

# SQL

한기용

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# What is Relational Database?

- In simplest terms, a relational database is one that presents information in tables with rows and columns
  - Row is sometimes called record
  - Column is sometimes called field

# Different Kinds of Relational Databases

- Most popular one is MySQL
  - Open source!
- PostgreSQL is also popular
- Oracle is another one (but very expensive)

# Structure of Relational Database

- Most Relational Database has a few layers of hierarchy:
  - The top level is called database
  - The next level is table
- Table is the one with structure
  - It is defined with a list of fields (columns) and their types
  - Each table is composed of a list of records (rows)

# What is SQL?

- SQL was originally developed in IBM
- This is a language you can use to work with data in relational Database
- There are two parts
  - DDL: Data Definition Language
  - DML: Data Manipulation Language

# Some SQL examples - DDL

- There are three kinds:
  - Create
    - Creating an object in the database such as table
  - Alter
    - Changing the structure of an object in the database such as adding a new field to a table
  - Drop
    - Deleting an object in the database

# Some SQL examples - Create

```
create table users (  
    id int,  
    firstname varchar(32),  
    last_name varchar(32),  
    created timestamp  
);
```



# Some SQL examples - Alter

alter table users rename firstname to  
first\_name;

- You can run “describe” to see how the table’s schema looks like
  - Schema means definition of a table

# Some SQL examples - Drop

drop table users;

- If you want to delete all records from a table while keeping it still (just empty table), then there can be two ways:
  - truncate table users;
  - delete from users;

# Some SQL examples - DML

- This is to run certain queries to get what you want.
- INSERT
- UPDATE
- SELECT
  - JOIN
- DELETE

# Some SQL examples - INSERT

- This is to add new records to a table after the table is created

```
INSERT INTO table_name
```

```
VALUES (value1, value2, value3, ...);
```

# Some SQL examples - UPDATE

- This is to change values of certain fields in a records in a table

UPDATE table\_name

SET column1=value1, column2=value2, ...

WHERE some\_column=some\_value;

# Some SQL examples - SELECT

- This is the most commonly used SQL statement
- `SELECT [field_list] FROM table_name;`
- `SELECT * FROM users WHERE last_name = 'kim' LIMIT 10;`

# Some SQL examples - DELETE

- Deleting records from a table

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