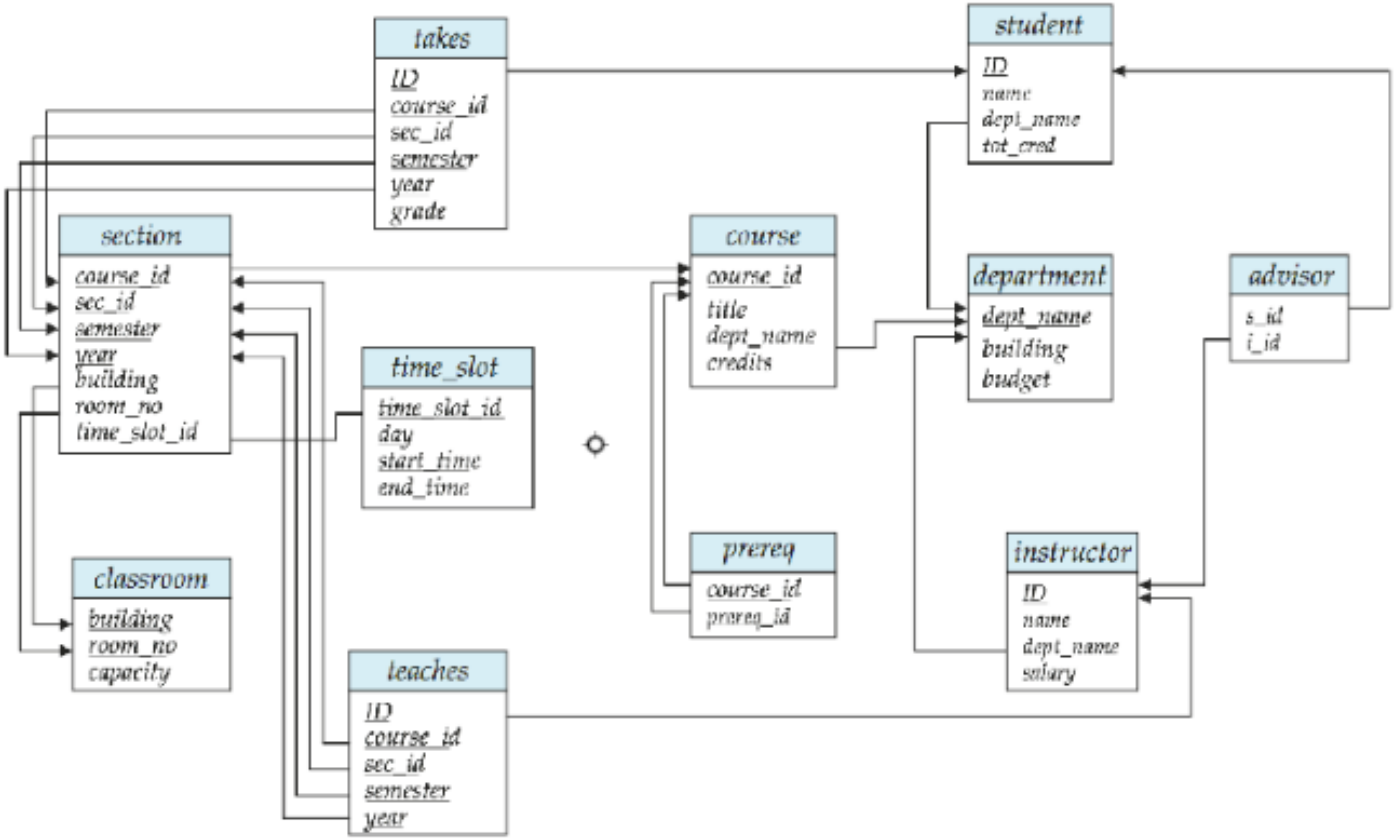
Multiple Tables

CMPSC 305 – Database Systems

ALLEGHENY COLLEGE

How to Connect Information? - No free-standing tables allowed!



The Basic Query Structure

The SQL data-manipulation language (DML) provides the ability to query information, and insert, delete and update tuples

A typical SQL code has the form:

```
SELECT A1, A2, ..., An
FROM r1, r2, ..., rm
WHERE P;
```

- Ai represents an attribute
- Ri represents a relation
- P is a predicate
- The result of an SQL query is a relation

The SELECT Clause

The SELECT clause filters out particular data from a table.

- SQL allows duplicates in relations as well as in query results.
- The SELECT statement has many optional clauses:
    - WHERE specifies which rows to retrieve.
    - GROUP BY groups rows sharing a property so that an aggregate function can be applied to each group.
    - HAVING selects among the groups defined by the GROUP BY clause.
    - ORDER BY specifies an order in which to return the rows.
    - AS provides an alias which can be used to temporarily rename tables or columns.

Given table ‘T’

Table "T"	Query	Result
C1 C2 1 a 2 b	`SELECT * FROM T;`	C1 C2 1 a 2 b
C1 C2 1 a 2 b	`SELECT C1 FROM T;`	C1 1 2
C1 C2 1 a 2 b	`SELECT * FROM T WHERE C1 = 1;`	C1 C2 1 a
C1 C2 1 a 2 b	`SELECT * FROM T ORDER BY C1 DESC;`	C1 C2 2 b 1 a

The TeaDB

Build file: sandbox/teaDB/teaDB Build.txt

- cat builder_teaTableDB.txt | sqlite3 teaDB.sqlite3

(or just copy in the text into SQLite3!)

The SELECT Clause

Find everything in the Department table.

- SELECT * FROM Department;

Find all entries for dept's of the Department table

- SELECT dept from Department;

Count entries of dept's in Department table,

- SELECT COUNT(dept) FROM department;

The SELECT Clause

Find all unique entries for depts in Department table,

- SELECT DISTINCT(dept) FROM department;

Count unique entries of depts in Department table,

- SELECT COUNT(DISTINCT(dept)) FROM Department;

Return an exhaustive set of sandwiches that are being ordered.

- SELECT DISTINCT(sandwich) FROM Tea;

What query to use to count these types of sandwiches?