

lab slide 1

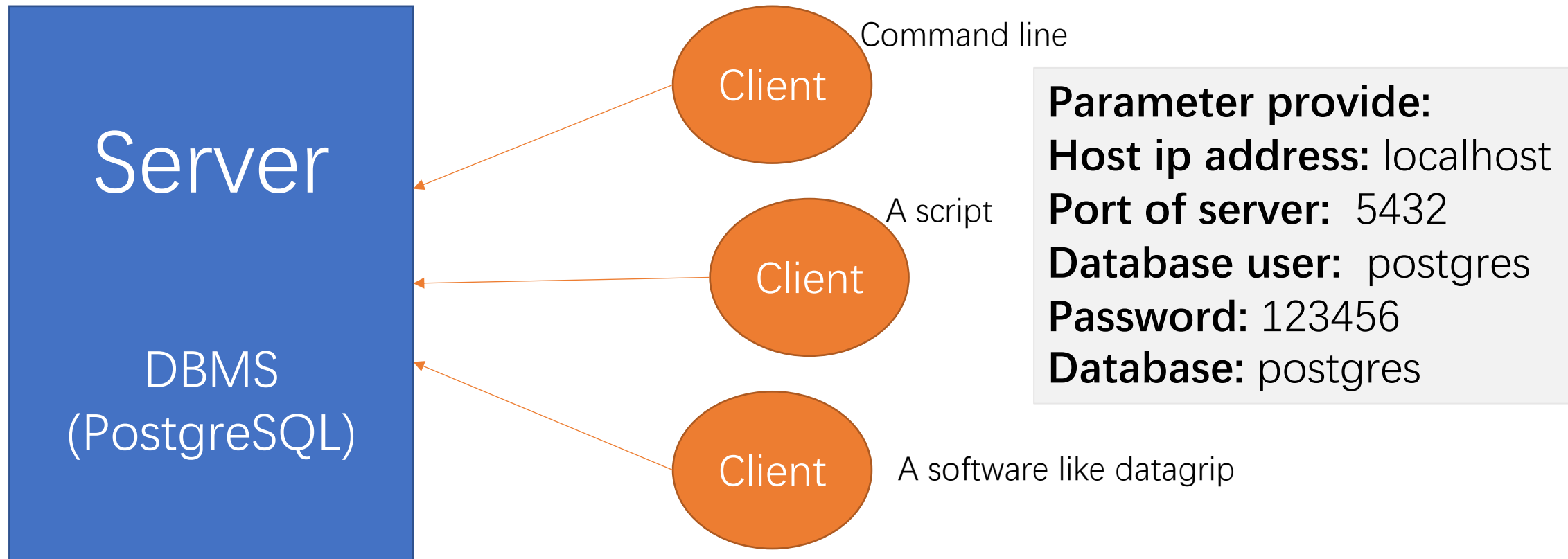
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What is DBMS(Database management System)

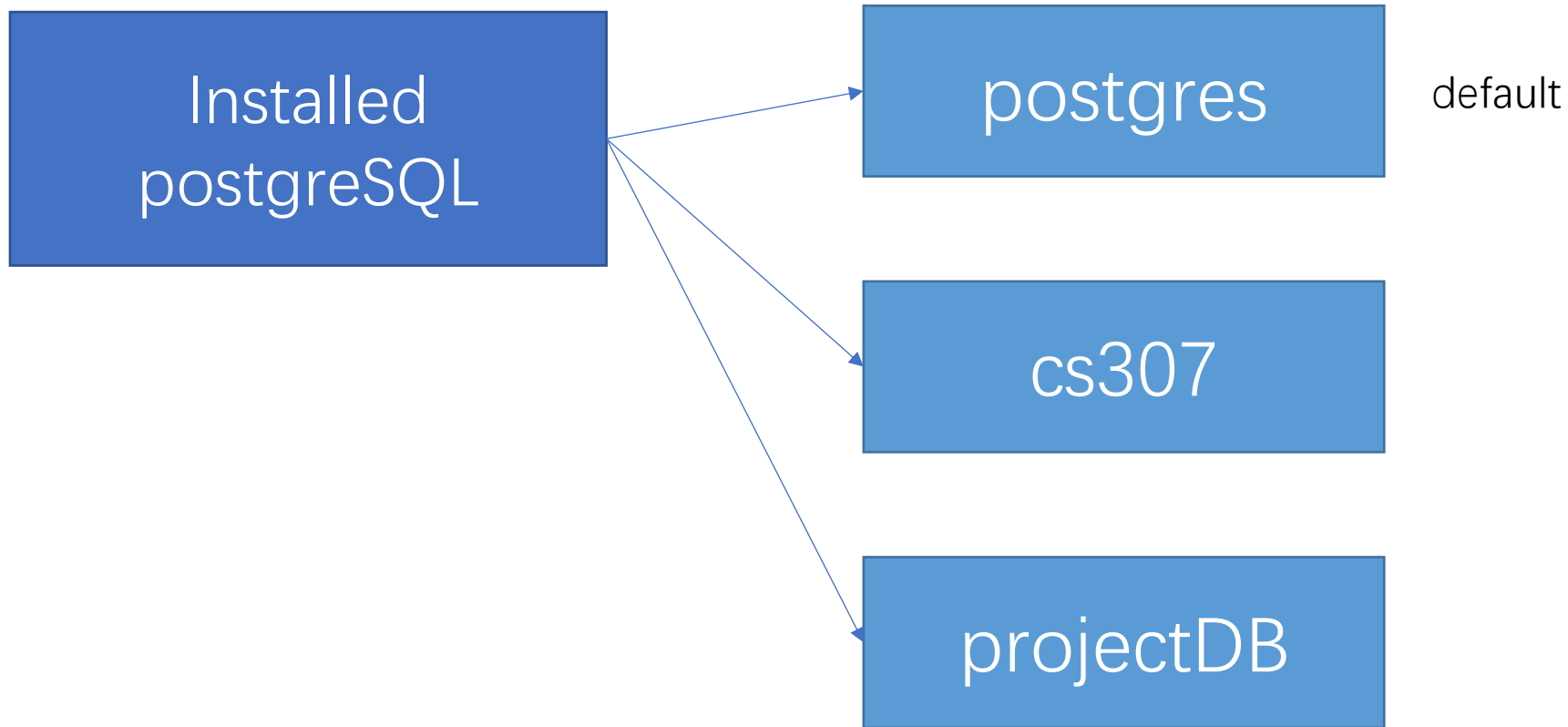
A software named PostgreSQL

- Data Definition language. (DDL)
 - Create and define the database structure
- Data manipulation language. (DML)
 - Insert, update, delete and select data.
- Management and control the database.
 - Multi-user, transaction, log management.
- Visiting control management.
- Etc.

The relationship between server and client

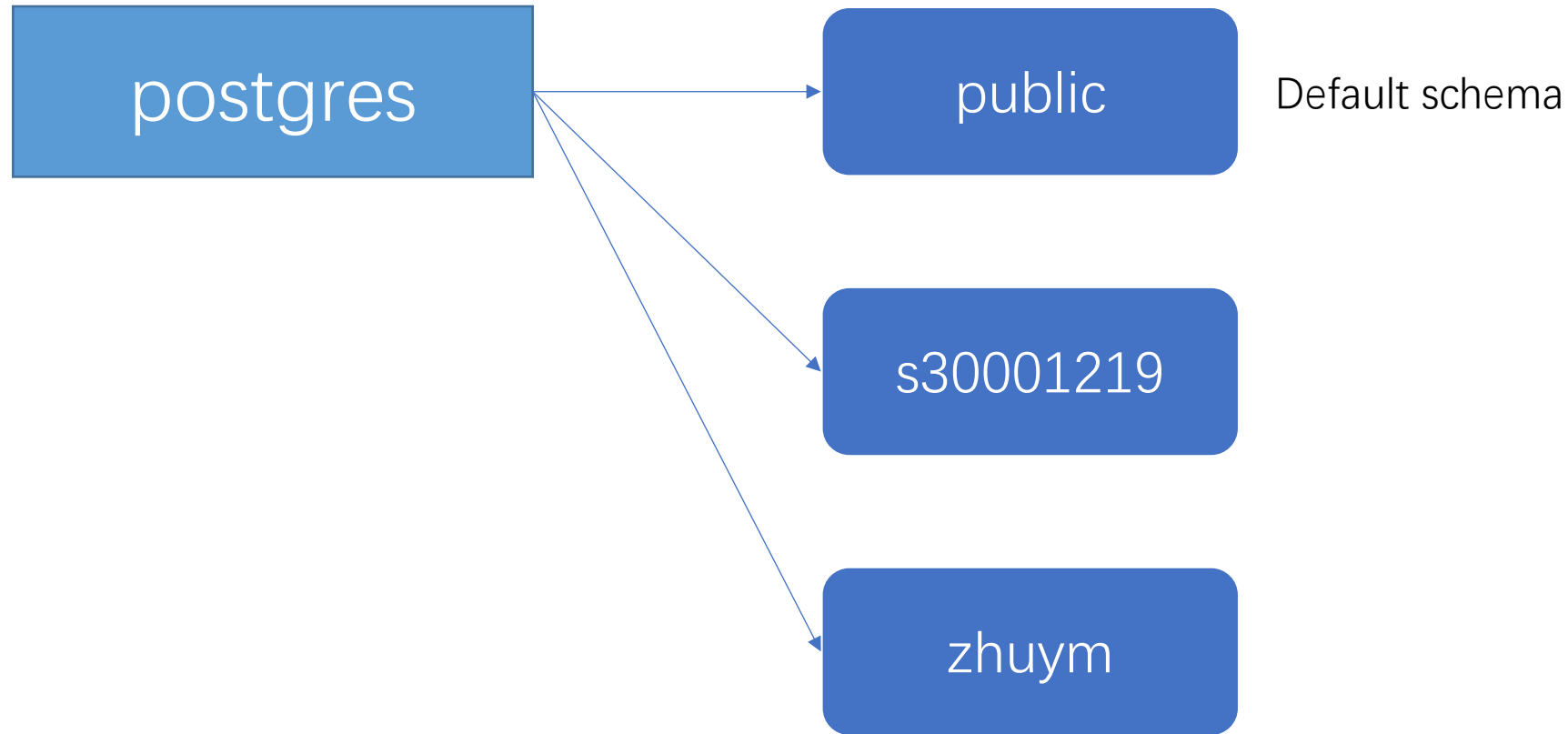


Structures of postgresSQL



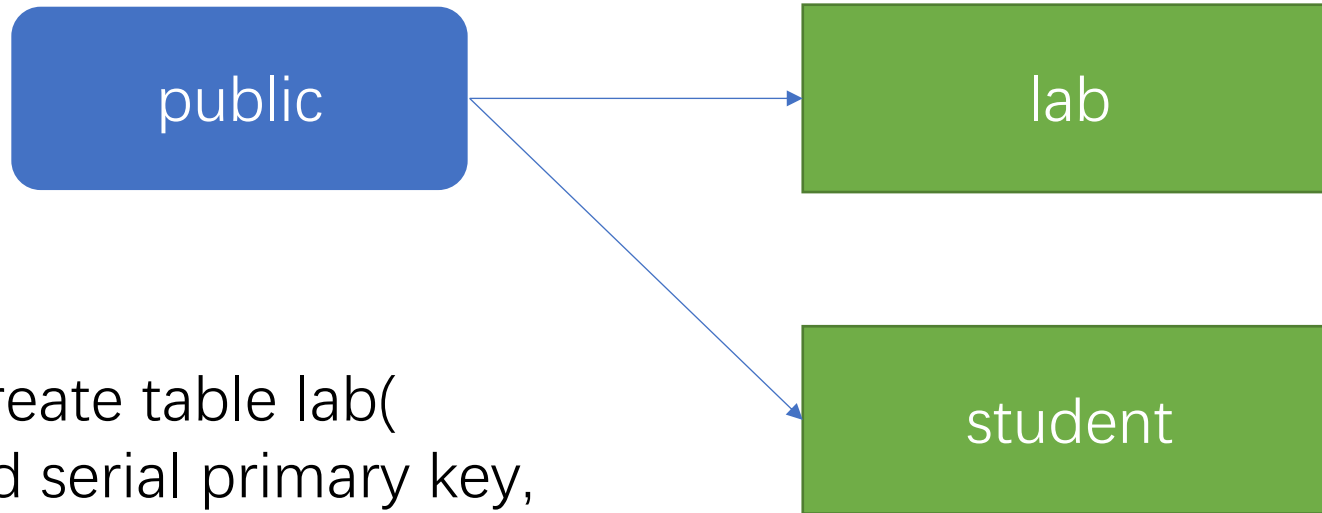
create database [database name];

Structures of postgresSQL



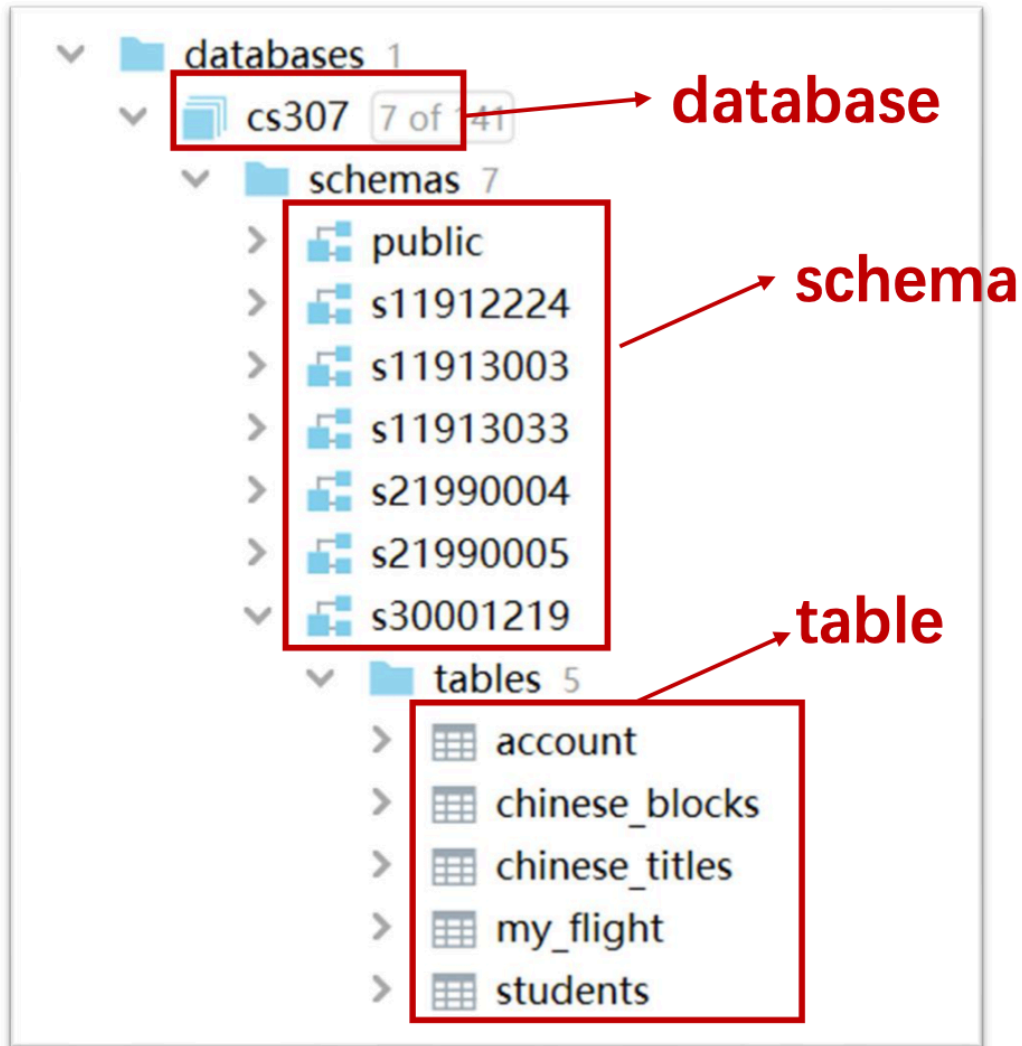
`create schema [schema name];`

Structures of postgresSQL



```
create table lab(  
  id serial primary key,  
  address varchar(20) not null,  
  time varchar(20) not null,  
  capacity int,  
  teacher varchar(20),  
  unique (address,time)  
);
```

The structure of database (PostgreSQL)



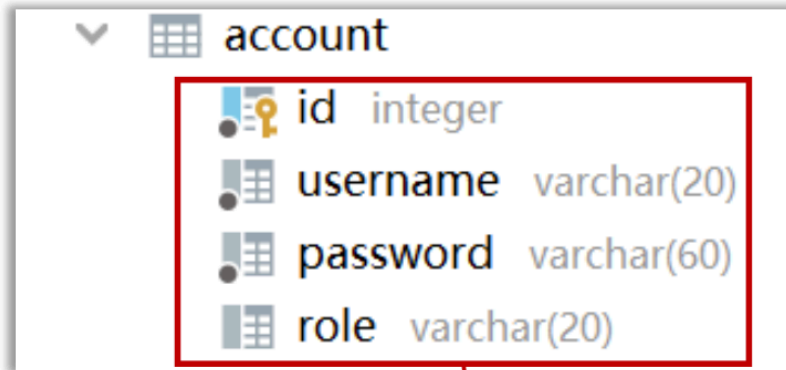
A **database** is isolated data control unit which means data cannot be shared across databases. A **database** contains one or more named **schema**.

```
create database [db_name];
```

A **schema** is a named collection of tables. A **schema** can also contain views, indexes, sequences, data types, operators, and functions.

```
create schema [schema_name];
```

Table In PostgreSQL



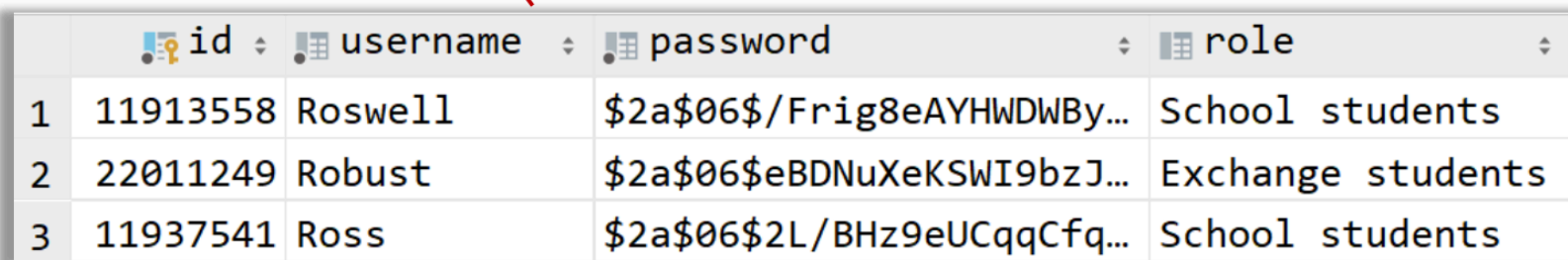
account	
id	integer
username	varchar(20)
password	varchar(60)
role	varchar(20)

Columns in table

Rows in table

A **table** consists of rows and columns. Tables allow you to store structured data like customers, products, employees, account etc.

```
Create table account(  
    id int primary key not null,  
    username varchar(20) not null,  
    password varchar(60) not null,  
    role varchar(20)  
);
```



	id	username	password	role
1	11913558	Roswell	\$2a\$06\$/Frig8eAYHWDWBy...	School students
2	22011249	Robust	\$2a\$06\$eBDNuXeKSWI9bzJ...	Exchange students
3	11937541	Ross	\$2a\$06\$2L/BHz9eUCqqCfq...	School students

How to insert data in table?

Original

	id	username	password	role
1	11913558	Roswell	\$2a\$06\$/Frig8eAYHWDWBy...	School students
2	22011249	Robust	\$2a\$06\$eBDNuXeKSWI9bzJ...	Exchange students
3	11937541	Ross	\$2a\$06\$2L/BHz9eUCqqCfq...	School students

Execute the query



```
insert into account(id, username, password, role) values  
(11991451,'Sirena','CS307database','School students');
```



Finally

	id	username	password	role
	11913558	Roswell	\$2a\$06\$/Frig8eAYHWDWByu5gVL...	School students
	22011249	Robust	\$2a\$06\$eBDNuXeKSWI9bzJAwba/...	Exchange students
	11937541	Ross	\$2a\$06\$2L/BHz9eUCqqCfqP/ZAG...	School students
	11991451	Sirena	\$2a\$06\$s117nZN0YzsBoA5yLV/0...	School students

When execute insert query, database convert the password column to its ciphertext automatically by a trigger. In current lab, you do not need understand what the trigger is.

Questions

- Can a schema be shared across with two databases?
- Can a table be shared across with two schemas?
- A Schema contains many table?
- A database contains many schema?
- Is it right that creating a table means a new row of data has been stored into the database?
- Which one can be confirmed when create a table successfully?
 - Column
 - Row