

What is SQL?

- Structured Query Language.
- Standard syntax of querying & manipulating data in relational databases.
- Used by many RDMS, such as PostgreSQL, MySQL, etc.
- learning SQL is a portable skill.

CRUD

INSERT
SELECT
UPDATE
DELETE

Cheat Sheet

CREATE Syntax

```
CREATE TABLE customers (  
    id INTEGER PRIMARY KEY AUTOINCREMENT,  
    name TEXT,  
    email TEXT);
```

```
INSERT INTO customers (name, email) VALUES ("James", "james@james.com");
```

SELECT Syntax

-- filter your columns

SELECT col1, col2, col3, ... **FROM** table1

-- filter the rows

WHERE col4 = 1 **AND** col5 = 2

-- aggregate the data

GROUP by ...

-- limit aggregated data

HAVING COUNT(*) > 1

-- order of the results

ORDER BY col2

UPDATE Syntax

```
UPDATE table_name  
SET column1=value, column2=value, ...  
WHERE some_column=some_value
```

DELETE Syntax

```
DELETE FROM table_name  
WHERE some_column = some_value
```

What is SQLite?

- It's a RDMS.
- Doesn't require a server unlike other RDMS.
- The DB is a single file.
- Why is it good?
- What are its limits?

Using SQLite Directly

- When would you use SQLite directly in iOS?
- Why should we learn SQL/SQLite?
- FMDB and other SQLite wrappers.

SQLite & Core Data

- Usually backing store in Core Data.
- What are some limitations of Core Data?

SQLite vs Realm

- Compared to Core Data.
- What are some benefits of Realm over Core Data?
- When should you use: 1. Realm, 2. Core Data, 3. SQLite directly?

ERD

- What is it?
- Entity Relation Diagram.
- Shows data and its relationships.
- 5 Parts: Entities, Attributes, Primary Key, Relationship, Cardinality.

Relationship

- How one or more entities interact.
- So, Person might have a relationship to the FavouriteColor entity.
- Why not just put FavouriteColor as an attribute in the Person entity?
- Cardinality is expressed in terms of Minimum/Maximum.

Cardinality & Crows Foot Notation



Youtube Video

SQLite Data Types

NULL - no value (use *IS NULL*)

INTEGER - signed integer

REAL - 8 byte floating point integer

TEXT - UTF-8/16BE/16LE string

BLOB - binary data

JOINS

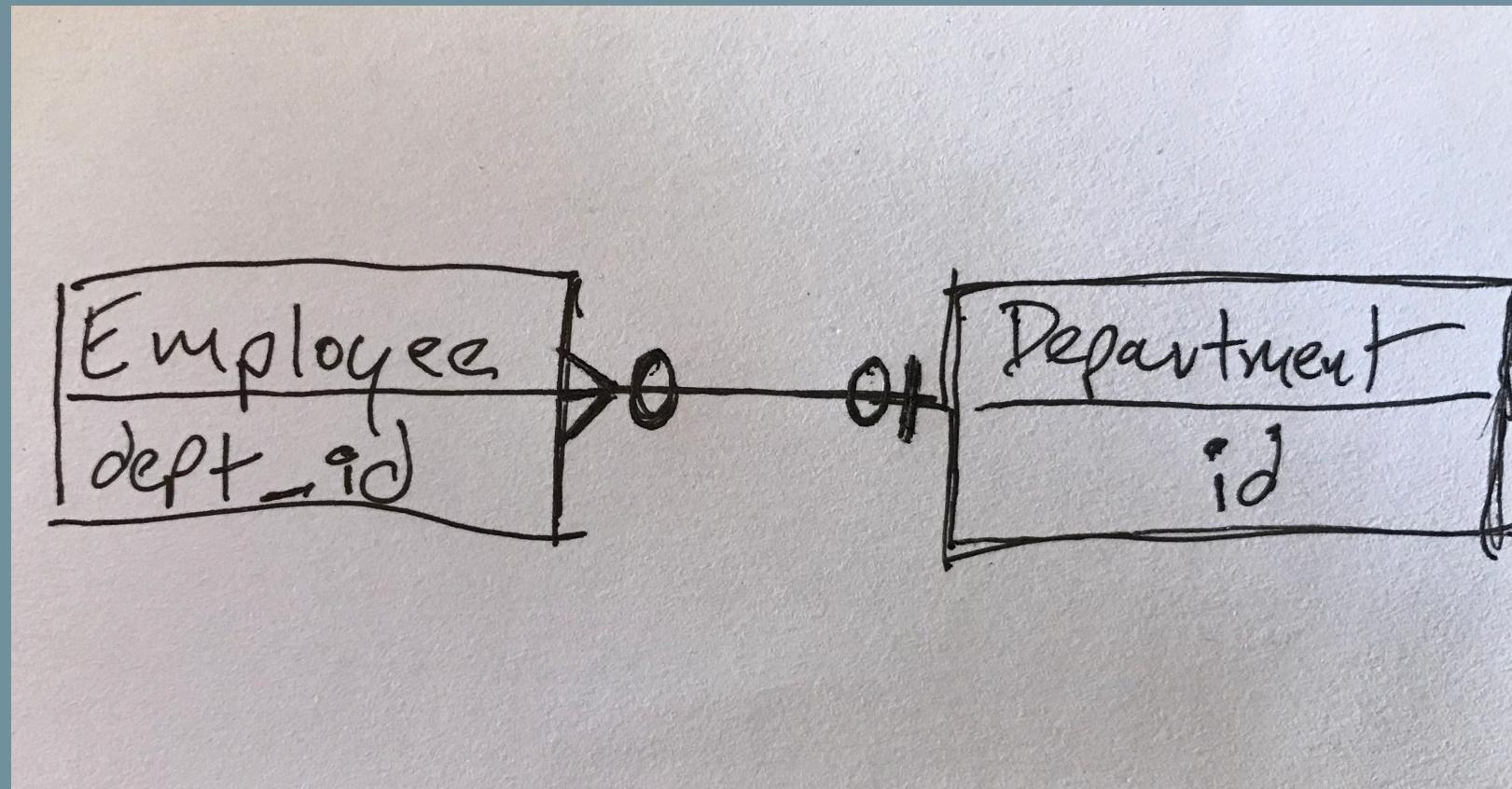
- Combine records from more than 1 table by using some common value(s) shared between the tables.

Employee & Department

Employee		
id	name	dept_id
1	Steve Thompson	1
2	Fred Flintstone	2
3	Mr. NoDepartment	Null

Department	
id	name
1	Lighthouse
2	Quarry

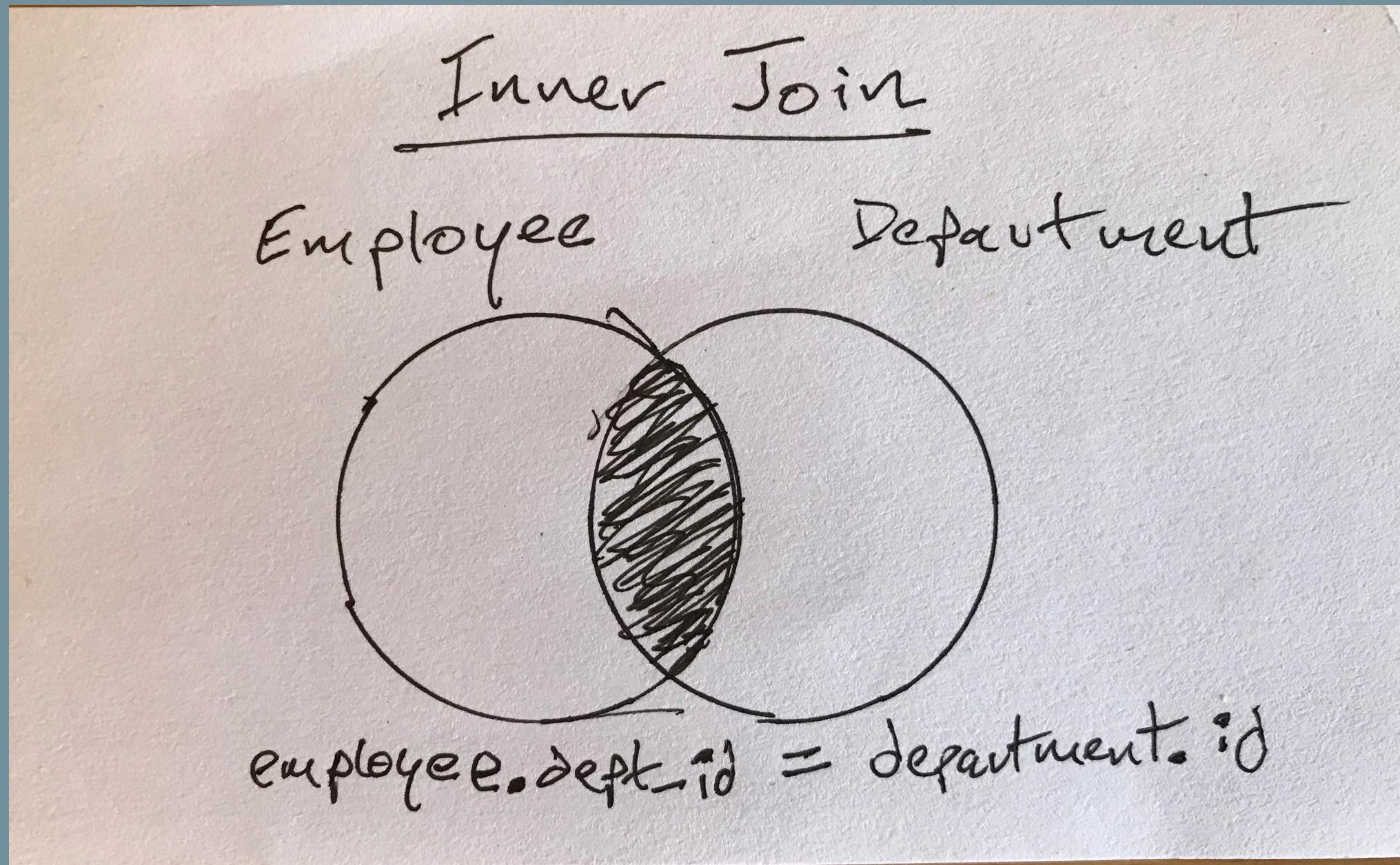
ERD



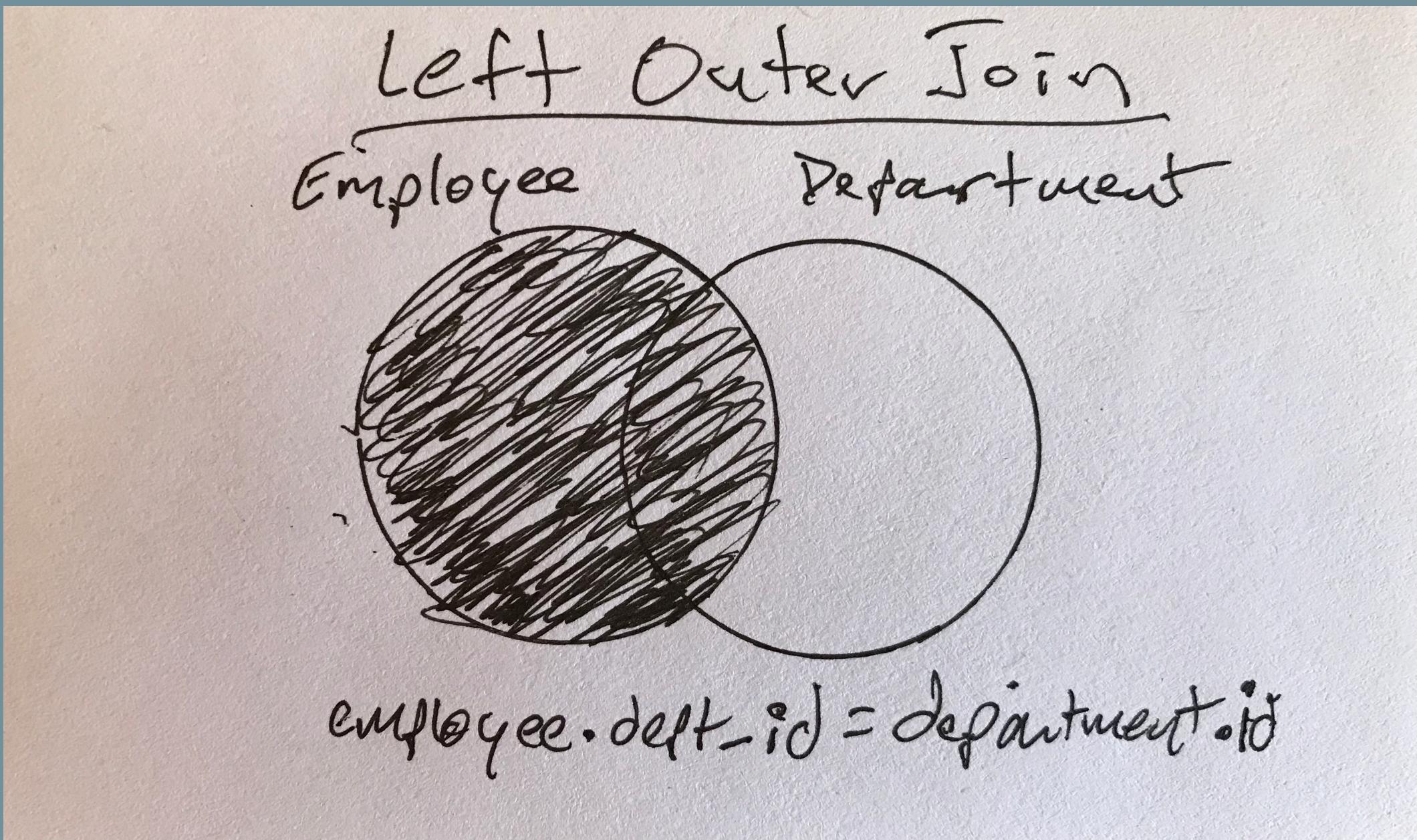
Joins

- How do we list the department each employee is in?
- Do INNER JOIN on the department's primary key and the employee's foreign key.
- If we want a list of all employees with their departments whether they have one or not we would use the LEFT OUTER JOIN.
- LEFT OUTER JOIN is the same as RIGHT OUTER JOIN except the primary table joined to is reversed.

INNER JOIN



LEFT OUTER JOIN



SQLite

<http://sqlitebrowser.org/>

Demo

- Insert, Update, Delete
- Get total for everything James has purchased
- Get the list of everything James has purchased using a JOIN
- Get a list of everyone and what they have purchased if anything