

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 AS
  SELECT "Artichoke" AS name, 12 AS open, 15 AS close UNION
  SELECT "La Val's"      , 11      , 22      UNION
  SELECT "Sliver"        , 11      , 20      UNION
  SELECT "Cheeseboard"   , 16      , 23      UNION
  SELECT "Emilia's"      , 13      , 18;

CREATE TABLE meals AS
  SELECT "breakfast" AS meal, 11 AS time UNION
  SELECT "lunch"      , 13      UNION
  SELECT "dinner"     , 19      UNION
  SELECT "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.

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;
```

To order by **name** in reverse alphabetical order, write `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;
```

To order by decreasing duration, first name the column with `SELECT ..., ... AS duration ...`, then `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, meals
  WHERE meal="snack" AND time <= close;
```

To compare a pizza place's **close** time to the time of a snack: - join the **pizzas** and **meals** tables using **FROM pizzas, meals** - use only rows where the **meal** is a **"snack"** - compare the **time** of the snack to the **close** of the pizza place.

Use **name || " closes at " || close** to create the sentences in the resulting table. The **||** operator concatenates values into strings.