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* Why use a database?
  + Weve stored data in applications, but it isn’t persistent
    - Databases are useful for storing data on disks
* Storing data in a file can be tricky for when we want to reuse that data
  + We need to consider all of these different ways to store the data
* Reading and writing data to and from files can be slow and difficult ass complexity grows
* Need to find a common way to store data
* What happens if the program needs to handle **a lot** of data?
  + Can be slow
  + Lack of resources
  + Main memory is volatile
  + Etc.
* So, the data will only ever reside on the database to prevent loss of data, increase the speed and efficiency of applications, etc.
* A database is an external data storage system – separate from our code
  + Can be queried
  + Can update and insert data
    - Structure is dependent on the type of database and our application
* **Relational Database Model**
  + Its about the presentation of data to programmer – not about its storage on disk
  + **Storage strategy is separate from programmer view**
  + Data is presented as a series of relations and the data is manipulated from a standard, high level programming language (SQL)
* Relational design sounds easy in theory but can be difficult to do in practice
* **All relational databases can be interreacted with using SQL**
  + We are sending commands to our relational database
* **DBMS** (Database Management System)
  + Makes sure data is persistent
  + Makes sure data is accessed efficiently
  + Makes sure programs have access to the data they are requesting
  + Etc.
* We never touch the disk directly
  + The DBMS will be the go between from out program to the disk
* Differences between DMBS solutions comes in the way they interact with the data, but almost all of them are the same in terms of the way we interact with them
* DBMS ‘Extras’
  + Concurrency
  + Consistency
  + Durability
  + Security
  + Optimizations
  + Indexes/Cache
* The amount of data were storing is directly correlated with the speed we can access it