

## Homework 9

1. What are relationships in SQL? Joins?

**Relationships** in SQL are the connections between tables based on a foreign key.

**One-to-one** is when each record in a table correlates to only one another record (row) in another table. **One-to-many** relationships are when one record in table A can have multiple records in table B. **Many to many** relationships require a junction table. Many records in table A relate to many in table B. **Inner join** returns rows where there's a match in both tables. **Left join** returns all rows from the left table and matched rows from the right. **Right join** returns all rows from the right table and matched from the left.

2. How do joins and relationships interact?

Join creates relationships between tables to pull related data together in a single query.

**Relationships** are like the blueprint, and **joins** are how you use that blueprint.

3. What's a PDO? a DSN?

**PDO** (PHP Data Objects) is PHP's database access abstraction layer. It is a secure way to connect and interact with any database like MySQL. A **DSN** is a string that tells PDO how and where to connect to the database.

4. What are prepared statements? Why do we need them?

Prepared statements are **precompiled SQL queries** that are executed with **bound parameters** instead of directly inserting variables into the SQL string.

5. What does an .env file do?

A .env file (environment) is used to store configuration variables- usually sensitive or environment-specific information outside of your code. It is common in PHP and other web frameworks.

6. Create a PHP project in an MVC style. It should have the ability to search for a product type (use your fictitious business for inspiration), from a MySQL database, and display it. Add some basic styling.