CSE-4308

1. Intro to database management

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I will be taking your DBMS labs this semester.

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What is a database?

A database is an organized collection of structured data stored electronically in a computer system.
Example: list of students including their information.

What is a flat file structure?

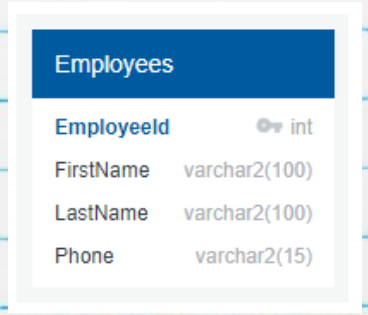
A flat file database is a database that stores data in a plain text file, and each line of the text file holds one record, with fields separated by delimiters, such as commas or tabs. For example, a student.csv file may contain data that shows the student id, name and semester of students.

What is a relational database?

A relational database is a type of database that stores and provides access to data points that are related to one another. It uses a structure that allows us to identify and access data in relation to another piece of data in the database.

What are entity and attributes?

An entity is a person, place, or thing and attributes describe the person, place, and thing. For example, you can use the relational model to organize the employee information into an employee entity with the attributes: first name, last name, and phone:



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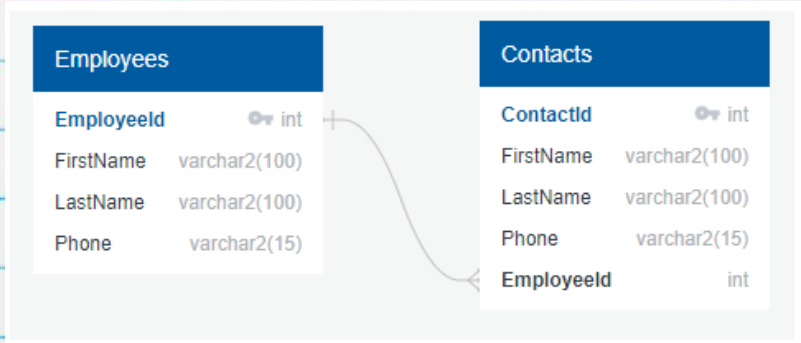
Each employee may have one or more contacts, you can create a contact entity and relate the employee entity to the contacts entity through a relationship called one-to-many.



Flat file structures vs relational databases

- Relational Databases can handle very complicated queries.
- Robustness in filtering out search results.
- Relational Databases can handle indexing tasks, so, tasks like "get record with id = x" can be VERY fast.
- Relational Databases can handle multiprocess/multithreaded access.
- Relational Databases can handle access from network.
- Relational Databases can handle transactions and concurrent access.