

Dear Raj,

Hope this mail finds you well. It is my pleasure to work with you and I am willing to help you gain a basic understanding of the current database Borromeo has in place. And here are my answers with your confusions about the database:

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## Part 1

1. *From the reading what are the 3 types of relationships the author defines.*

one-to-one, one-to-many, and many-to-many.

2. *Can you define a few different entities that could be related. For example, Class<->professor.*

Community<->Building   Building<->Room   Room<->Resident;

University<->School   School<->Department   Department<->Division   Division<->Faculty.

3. *The author defines 2 different types of databases, in what use case might you use each type?*

Hierarchical Database:

The university is a kind of hierarchical system. A university has several schools. Each school has several departments. Under each department there are different divisions. And under each division there are corresponding employees.

Relational Database:

In warehouse management database system, we can use customer id as unique id in each table (order table, payment table, address table) to connect them. And this is a typical one-to-many relationship between customer and other entities since a customer can make several payments, order several times and have multiple addresses.

## Part 2

1. *What databases are you able to see?*

There are 14 databases, they are:

bikes, information\_schema, kubedb\_system, mysql, performance\_schema, ro\_company1, ro\_employees, ro\_query, ro\_recipes, ro\_research1, ro\_twitter, sakila, sys, world.

```
mysql> show databases;
+-----+
| Database |
+-----+
| bikes    |
| information_schema |
| kubedb_system |
| mysql    |
| performance_schema |
| ro_company1 |
| ro_employees |
| ro_query |
| ro_recipes |
| ro_research1 |
| ro_twitter |
| sakila   |
| sys      |
| world    |
+-----+
14 rows in set (0.06 sec)
```

2. If you look at the ro\_query database, how many tables are in this database? Sales indicates there should be 4. I think there are 5? Help us decide who is correct.

There are two tables(home\_value\_by\_zip, taxdata) in the ro\_query database. None of you is correct.

```
mysql> use ro_query;
No connection. Trying to reconnect...
Connection id: 226
Current database: *** NONE ***

Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> show tables;
+-----+
| Tables_in_ro_query |
+-----+
| home_value_by_zip  |
| taxdata            |
+-----+
2 rows in set (0.06 sec)
```

3. What columns are there in the tax table?

There are 12 columns in the tax table, they are: id, ein, name, year, revenue, expenses, purpose, ptid, ptname, city, state, url.

```
mysql> desc taxdata;
```

Field	Type	Null	Key	Default	Extra
id	int	NO	PRI	NULL	auto_increment
ein	int	YES		NULL	
name	varchar(255)	YES		NULL	
year	int	YES		NULL	
revenue	bigint	YES		NULL	
expenses	bigint	YES		NULL	
purpose	text	YES		NULL	
ptid	varchar(255)	YES		NULL	
ptname	varchar(255)	YES		NULL	
city	varchar(255)	YES		NULL	
state	varchar(255)	YES		NULL	
url	varchar(255)	YES		NULL	

```
12 rows in set (0.20 sec)
```

4. Inside the ro\_employees database, how many rows are in the titles table.

There are 443308 rows in the titles table.

```
mysql> use ro_employees;
No connection. Trying to reconnect...
Connection id: 376
Current database: *** NONE ***

Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> desc titles;
```

Field	Type	Null	Key	Default	Extra
emp_no	int	NO	PRI	NULL	
title	varchar(50)	NO	PRI	NULL	
from_date	date	NO	PRI	NULL	
to_date	date	YES		NULL	

```
4 rows in set (0.06 sec)

mysql> select count(*) from titles;
```

count(*)
443308

```
1 row in set (0.11 sec)
```

Thank you!

Best,

Jun