

# CS50: Week 7 - SQL

## Lecture: SQL

The image is a composite of two screenshots from a video lecture. In the top screenshot, a man in a black shirt stands in front of a computer screen displaying a Google Drive interface. The file 'favorites' is selected, and its context menu is open, showing options like 'New', 'Open', 'Import', 'Make a copy', 'Share', 'Email', 'Download', 'Rename', 'Move', 'Add shortcut to Drive', 'Move to trash', 'Version history', and 'Make available offline'. The 'Download' option is highlighted, and a sub-menu is open showing file formats: 'Microsoft Excel (.xlsx)', 'OpenDocument (.ods)', 'PDF (.pdf)', 'Web Page (.html)', 'Comma Separated Values (.csv)', and 'Tab Separated Values (.tsv)'. In the bottom screenshot, the same man stands in front of a computer screen displaying a code editor. The code editor shows a Python script named 'favorites.py' that reads a CSV file named 'favorites.csv' and prints the second column of each row. The code is as follows: 1 import csv, 2, 3 with open('favorites.csv', 'r') as file:, 4 reader = csv.reader(file), 5 for row in reader:, 6 print(row[1]), 7. Below the code is a terminal window showing the command '\$ code favorites.py' and a prompt '\$ '.

SQL

CREATE  
READ  
UPDATE  
DELETE

```
CREATE TABLE table (column type, ...);
```

sqlite3

TERMINAL

```
sqlite> SELECT DISTINCT language FROM favorites;  
+-----+  
| language |  
+-----+  
| Python   |  
| C        |  
| Scratch  |  
+-----+  
sqlite> █
```

#### TERMINAL

```
sqlite> SELECT COUNT(DISTINCT language) FROM favorites;
```

COUNT(DISTINCT language)
3

```
sqlite> █
```

GROUP BY

LIKE

LIMIT

ORDER BY

WHERE

...

```
INSERT INTO table (column, ...) VALUES(value, ...);
```

```
DELETE FROM table WHERE condition;
```

## SQL

- Often times, in order for us to build the most functional website we can, we depend on a **database** to store information.
- If you've ever used Microsoft Excel or Google Spreadsheets (among others), odds are you're familiar with the notion of a database: a hierarchically organized set of tables, each of which contains a set of rows and columns.

## SQL

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## SQL

- Each column of your SQL table is capable of holding data of a particular data type.

INT	SMALLINT	TINYINT	MEDIUMINT	BIGINT
DECIMAL	FLOAT	BIT	DATE	TIME
DATETIME	TIMESTAMP	CHAR	VARCHAR	BINARY
BLOB	TEXT	ENUM	GEOMETRY	LINestring

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## SQL

users

idnum	username	password	fullname
10	jerry	fus!!!!	Jerry Seinfeld
11	gcostanza	b0sc0	George Costanza

moms

username	mother
jerry	Helen Seinfeld
gcostanza	Estelle Costanza