Consider the databases and tables below. Think about what categories of data you might find in each. Come up some likely columns for each table.

library_db

Database for a library.

`books:` .....

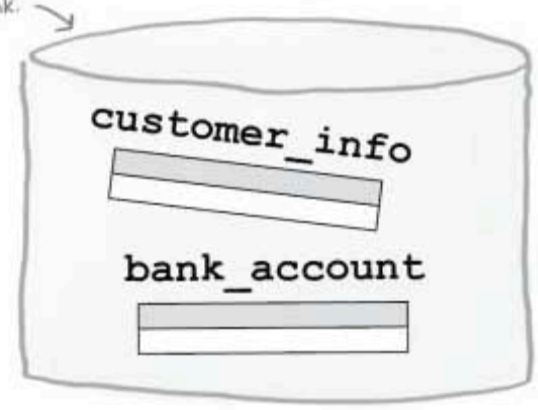
`library_patron:` .....

bank_db

Database for a bank.

`customer_info:` .....

`bank_account:` .....



onlinestore_db

← Database for an online store.

`product_info:` .....

`shopping_cart:` .....

Look how easy it is to write SQL

You've seen that to create a table you categorize your data into columns. Then you come up with the right data type and length for each column. After you estimate how long each column needs to be, writing the code is straightforward.

Sharpen your pencil

The code to the left is our CREATE TABLE statement for Greg's new database. Try to guess what each line of the CREATE TABLE command is doing. Also include an example of the data that will go in each column.

```
CREATE TABLE my_contacts
(
   last_name VARCHAR(30),
   first_name VARCHAR(20),
   email VARCHAR(50),
   birthday DATE,
   profession VARCHAR(50),
   location VARCHAR(50),
   status VARCHAR(20),
   interests VARCHAR(100),
   seeking VARCHAR(100)
);
```


WHICH DATA TYPE?

Determine which data type makes the most sense for each column. While you're at it, fill in the other missing info.

These two numbers show how many digits the database should expect in front of the decimal, and how many after.

Column Name	Description	Example	Best Choice of Data Type
price	The cost of an item for sale	5678.39	DEC(5,2)
zip_code			
atomic_weight	Atomic weight of an element with up to 6 decimal places		
comments	Large block of text, more than 255 characters	Joe, I'm at the shareholder's meeting. They just gave a demo and there were rubber duckies flying around the screen. Was this your idea of a joke? You might want to spend some time on Monster.com.	
quantity	How many of this item in stock		
tax_rate		3.755	
book_title		Head First SQL	
gender	One character, either M or F		CHAR(1)
phone_number	Ten digits, no punctuation	2105552367	
state	Two-character abbreviation for a state	TX, CA	
anniversary		11/22/2006	DATE
games_won			INT
meeting_time		10:30 a.m. 4/12/2020	

there are no Dumb Questions

Q: Why not just use BLOB for all of my text values?

A: It's a waste of space. A VARCHAR or CHAR takes up a specific amount of space, no more than 256 characters. But a BLOB takes up much more storage space. As your database grows, you run the risk of running out of space on your hard drive. You also can't run certain important string operations on BLOBs that you can on VARCHARs and CHARs (you'll learn about these later).

Q: Why do I need these numeric types like INT and DEC?

A: It all comes down to database storage and efficiency. Choosing the best matching data type for each column in your table will reduce the size of table and make operations on your data faster.

Q: Is this it? Are these all the types?

A: No, but these are the most important ones. Data types also differ slightly by RDBMS, so you'll need to consult your particular documentation for more information. We recommend *SQL in a Nutshell* (O'Reilly) as a particularly good reference book that spells out the differences between RDBMSs.

Sharpen your pencil

Your SQL RDBMS will tell you when something is wrong with your statement, but will sometimes be a bit vague. Take a look at each INSERT statement below. First try to guess what's wrong with the statement, and then try typing it in to see what your RDBMS reports.

```
INSERT INTO my_contacts

(last_name, first_name, email, gender, birthday, profession, location, status,
interests, seeking) VALUES ('Anderson', 'Jillian', 'jill_anderson@breakneckpizza.com',
'F', '1980-09-05', 'Technical Writer', 'Single', 'Kayaking, Reptiles', 'Relationship,
Friends');
```

What's wrong? .....

Your RDBMS says: .....

```
INSERT INTO my_contacts

(last_name, first_name, gender, birthday, profession, location, status, interests,
seeking) VALUES ('Anderson', 'Jillian', 'jill_anderson@breakneckpizza.com', 'F',
'1980-09-05', 'Technical Writer', 'Palo Alto, CA', 'Single', 'Kayaking, Reptiles',
'Relationship, Friends');
```

What's wrong? .....

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'Relationship, Friends');
```

What's wrong? .....

Your RDBMS says: .....

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'F', '1980-09-05', 'Technical Writer', 'Palo Alto, CA', 'Single', 'Kayaking, Reptiles',
'Relationship, Friends');
```

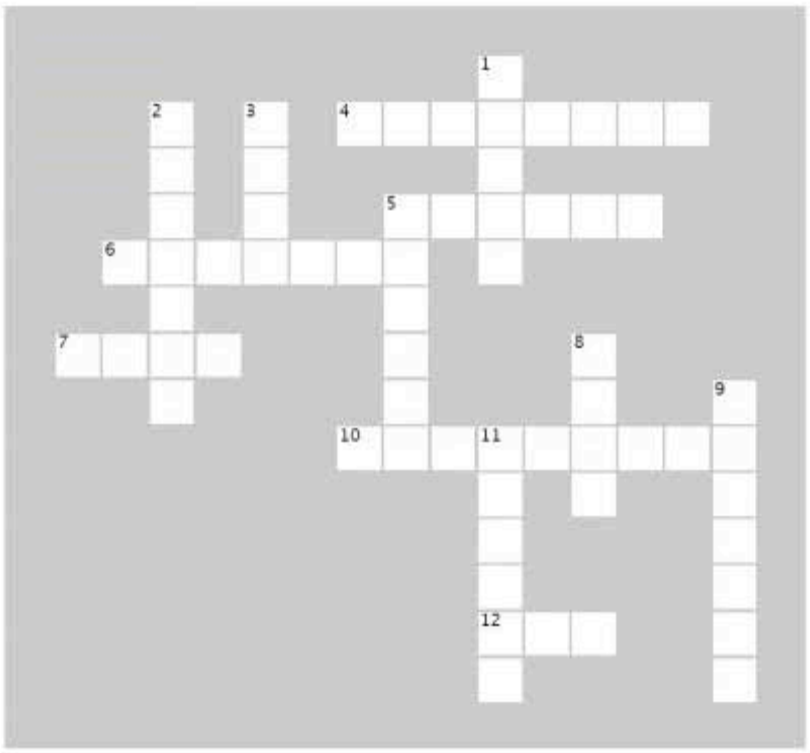
What's wrong? .....

Your RDBMS says: .....

If this one causes your RDBMS to "hang," try typing a single quote followed by a semicolon after you've entered the rest of the statement.

Tablecross

Take some time to sit back and give your left brain something to do. It's your standard crossword; all of the solution words are from this chapter.



Across

4. A _____ is a container that holds tables and other SQL structures related to those tables.
5. A _____ is a piece of data stored by your table.
6. This holds text data of up to 255 characters in length.
7. You can't compare one _____ to another.
10. End every SQL statement with one of these.
12. This is a single set of columns that describe attributes of a single thing.

Down

1. This is the structure inside your database that contains data, organized in columns and rows.
2. Use this in your CREATE TABLE to specify a value for a column if no other value is assigned in an INSERT.
3. Use this keyword to see the table you just created.
5. This word can be used in front of both TABLE or DATABASE.
8. To get rid of your table use _____ TABLE.
9. This datatype thinks numbers should be whole, but he's not afraid of negative numbers.
11. To add data to your table, you'll use the _____ statement.