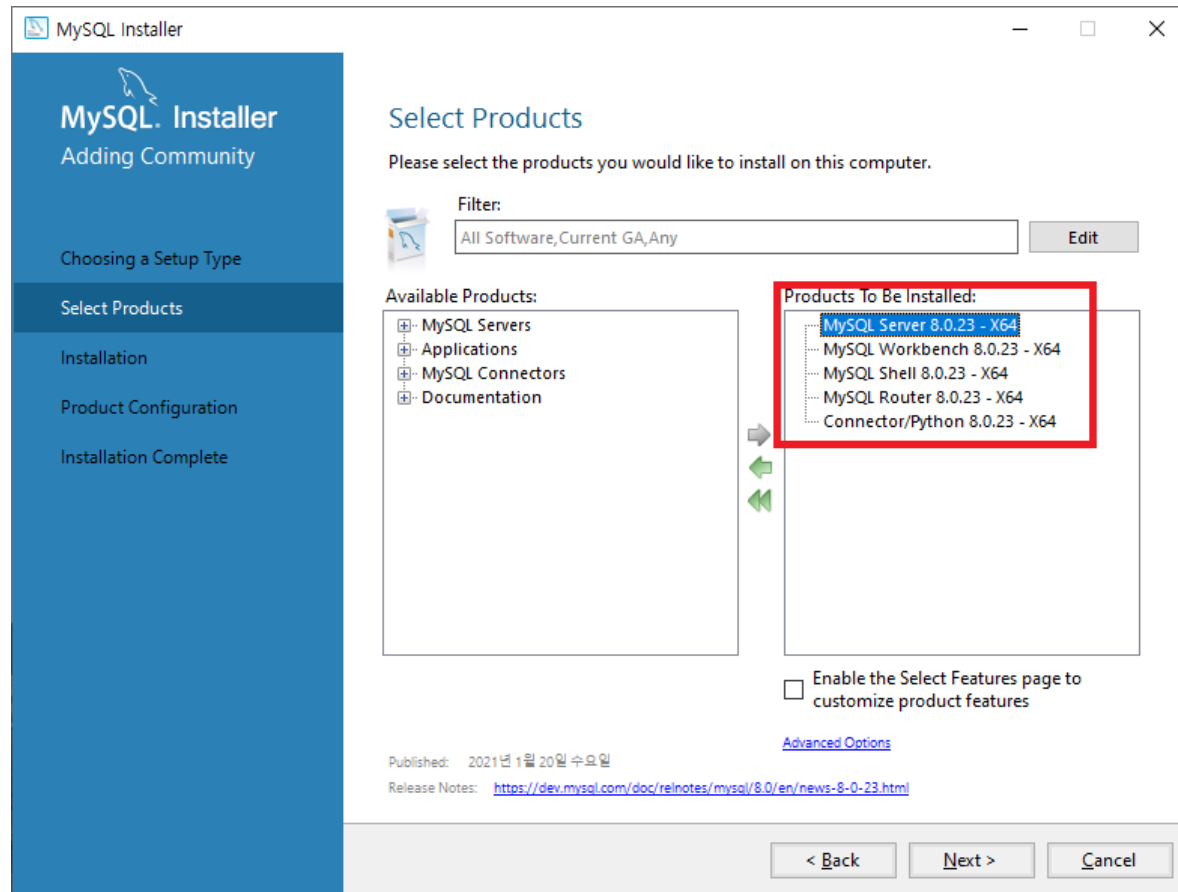
MySQL Server Installation

▶ Step 2 : Setup Type 선택



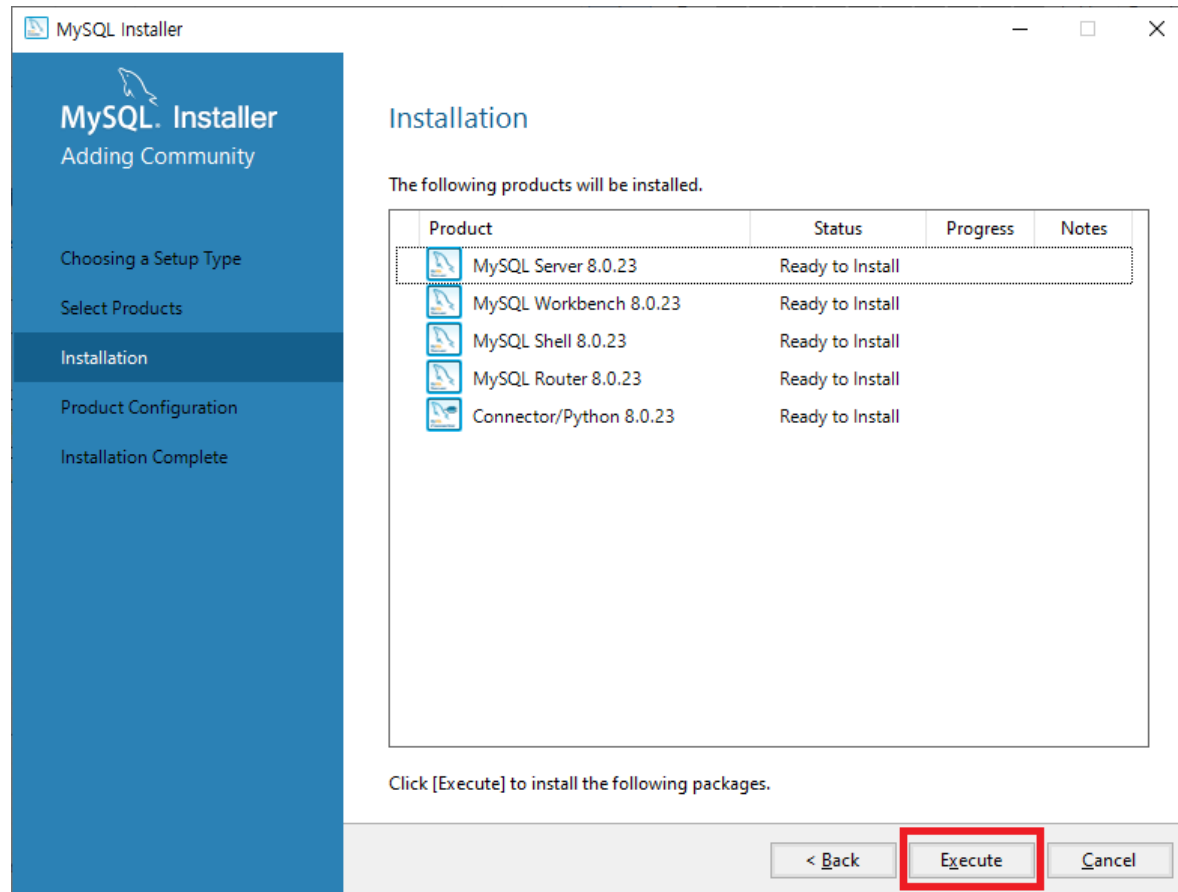
MySQL Server Installation

▶ Step 3 : Select Products



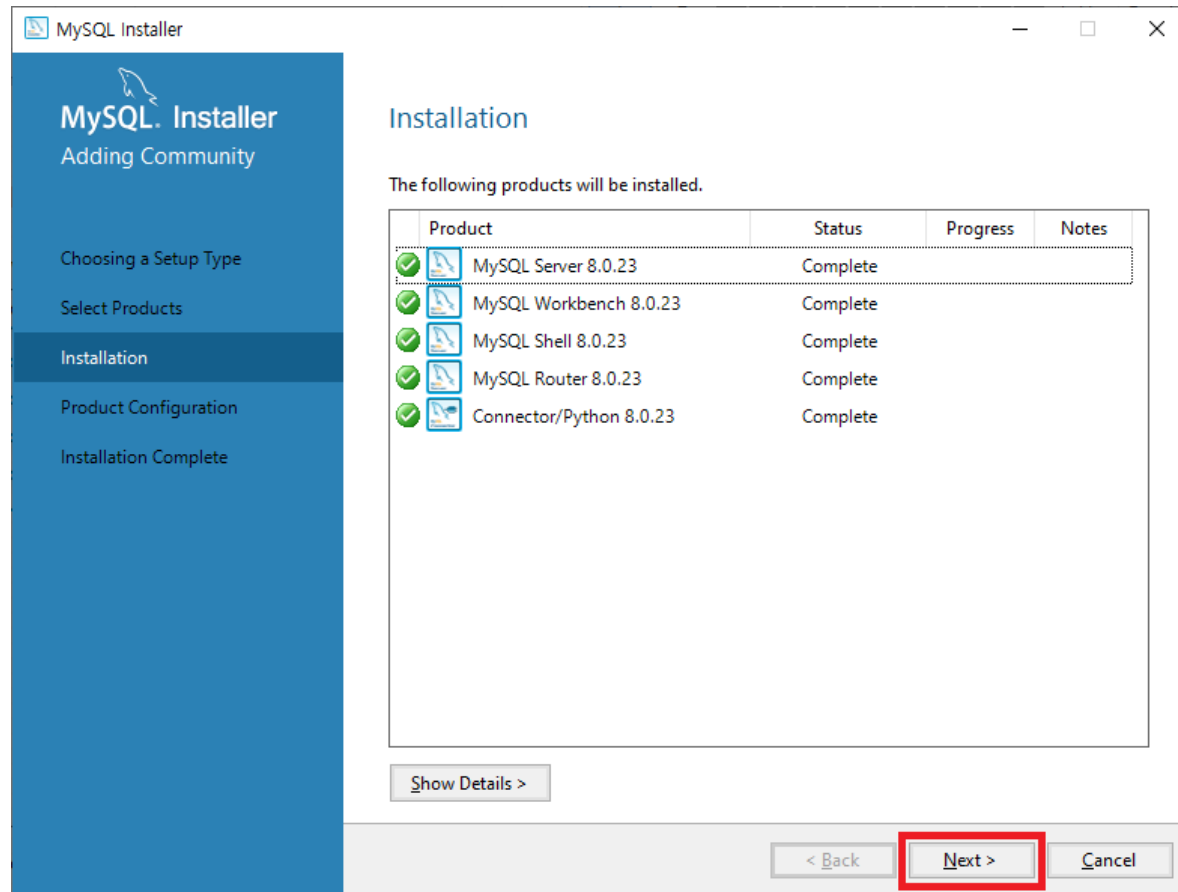
MySQL Server Installation

► Step 4 : Installation(1)



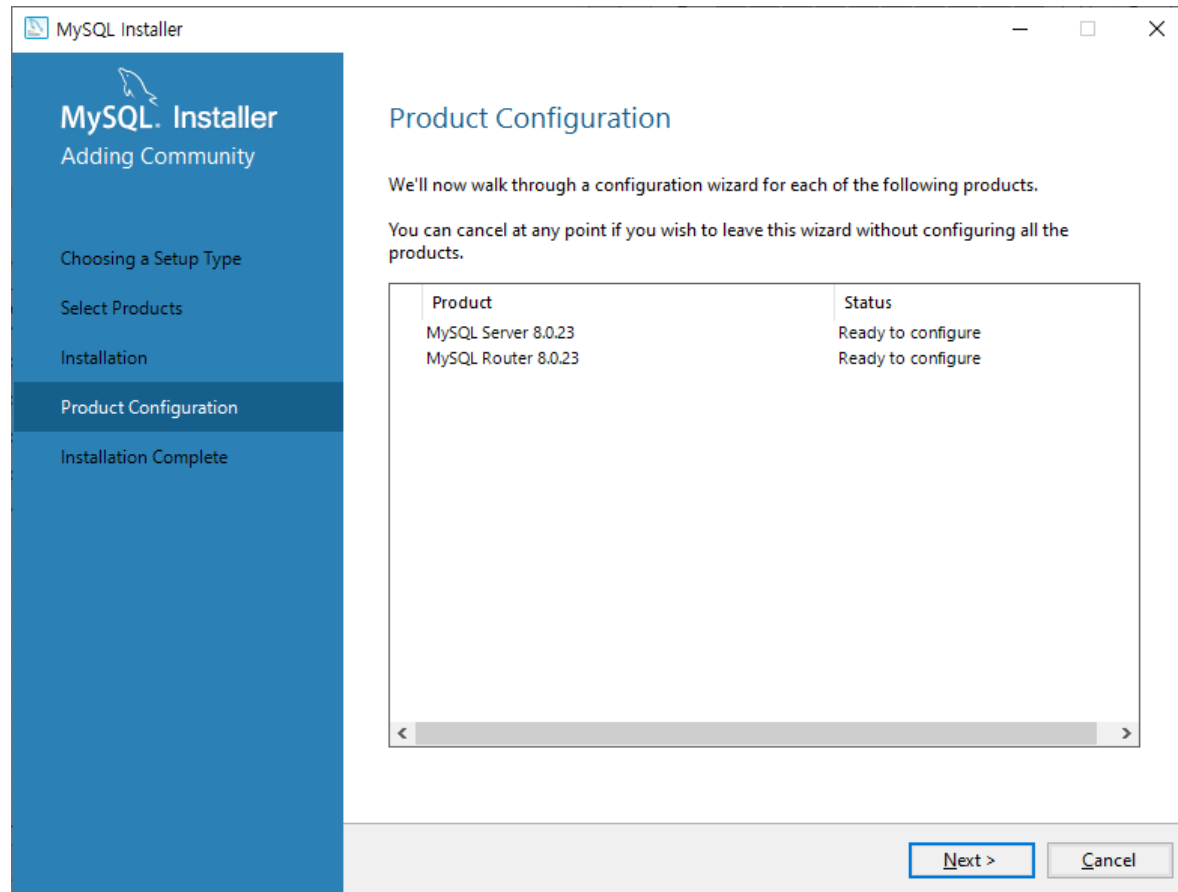
MySQL Server Installation

► Step 5 : Installation(2)



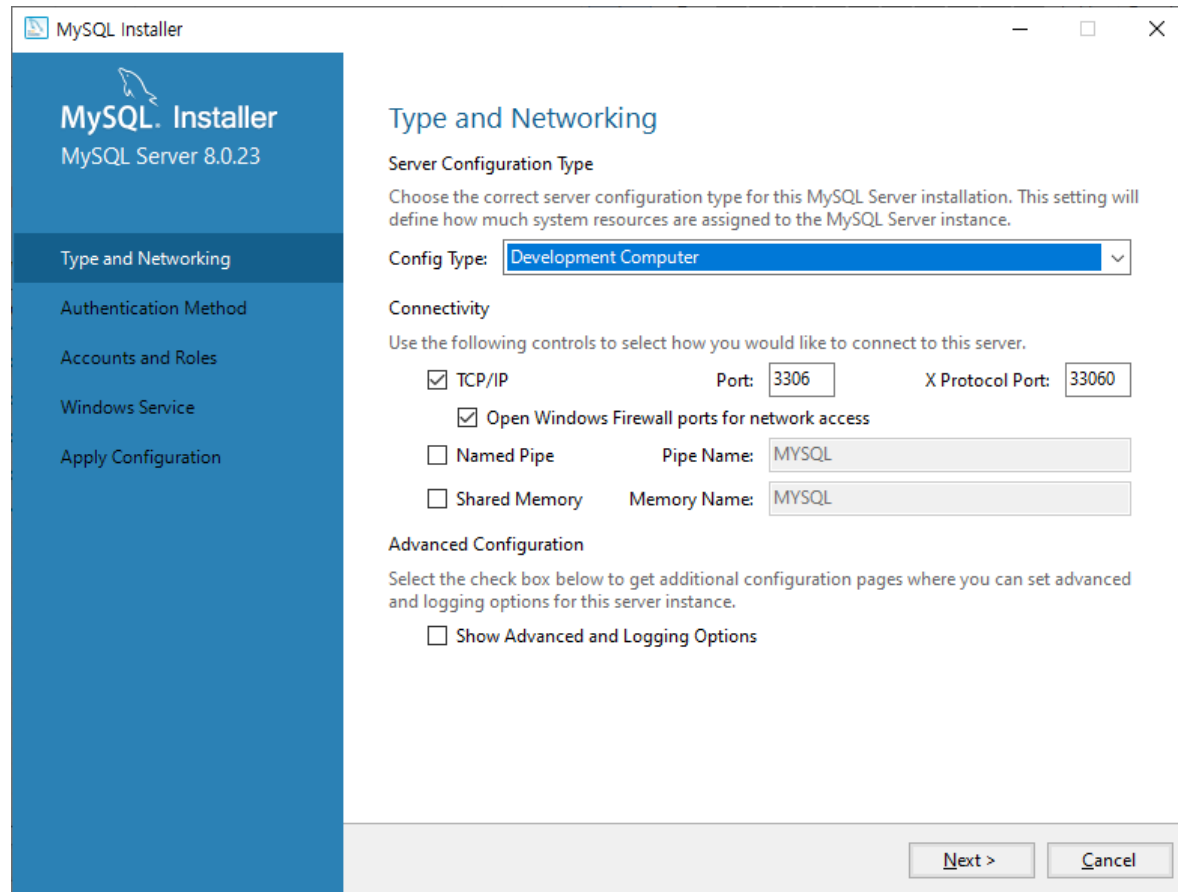
MySQL Server Installation

► Step 6 : Product Configuration (MySQL Server)



MySQL Server Installation

► Step 7 : Type and Networking Setting (MySQL Server)



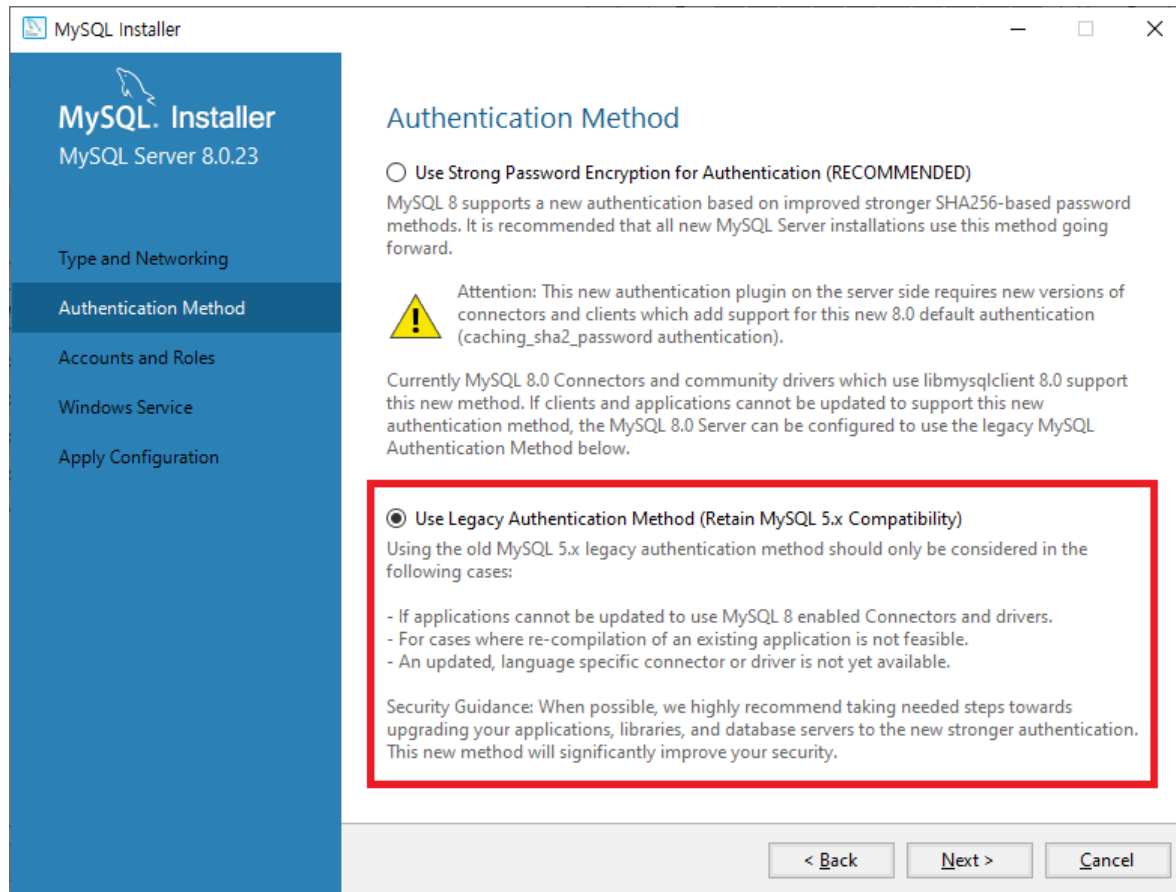
The screenshot shows the 'MySQL Installer' window for 'MySQL Server 8.0.23'. The left sidebar contains a list of configuration steps: 'Type and Networking' (selected), 'Authentication Method', 'Accounts and Roles', 'Windows Service', and 'Apply Configuration'. The main area is titled 'Type and Networking' and contains the following sections:

- Server Configuration Type**: A description stating that this setting defines how system resources are assigned. Below it, the 'Config Type' is set to 'Development Computer' in a dropdown menu.
- Connectivity**: A section with the instruction 'Use the following controls to select how you would like to connect to this server.' It includes:
 - ☒ TCP/IP: Port is 3306, X Protocol Port is 33060.
 - ☒ Open Windows Firewall ports for network access.
 - ☐ Named Pipe: Pipe Name is MYSQL.
 - ☐ Shared Memory: Memory Name is MYSQL.
- Advanced Configuration**: A section with the instruction 'Select the check box below to get additional configuration pages where you can set advanced and logging options for this server instance.' It includes:
 - ☐ Show Advanced and Logging Options.

At the bottom right, there are 'Next >' and 'Cancel' buttons.

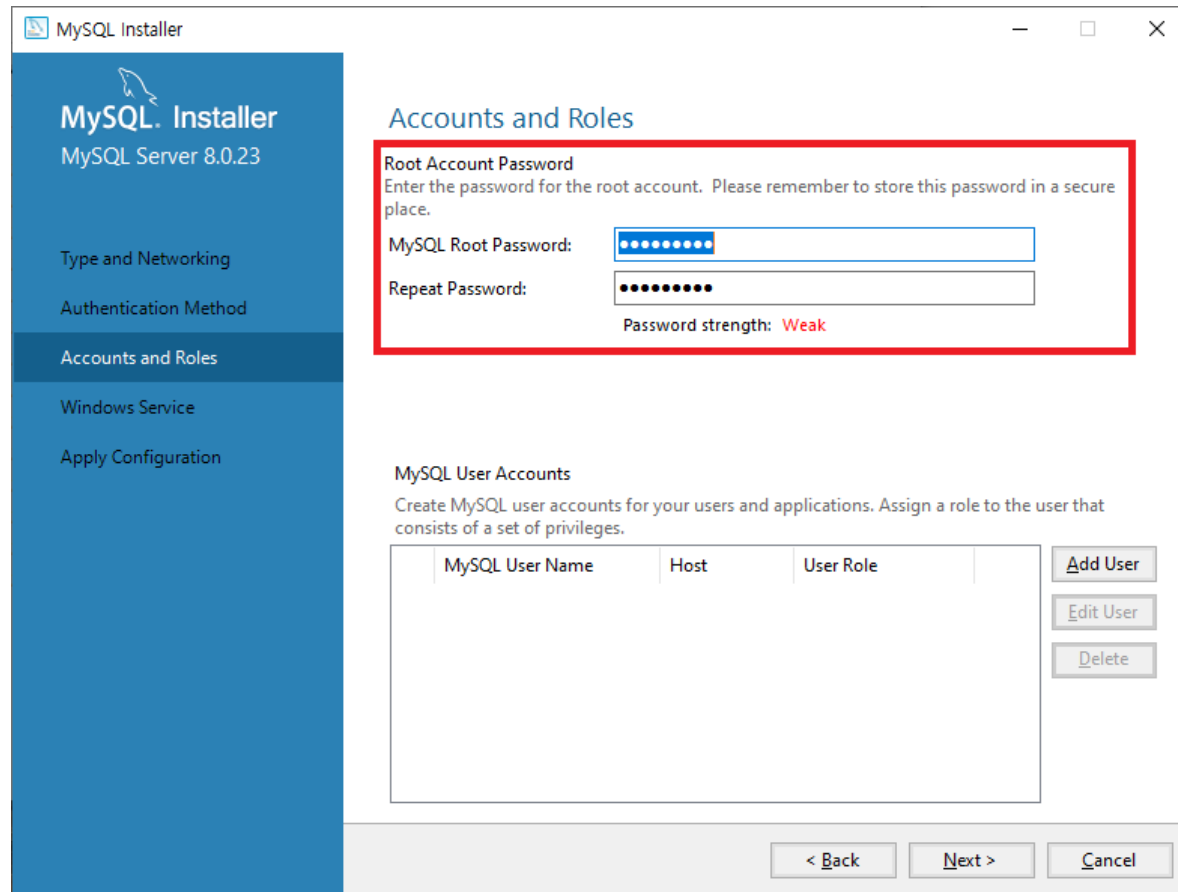
MySQL Server Installation

► Step 8 : Authentication Method Setting (MySQL Server)



MySQL Server Installation

▶ Step 9 : root 계정 비밀번호 설정 (MySQL Server)



The screenshot shows the MySQL Installer window for MySQL Server 8.0.23. The left sidebar contains the following navigation items: MySQL Installer, Type and Networking, Authentication Method, Accounts and Roles (highlighted), Windows Service, and Apply Configuration. The main area is titled 'Accounts and Roles' and contains two sections. The first section, 'Root Account Password', is highlighted with a red rectangle and contains the following text: 'Enter the password for the root account. Please remember to store this password in a secure place.' Below this text are two input fields: 'MySQL Root Password:' and 'Repeat Password:'. The 'MySQL Root Password' field contains a password represented by dots. The 'Repeat Password' field contains a password represented by dots. Below these fields, the text 'Password strength: Weak' is displayed. The second section, 'MySQL User Accounts', contains the text: 'Create MySQL user accounts for your users and applications. Assign a role to the user that consists of a set of privileges.' Below this text is a table with the following columns: 'MySQL User Name', 'Host', and 'User Role'. To the right of the table are three buttons: 'Add User', 'Edit User', and 'Delete'. At the bottom of the window are three buttons: '< Back', 'Next >', and 'Cancel'.

MySQL Installer

MySQL Server 8.0.23

Type and Networking

Authentication Method

Accounts and Roles

Windows Service

Apply Configuration

Accounts and Roles

Root Account Password
Enter the password for the root account. Please remember to store this password in a secure place.

MySQL Root Password:

Repeat Password:

Password strength: **Weak**

MySQL User Accounts
Create MySQL user accounts for your users and applications. Assign a role to the user that consists of a set of privileges.

MySQL User Name	Host	User Role
-----------------	------	-----------

Add User

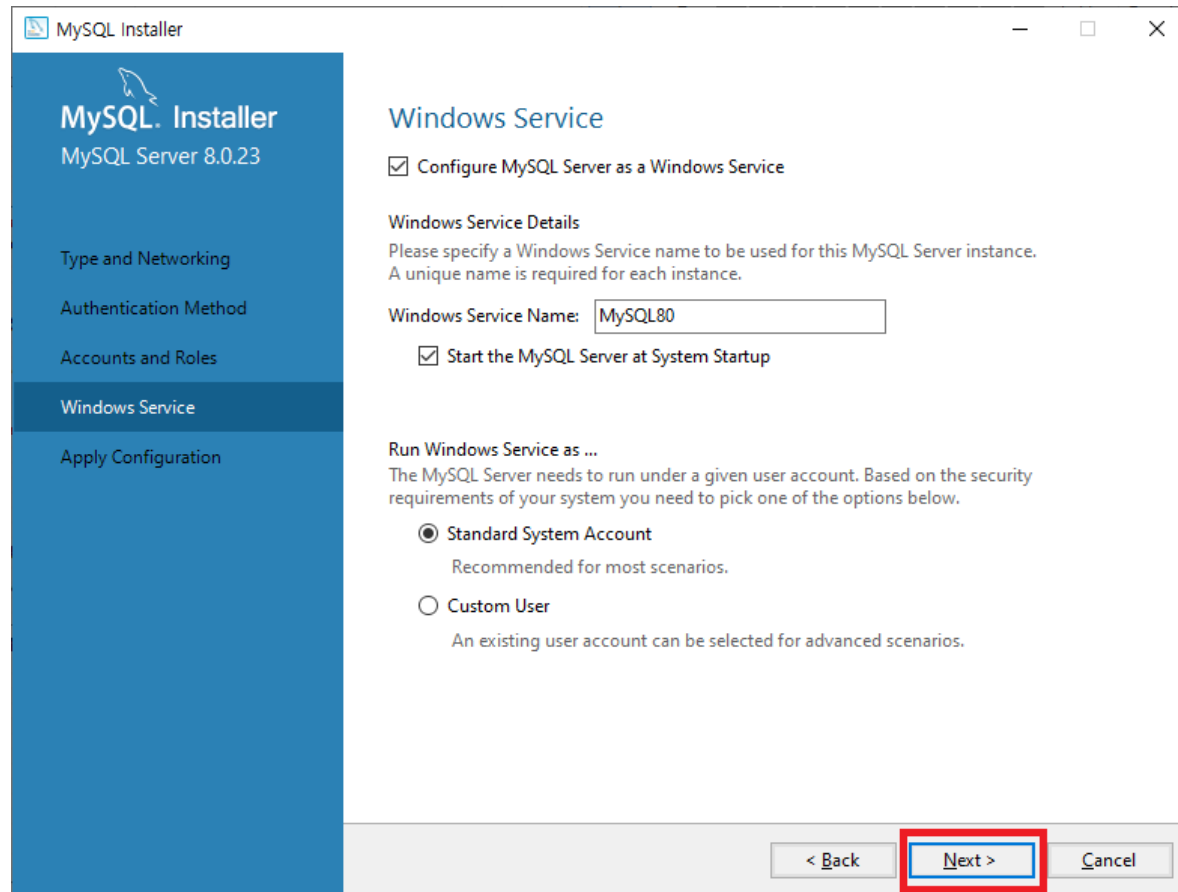
Edit User

Delete

< Back Next > Cancel

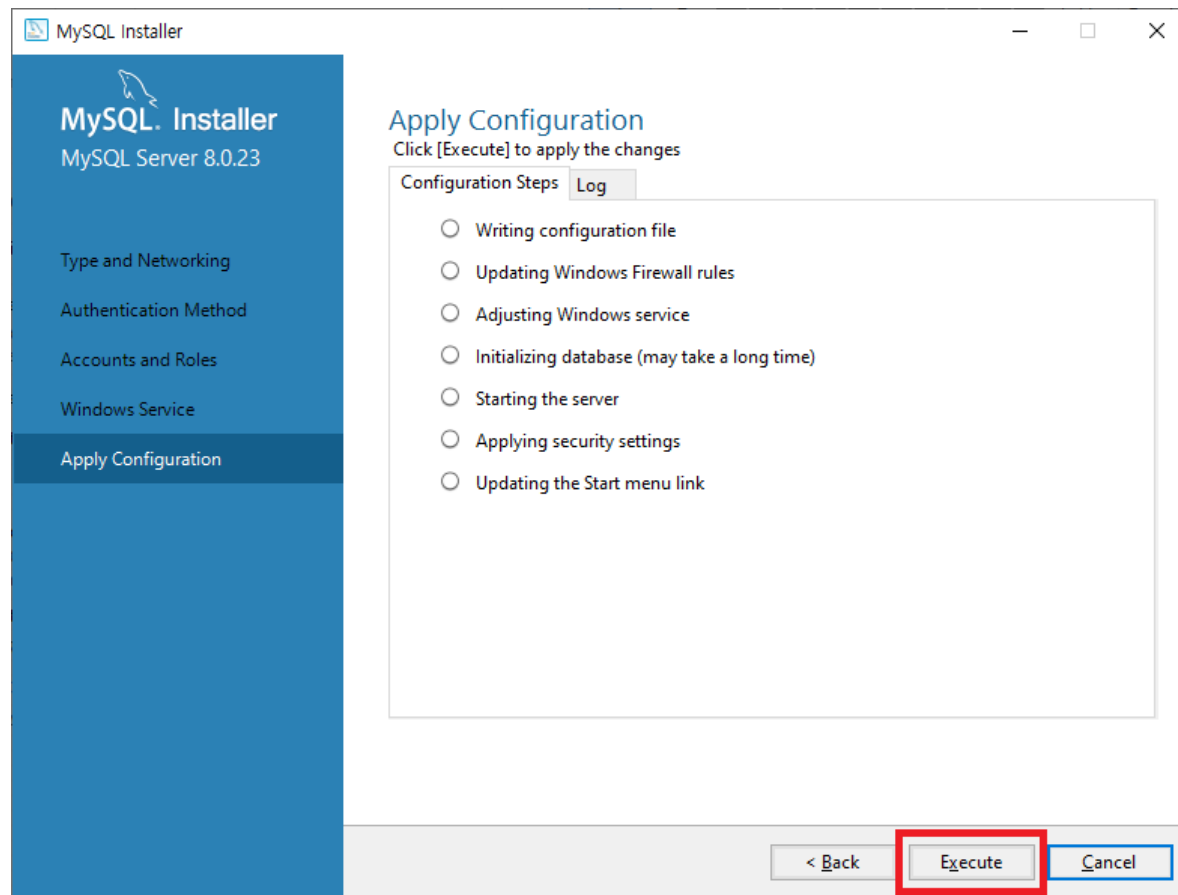
MySQL Server Installation

► Step 10 : Windows Service Setting (MySQL Server)



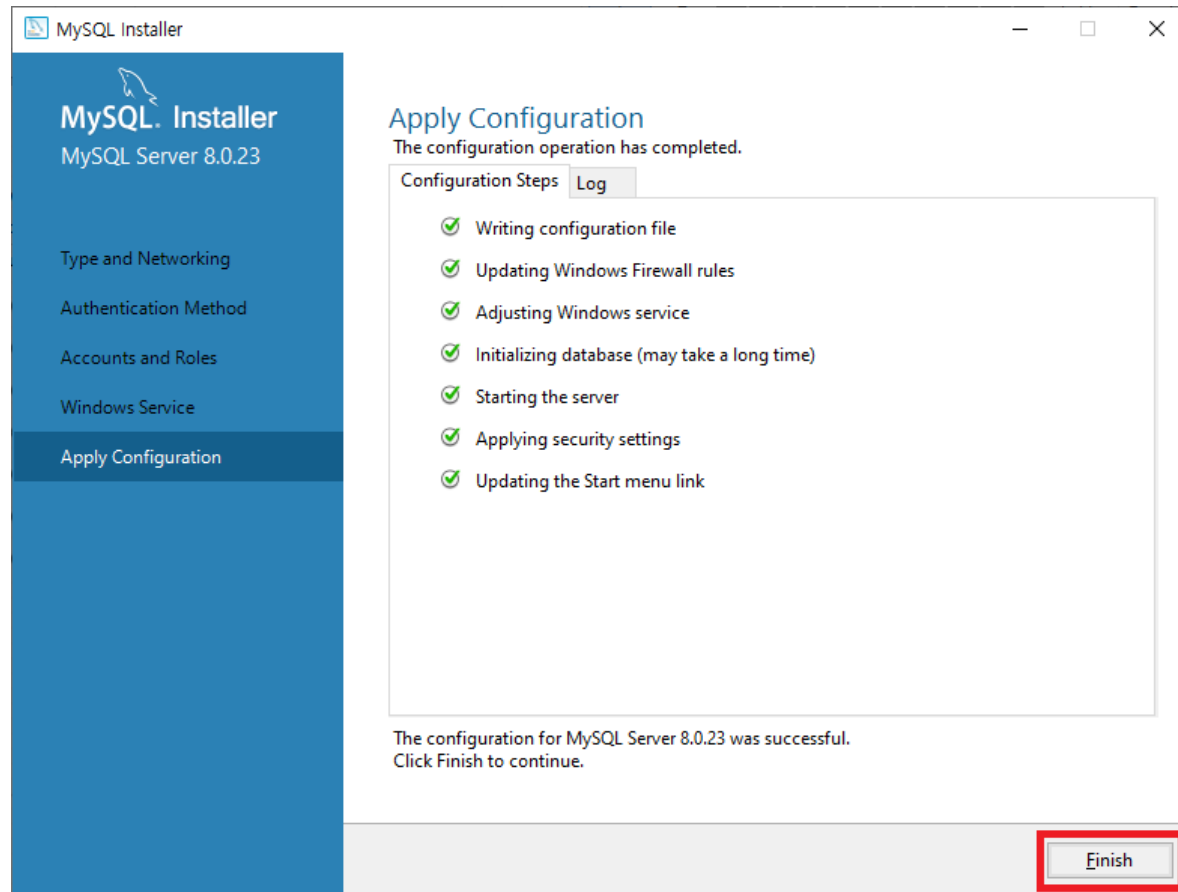
MySQL Server Installation

► Step 11 : Apply Configuration (MySQL Server)



MySQL Server Installation

► Step 12 : Configuration Finish (MySQL Server)



MySQL Server Installation

► Step 13 : Product Configuration (MySQL Router)

MySQL Installer

MySQL Router 8.0.23

MySQL Router Configuration

☐ Bootstrap MySQL Router for use with InnoDB cluster

This wizard can bootstrap MySQL Router to direct traffic between MySQL applications and a MySQL InnoDB cluster. Applications that connect to the router will be automatically directed to an available read/write or read-only member of the cluster.

The bootstrapping process requires a connection to the InnoDB cluster. In order to register the MySQL Router for monitoring, use the current Read/Write instance of the cluster.

Hostname:

Port:

Management User:

Password:

Test Connection

MySQL Router requires specification of a base port (between 80 and 65532). The first port is used for classic read/write connections. The other ports are computed sequentially after the first port. If any port is indicated to be in use, please change the base port.

Classic MySQL protocol connections to InnoDB cluster:

Read/Write:

Read Only:

MySQL X protocol connections to InnoDB cluster:

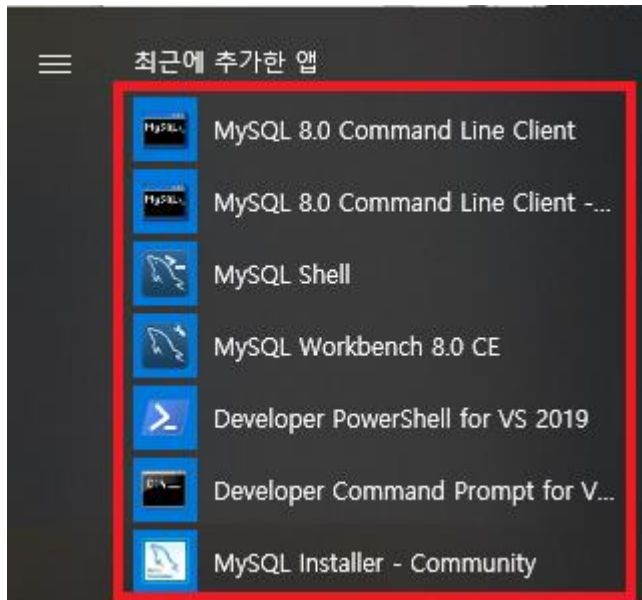
Read/Write:

Read Only:

Finish Cancel

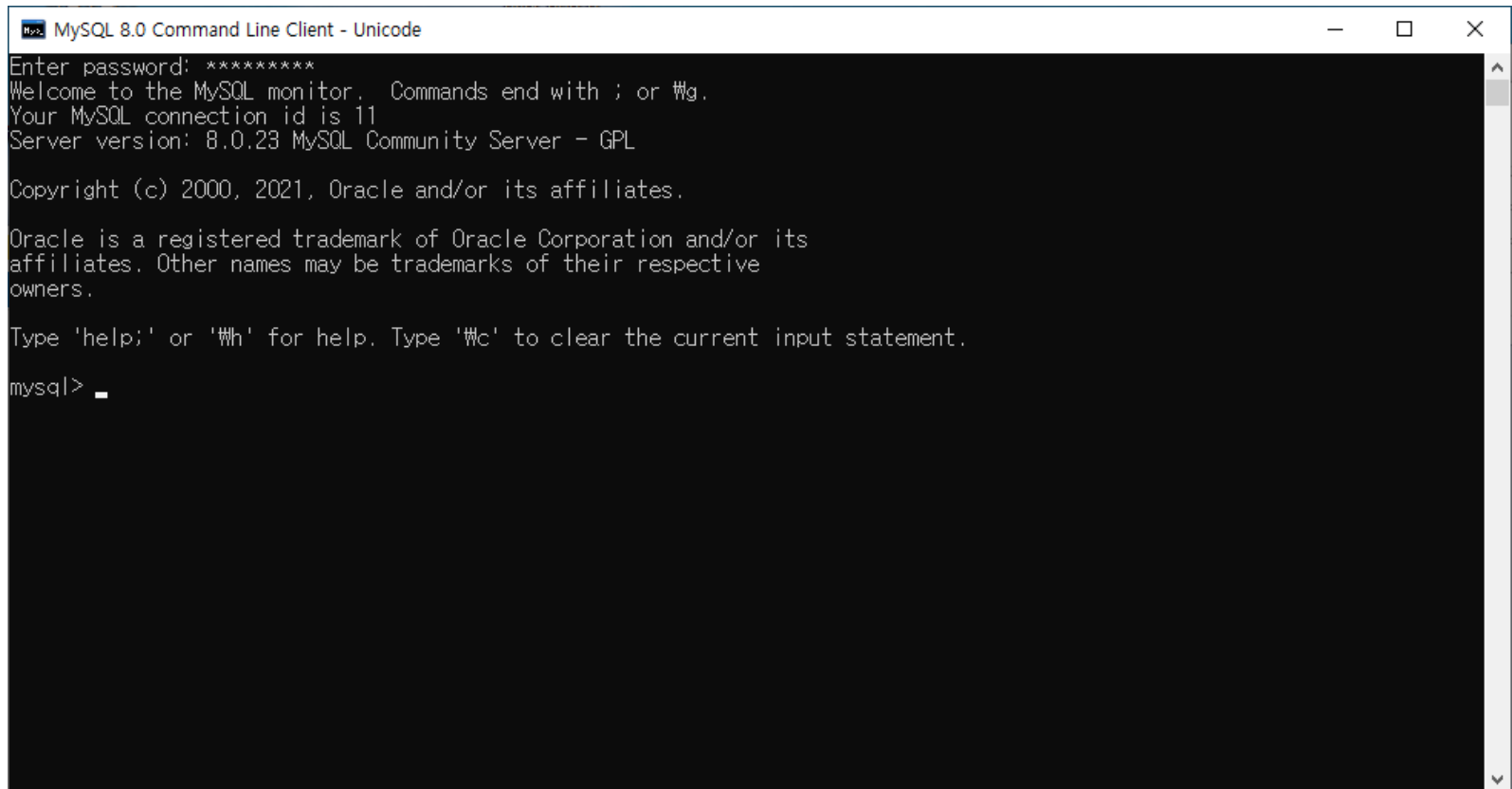
MySQL Server Installation

▶ Step 14 : MySQL 설치 확인



MySQL Server Installation

▶ Step 15 : MySQL Command 실행



```
MySQL 8.0 Command Line Client - Unicode
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 11
Server version: 8.0.23 MySQL Community Server - GPL

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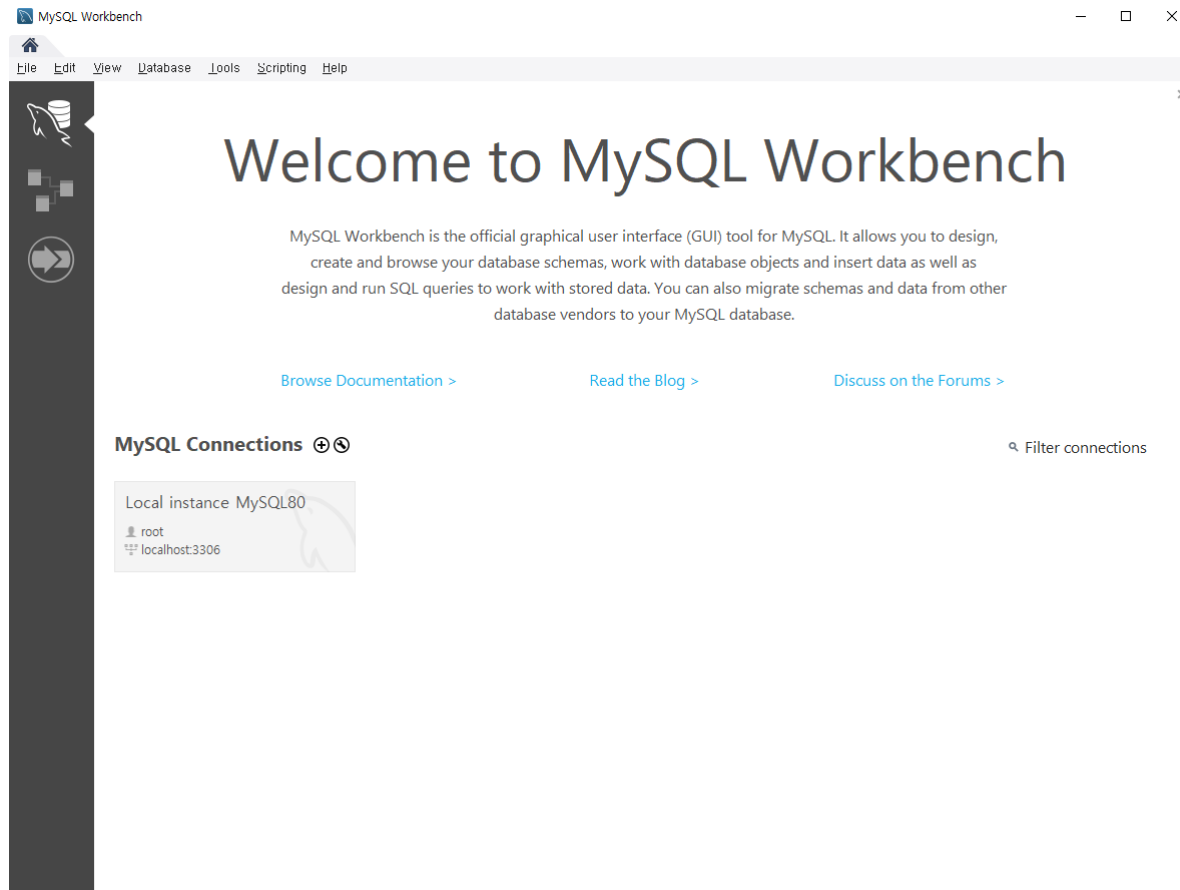
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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> _
```

MySQL Server Installation

▶ Step 16 : MySQL Workbench 실행



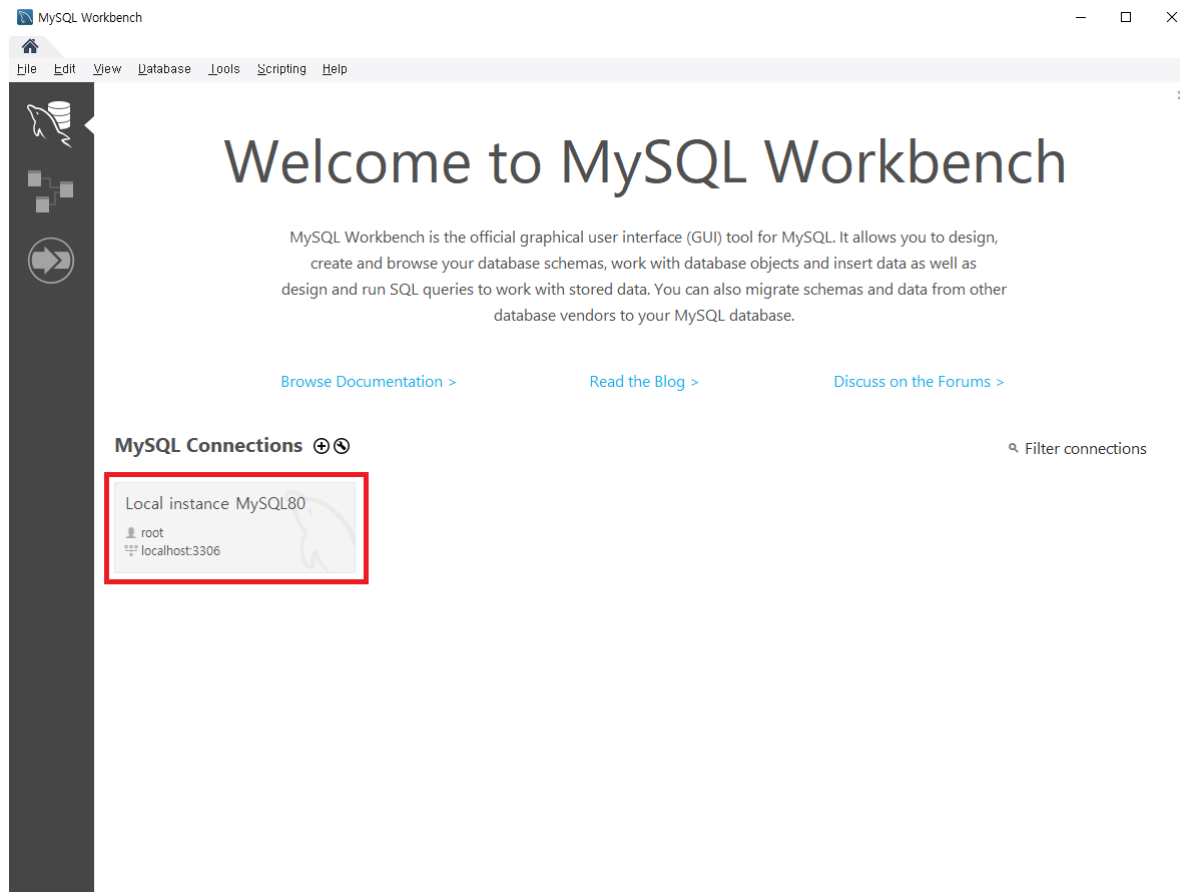
DataBase 생성 및 활용

- ▶ DB

- ▶ SSMS를 사용하여 생성, 수정 및 삭제

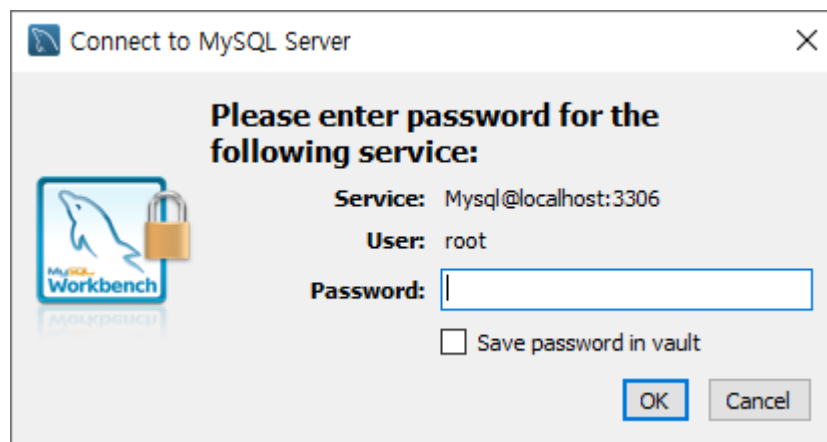
DataBase 생성 및 활용

▶ MySQL Workbench 실행



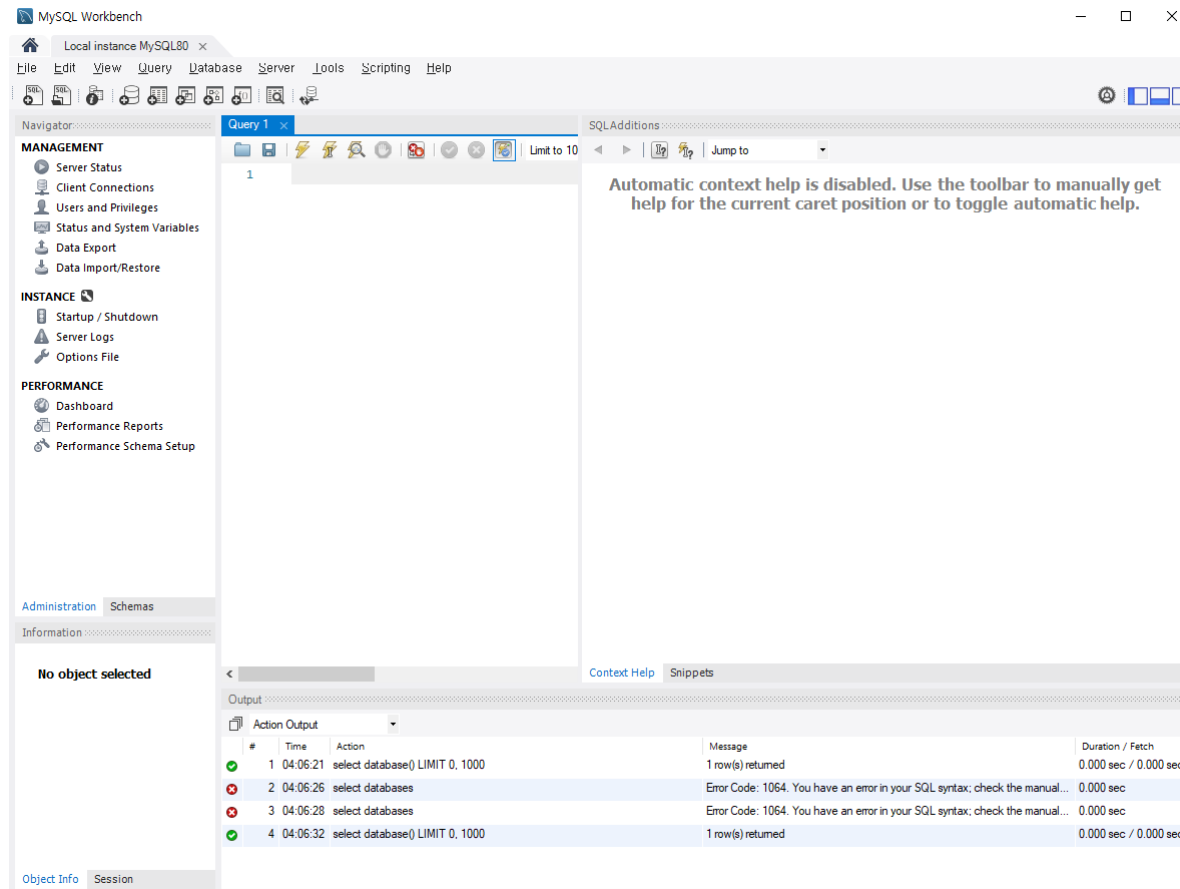
DataBase 생성 및 활용

- ▶ MySQL Server 접속
- ▶ Password : 설치 시 설정한 root 계정 비밀번호



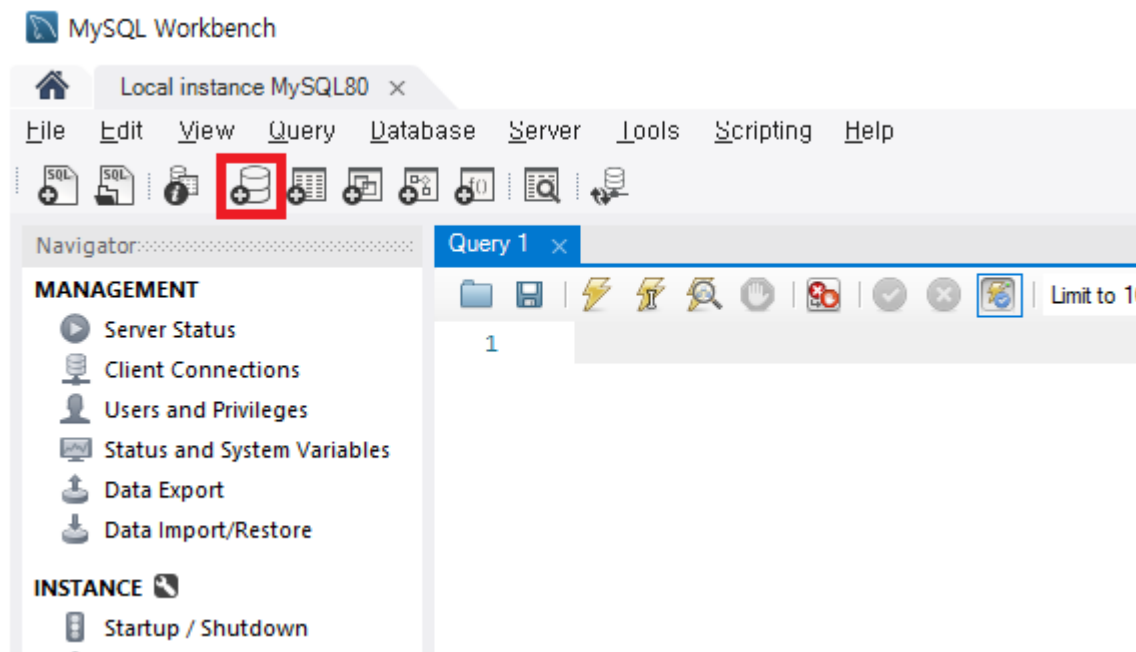
DataBase 생성 및 활용

▶ MySQL Workbench



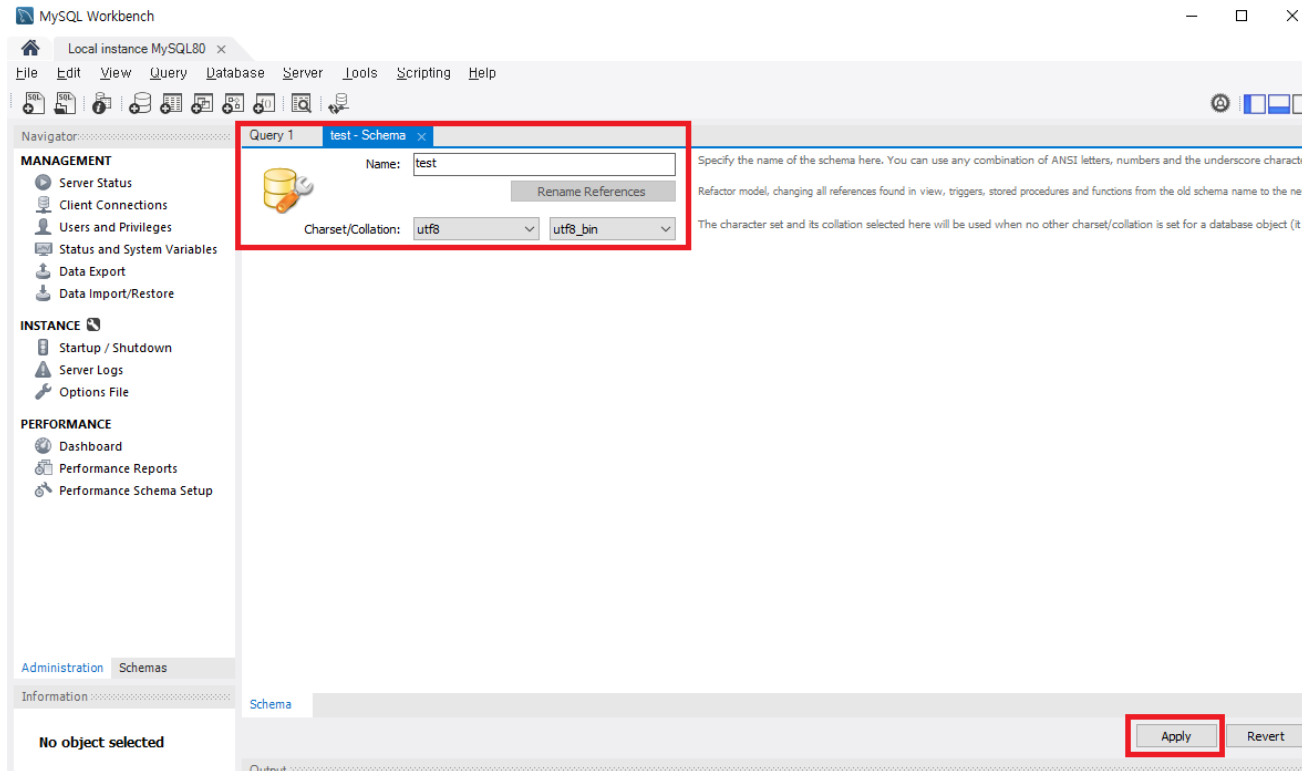
DataBase 생성 및 활용

▶ MySQL Workbench를 이용한 DB 생성하기 (1/3)



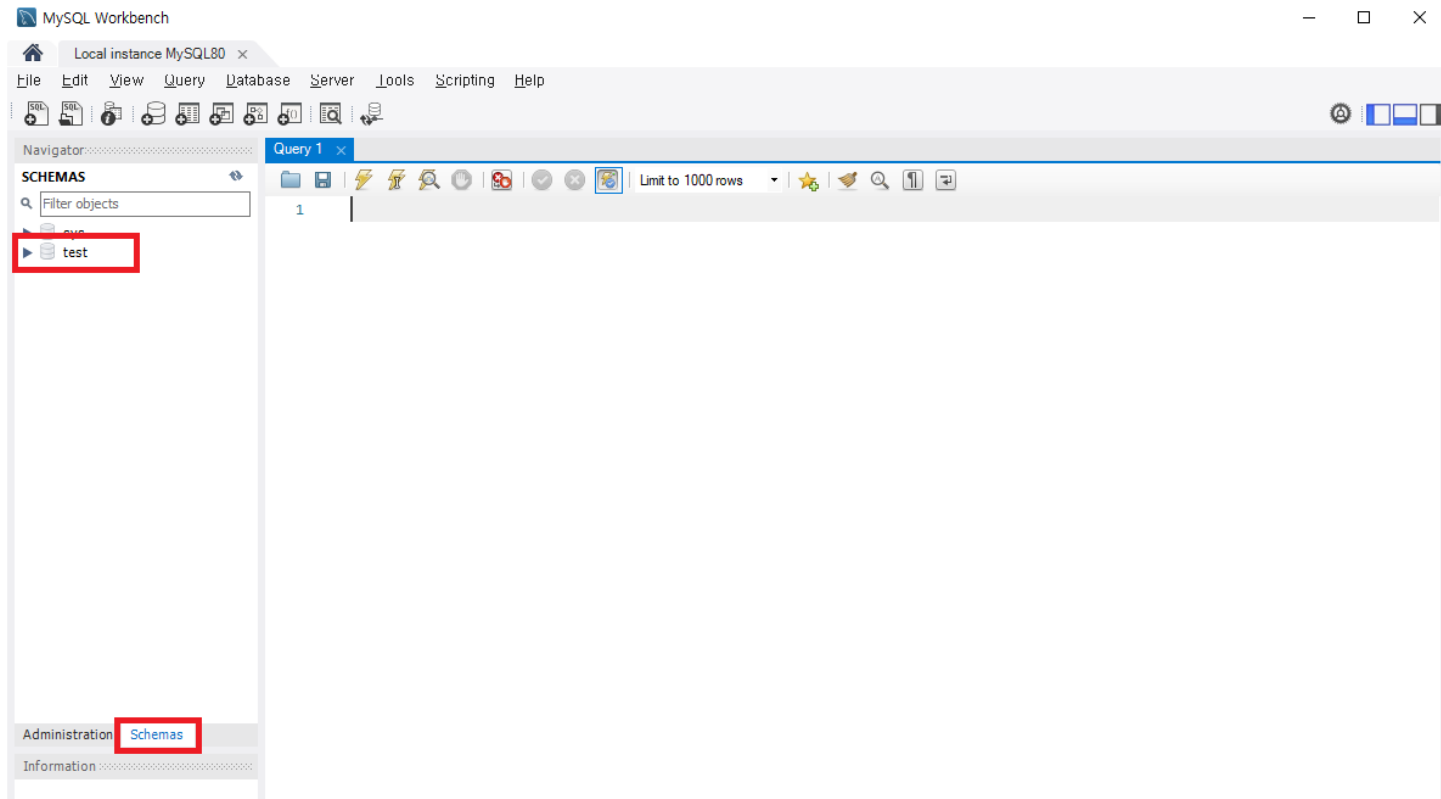
DataBase 생성 및 활용

- ▶ MySQL Workbench를 이용한 DB 생성하기 (2/3)
 - ▶ 생성할 데이터베이스 이름과 Charset/Collation 설정
 - ▶ Charset/Collation은 utf8/utf8_bin 으로 설정



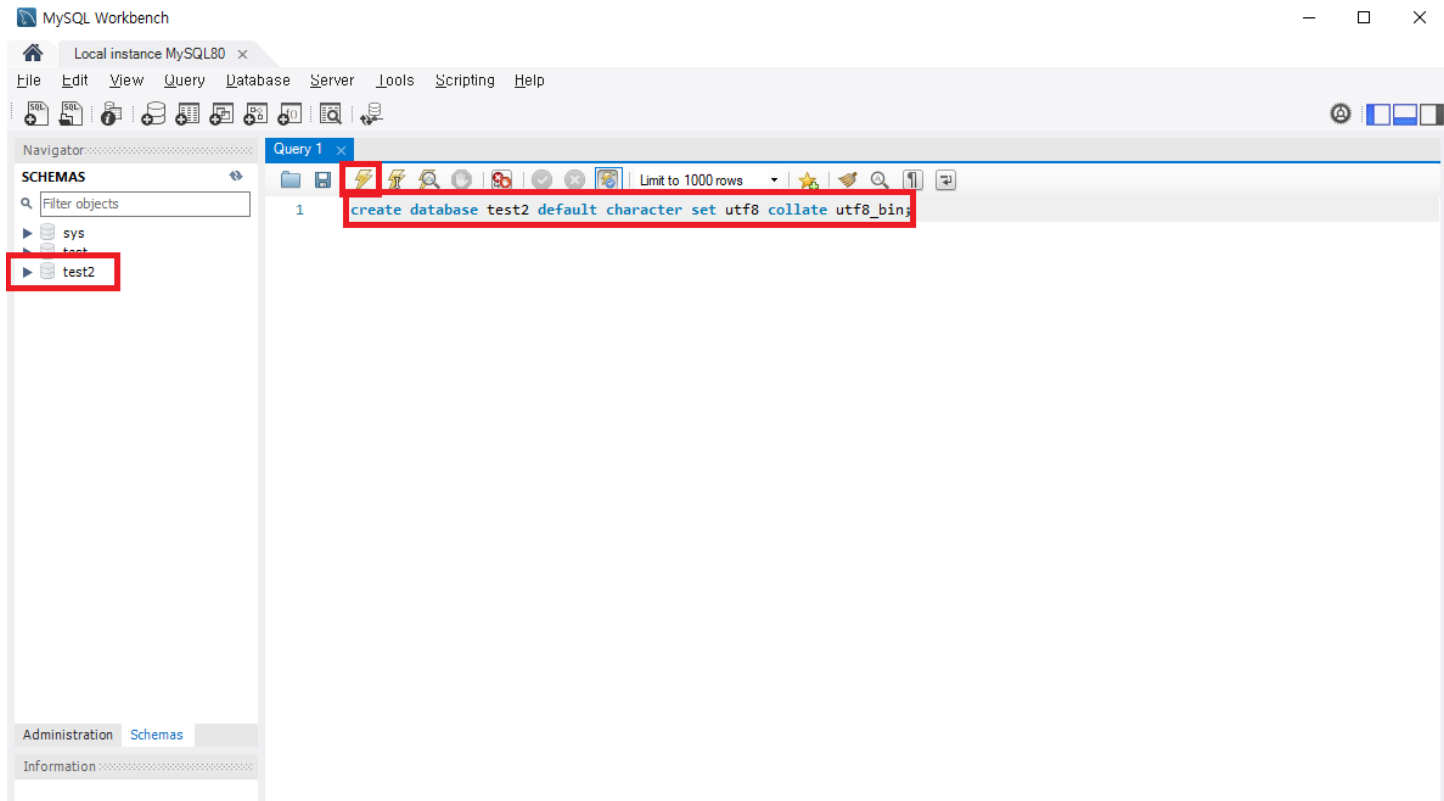
DataBase 생성 및 활용

- ▶ MySQL Workbench를 이용한 DB 생성하기 (3/3)
 - ▶ DB 생성 확인



DataBase 생성 및 활용

▶ SQL Query를 이용한 DB 생성하기



기본 SQL문

명령어 종류	명령어	설명
데이터 정의어 (DML : Data Manipulation Language)	CREATE ALTER DROP	테이블과 같은 데이터 구조를 정의하는데 사용되는 명령어
데이터 제어어 (DCL : Data Control Language)	GRANT REVOKE	데이터베이스에 접근하고 객체들을 사용하도록 권한을 설정하는 명령어
데이터 조작어 (DDL : Data Definition Language)	SELECT	데이터베이스에 들어있는 데이터를 조회 및 검색하는 명령어
	INSERT UPDATE DELETE	데이터베이스의 데이터에 변형을 가하는 명령어

데이터 정의를어 (Data Definition Language, DDL)

- ▶ 테이블과 같은 데이터 구조를 정의하는데 사용되는 언어
- ▶ 객체의 생성, 변경, 삭제

명령어	기능
CREATE	Schema, Domain, Table, View, Index를 정의
ALTER	Table에 대한 정의를 변경하는 데 사용함
DROP	Schema, Domain, Table, View, Index를 삭제

데이터 정의어 (Data Definition Language, DDL)

▶ CREATE 문

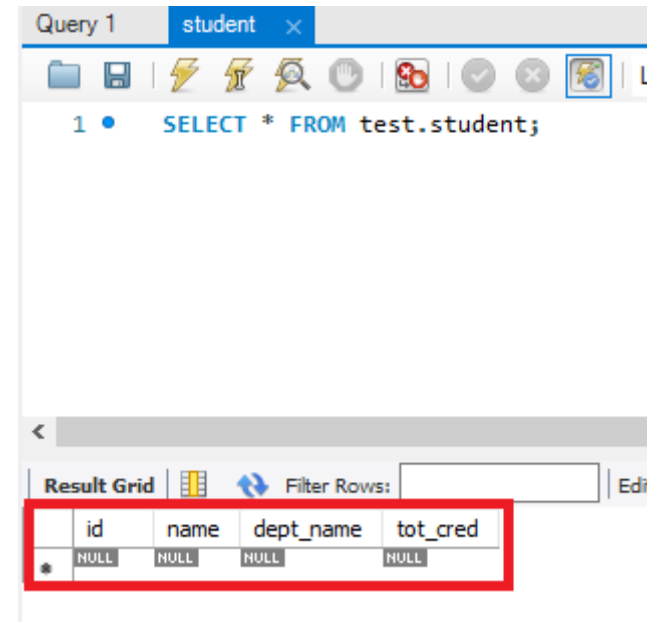
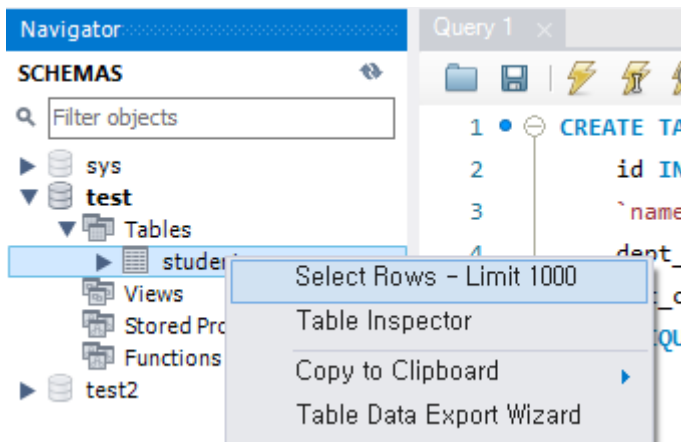
- ▶ 데이터베이스의 정보를 검색하고 수정하기 이전에 해야 할 일이 이러한 정보를 저장하는 개체를 만드는 일

```
CREATE TABLE [테이블명](  
    [컬럼명1] [데이터타입],  
    [컬럼명2] [데이터타입] [NULL/NOT NULL],  
    [PRIMARY KEY([컬럼명1], [컬럼명2] ...),  
    UNIQUE([컬럼명1], [컬럼명2] ...),  
    FOREIGN KEY([컬럼명1], [컬럼명2] ...),  
    REFERENCE 기본테이블 [()]]  
... );
```

데이터 정의를어 (Data Definition Language, DDL)

▶ CREATE 문 (테이블 생성, 데이터 입력)

```
Query 1 x
1 CREATE TABLE student (
2     id INT NOT NULL PRIMARY KEY,
3     `name` VARCHAR(10) NOT NULL,
4     dept_name VARCHAR(20) NOT NULL,
5     tot_cred INT NULL,
6     UNIQUE(`name`)
7 );
```



데이터 정의어 (Data Definition Language, DDL)

- ▶ ALTER 문 – column 추가
 - ▶ 생성된 개체를 수정할 때 사용되는 DDL 문

```
ALTER TABLE [테이블명]
```

```
(ADD [추가할 컬럼명], [데이터 타입], [NULL or NOT NULL]);
```

- ▶ DROP 문
 - ▶ 생성된 테이블을 삭제하는데 사용

```
DROP TABLE [테이블명]
```


데이터 정의를어 (Data Definition Language, DDL)

- ▶ ALTER 문 – column 추가
 - ▶ 생성된 개체를 수정할 때 사용되는 DDL 문

```
Query 1 x
1 • ALTER TABLE student ADD e_mail VARCHAR(200);
2 • ALTER TABLE student ADD homepage VARCHAR(200);
3
```

Query 1 student x

```
1 • SELECT * FROM test.student;
```

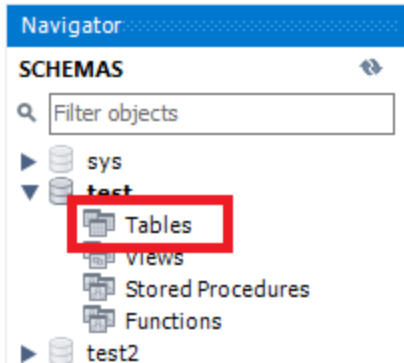
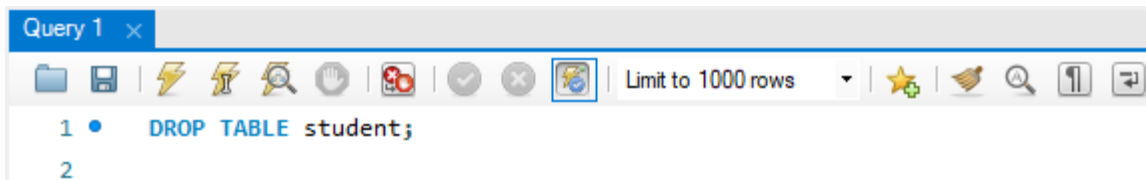
Result Grid

	id	name	dept_name	tot_cred	e_mail	homepage
*	NULL	NULL	NULL	NULL	NULL	NULL

데이터 정의를어 (Data Definition Language, DDL)

▶ DROP 문

- ▶ 생성된 테이블을 삭제하는데 사용



데이터 제어어 (Data Control Language, DCL)

- ▶ 데이터베이스에 접근하고 객체들을 사용하도록 권한을 주고 회수하는 언어

명령어	기능
GRANT	사용자로부터 객체들에게 접근을 허용
REVOKE	사용자로부터 객체들에게 접근을 거부

데이터 제어어 (Data Control Language, DCL)

▶ GRANT 문

- ▶ 테이블이나 뷰 등에 대해 접근권한을 설정하는 DCL 문

```
GRANT [INSERT, UPDATE, DELETE] ON [테이블명] TO [사용자명];
```

▶ REVOKE 문

- ▶ 테이블이나 뷰 등에 대해 접근권한을 해제하는 DCL 문

```
REVOKE [INSERT, UPDATE, DELETE] ON [테이블명] FROM [사용자명];
```

데이터 조작용어 (Data Manipulation Language, DML)

- ▶ 적절한 데이터 모델로 구축된 데이터를 액세스 하고 조작하기 위한 언어
- ▶ Table, Index, View, Stored Procedure 등과 같은 데이터베이스의 개체들을 생성, 수정, 삭제하는데 사용된다.

명령어	기능
SELECT	테이블에서 조건에 맞는 개체를 검색
INSERT	테이블에서 새로운 개체를 삽입
DELETE	테이블에서 조건에 맞는 개체를 삭제
UPDATE	테이블에서 조건에 맞는 개체를 내용을 변경

데이터 조작용어 (Data Manipulation Language, DML)

▶ SELECT 문

- ▶ 테이블이나 뷰에서 데이터 검색 시 사용
- ▶ Keyword : SELECT, FROM, WHERE 등

```
SELECT [컬럼명1], [컬럼명2] ... FROM [테이블명] WHERE [조건];
```

▶ INSERT 문

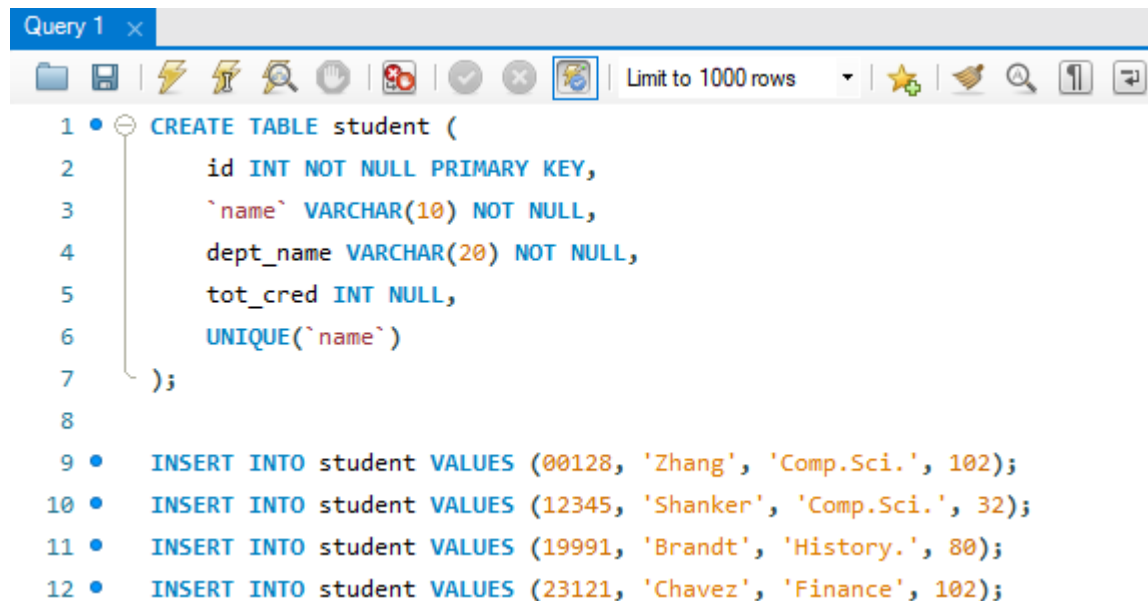
- ▶ 테이블에 데이터를 추가할 때 사용

```
INSERT INTO [테이블명] (컬럼1, 컬럼2 ...)  
VALUES ([컬럼1값, 컬럼2값 ...]);
```

데이터 조작용어 (Data Manipulation Language, DML)

▶ INSERT 문

- ▶ 테이블에 데이터를 추가할 때 사용



```
Query 1 x
Limit to 1000 rows

1 • CREATE TABLE student (
2   id INT NOT NULL PRIMARY KEY,
3   `name` VARCHAR(10) NOT NULL,
4   dept_name VARCHAR(20) NOT NULL,
5   tot_cred INT NULL,
6   UNIQUE(`name`)
7 );
8
9 • INSERT INTO student VALUES (00128, 'Zhang', 'Comp.Sci.', 102);
10 • INSERT INTO student VALUES (12345, 'Shanker', 'Comp.Sci.', 32);
11 • INSERT INTO student VALUES (19991, 'Brandt', 'History.', 80);
12 • INSERT INTO student VALUES (23121, 'Chavez', 'Finance', 102);
```

데이터 조작용어 (Data Manipulation Language, DML)

▶ SELECT 문

- ▶ 테이블이나 뷰에서 데이터 검색 시 사용
- ▶ Keyword : SELECT, FROM, WHERE 등

The screenshot shows a database query editor window. At the top, there's a tab labeled 'Query 1' and 'student'. Below the tab is a toolbar with various icons. The main area contains the SQL query: `1 • SELECT * FROM test.student;`. Below the query, there's a 'Result Grid' section. It has a toolbar with icons for 'Filter Rows', 'Edit', 'Export/Import', and 'Wrap Cell Content'. The grid displays the following data:

	id	name	dept_name	tot_cred
▶	128	Zhang	Comp.Sci.	102
	12345	Shanker	Comp.Sci.	32
	19991	Brandt	History.	80
	23121	Chavez	Finance	102
*	NULL	NULL	NULL	NULL

데이터 조작용어 (Data Manipulation Language, DML)

▶ DELETE 문

- ▶ 테이블에 데이터를 삭제할 때 사용

```
DELETE [테이블명] WHERE [조건];
```

▶ UPDATE 문

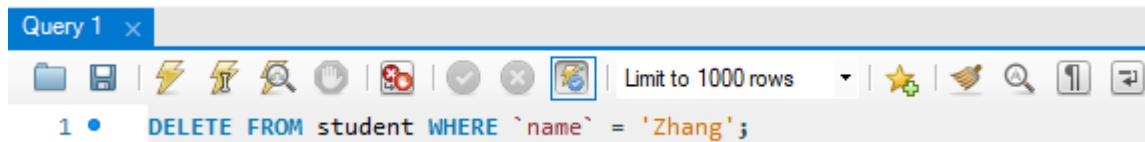
- ▶ 테이블이나 뷰의 특정 데이터를 수정 할 때 사용

```
UPDATE [테이블명]  
SET [컬럼명1] = [변경값1], [컬럼명2] = [변경값2], ...  
WHERE [조건];
```

데이터 조작용어 (Data Manipulation Language, DML)

▶ DELETE 문

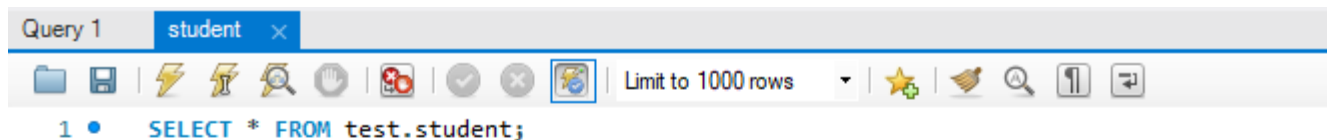
▶ 테이블에 데이터를 삭제할 때 사용



Query 1 x

Limit to 1000 rows

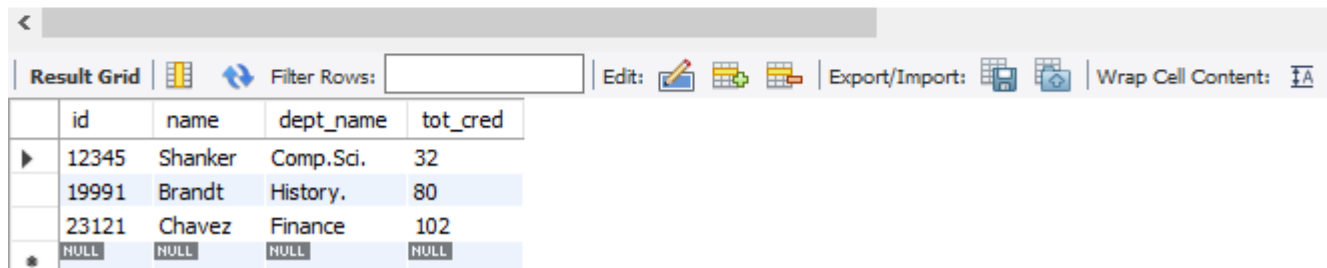
```
1 • DELETE FROM student WHERE `name` = 'Zhang';
```



Query 1 student x

Limit to 1000 rows

```
1 • SELECT * FROM test.student;
```



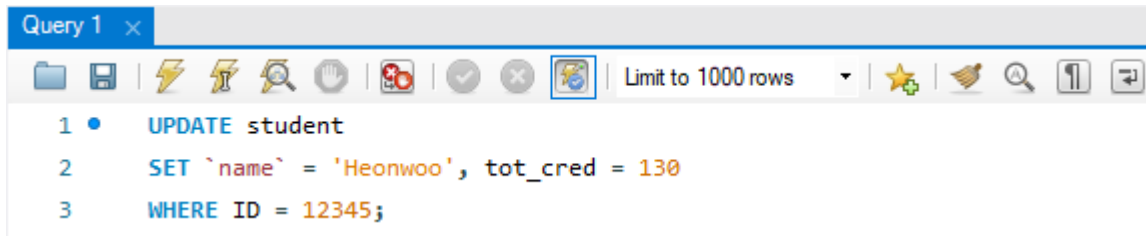
Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: |

	id	name	dept_name	tot_cred
▶	12345	Shanker	Comp.Sci.	32
	19991	Brandt	History.	80
	23121	Chavez	Finance	102
*	NULL	NULL	NULL	NULL

데이터 조작용어 (Data Manipulation Language, DML)

▶ UPDATE 문

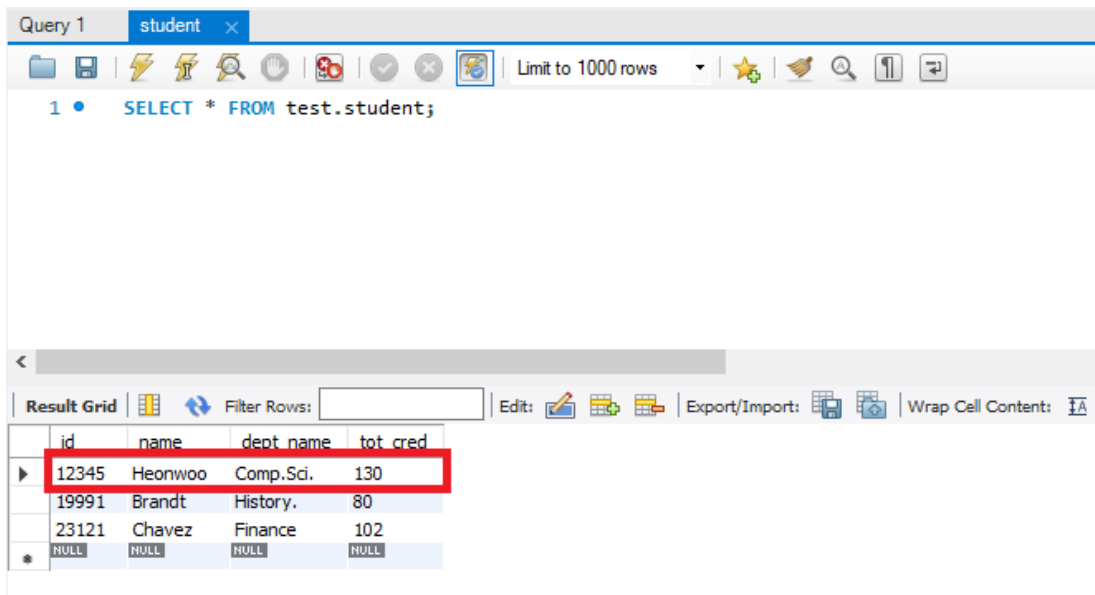
- ▶ 테이블이나 뷰의 특정 데이터를 수정 할 때 사용



Query 1 x

Limit to 1000 rows

```
1 • UPDATE student
2   SET `name` = 'Heonwoo', tot_cred = 130
3   WHERE ID = 12345;
```



Query 1 student x

Limit to 1000 rows

```
1 • SELECT * FROM test.student;
```

Result Grid

	id	name	dept name	tot_cred
▶	12345	Heonwoo	Comp.Sci.	130
	19991	Brandt	History.	80
	23121	Chavez	Finance	102
*	NULL	NULL	NULL	NULL