

Spring 2022 courses

DONE db Quiz 4

SQLite CONTENT

- How to find the \$PATH to the SQLite executable `sqlite3.exe`: `which sqlite3`
- Ways to load a database file `.db` into SQLite - `.open`, `sqlite3 file.db`, or `:db file.db` in Org-mode
- Data types `INT` and `TEXT`
- `CREATE TABLE` - which is the correct command?
- What does `.tables` do?
- `AS` alias operator
- `DISTINCT` option
- `COUNT` function
- Glossary terms: record/row, field/column, entity/entity

Settings

- The content of this quiz is also contained in the ["Be the shell!" video on YouTube](#) and in a PDF in the `sqlite` directory on GitHub, [BeTheShellFeb17.pdf](#), or in the `notes.org` file.
- After the first play, the quiz will be opened for unlimited play
- Let me know if you have any comments or corrections
- Questions can have more than one answer

Which statement about relational database tables is true?

TRUE:

- Observations in rows, attributes in columns, entities in tables

FALSE:

- Observations in tables, attributes in rows, entities in columns
- Observations in rows, attributes in tables, entities in columns
- Observations in columns, attributes in tables, entities in rows

Feedback: Entities are groups of attributes in columns - e.g. a table of customer attributes (name, address, birthdate etc.); each row or record corresponds to an observation of these attributes - one for each customer for example.

Which of these are SELECT keywords?

TRUE:

- `FROM`
- `GROUP BY`
- `WHERE`
- `DISTINCT`
- `ORDER BY`
- `LIMIT`

- JOIN

Feedback: FROM and JOIN actually constitute the first view of the pipeline when the relational data are selected/projected for further processing.

The SELECT command executes a pipeline of relational (table) views

TRUE

In the first step of SELECT, a subset of column attributes is projected out of the whole table

TRUE

Feedback: For example - for a table of customer information, a query only on names and addresses of customer contacts would begin SELECT name, address FROM customer - while all other columns are ignored.

Be the shell!

You have created a table named `newTable`, put some values into it, and saved it in a database file `data.db`. Now you want to look at the data.

Which mistakes can you identify in the following command sequence?

```
sqlite> .open data.db;  
sqlite> .databases  
sqlite> .table  
sqlite> SELECT * FROM newTable
```

TRUE:

- There should not be a semi-colon after the `.open` statement
- There is a semi-colon missing at the end of the `SELECT` statement

FALSE:

- It should be `.database`, not `.databases`
- `.tables` needs to be followed by a table name

Feedback: Distinguish SQLite (start with a dot) from SQL commands (end with a semi-colon). `.database` and `.tables` are both OK.

You can print SQLite tables in different modes (HTML, CSV, text, list, columns etc.)

TRUE

Feedback: You can check this is SQLite (on the SQLite shell) with the command `.mode ?` - it will throw an error listing all available output modes.

Which code is missing in ??? to save your database to a file `sqlite.sql`?

Tip: the last line redirects the SQLite shell output to `stdout` (the screen).

```
sqlite> .output ???  
sqlite> .dump  
sqlite> .output stdout
```

TRUE:

- `sqlite.sql`

FALSE:

- `sqlite.db`
- `ON`
- `stdin`

Feedback: To redirect to any file, you use `.output filename` - if it does not exist, it will be created.

SQLite keeps a memory of your commands as long as you don't shut down the CMD line terminal

TRUE

Feedback: this is a general shell feature - it also holds for the Windows CMD line shell. Under Linux, there is a command to access the history (called `history`).

Org-mode initialization

In Org-mode, SQLite code blocks must be initialized with the header argument `:db`. The argument after `:db` must be `sqlite.db`.

FALSE

Feedback: the argument can be any SQLite database file with the ending `.db`. If it does not exist, SQLite will create it in the current directory.

How can you check your table display values in SQLite?

TRUE:

- With the SQLite command `.show`
- With `SELECT * FROM [table]` if `[table]` exists

FALSE:

- With `SELECT show`
- With `.display`

Feedback: `SELECT` is an SQL command to query relational (table) information only. SQLite commands start with a dot and the two commands are never mixed. There is no `.display` command.

Author: Marcus Birkenkrahe

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