

Select Statements

A **SELECT** statement describes an output table based on input rows. To write one: 1. Describe the **input rows** using **FROM** and **WHERE** clauses. 2. Format and order the **output rows** and columns using **SELECT** and **ORDER BY** clauses.

```
SELECT (Step 2) FROM (Step 1) WHERE (Step 1) ORDER BY (Step 2);
```

The **WHERE** and **ORDER BY** clauses are optional.

Pizza Time

The **pizzas** table contains the names, opening, and closing hours of great pizza places in Berkeley. The **meals** table contains typical meal times (for college students). A pizza place is open for a meal if the meal time is at or within the **open** and **close** times.

```
CREATE TABLE pizzas (name TEXT, open INTEGER, close INTEGER);

INSERT INTO pizzas VALUES
  ("Artichoke", 12, 15),
  ("La Val's", 11, 22),
  ("Sliver", 11, 20),
  ("Cheeseboard", 16, 23),
  ("Emilia's", 13, 18);

CREATE TABLE meals (meal TEXT, time INTEGER);

INSERT INTO meals VALUES
  ("breakfast", 11),
  ("lunch", 13),
  ("dinner", 19),
  ("snack", 22);
```

Q1: Open Early

You'd like to have pizza before 13 o'clock (1pm). Create a **opening** table with the names of all pizza places that **open** before 13 o'clock, listed in reverse alphabetical order. To test what table your query outputs, press the green play button in 61A Code!

opening table:

```
_____
name
_____
Sliver
La Val's
Artichoke
_____
```

```
-- Pizza places that open before 1pm in alphabetical order
CREATE TABLE opening AS
SELECT name FROM pizzas WHERE open < 13 ORDER BY name DESC;
```

Q2: Study Session

You're planning to study at a pizza place from the moment it opens until 14 o'clock (2pm). Create a table `study` with two columns, the `name` of each pizza place and the `duration` of the study session you would have if you studied there (the difference between when it opens and 14 o'clock). For pizza places that are not open before 2pm, the `duration` should be zero. Order the rows by decreasing duration.

Hint: Use an expression of the form `MAX(_, 0)` to make sure a result is not below 0.

`study` table:

name	duration
La Val's	3
Sliver	3
Artichoke	2
Emilia's	1
Cheeseboard	0

```
-- Pizza places and the duration of a study break that ends at 14 o'clock
CREATE TABLE study AS
SELECT name, MAX(14 - open, 0) AS duration FROM pizzas ORDER BY duration DESC;
```

Q3: Late Night Snack

What's still open for a late night `snack`? Create a `late` table with one column named `status` that has a sentence describing the closing time of each pizza place that closes at or after `snack` time. **Important:** Don't use any numbers in your SQL query! Instead, use a join to compare each restaurant's closing time to the time of a snack. The rows may appear in any order.

`late` table:

status
Cheeseboard closes at 23
La Val's closes at 22

The `||` operator in SQL concatenates two strings together, just like `+` in Python.

```
-- Pizza places that are open for late-night-snack time and when they close
CREATE TABLE late AS
  SELECT name || " closes at " || close AS status
  FROM pizzas JOIN meals
  ON time <= close
  WHERE meal="snack";
```