Class Objectives

- Sub-Selects/Subqueries
- IN, EXISTS

Definitions (presentation)

- **Subquery:** (also referred to as a sub-select) A query that is nested inside a SELECT, INSERT, UPDATE, or DELETE statement or inside another subquery. A subquery can return a set of rows or just one row to its parent query. A scalar subquery is a query that returns exactly one value: a single row, with a single column. The subquery always has parenthesis around it. Depending on where you place the subquery and how you code with it, there are a variety of limitations about what will work. A subquery may appear in any clause of the SELECT. Note that limitations may return errors you have not coded correctly. See the Class Code for some subquery examples and a discussion of the limitations.

- **Correlated Subquery:** (also referred to as a Synchronized subquery) In a SQL database query, a correlated subquery is a "subquery that references column values from the *outer* query". The subquery will be evaluated once for each row processed by the outer query. (A correlated subquery has the same limitations as a regular subquery. Depending on the actual data, these limitations may be more or less obvious, but will still result in errors if the limitations are not handled correctly.)

- **IN condition:** The SQL IN condition (sometimes called the IN *operator* or IN *statement*) allows you to easily test (i.e. to *assert* in a predicate) if an expression matches *any* value in an entire *list* of values. It is used to help reduce the need for multiple OR conditions in a SELECT, INSERT, UPDATE, or DELETE statement. When using a subquery, only one column can be returned from the subquery.
    - Examples:
        - `Select * from table WHERE column IN (5,6,7)`
        - `Select * from table WHERE column IN (select somecolumn from table2)`

- **EXISTS condition:** (Sometimes called the Exists *operator* or Exists *statement*) Tests for the existence of any set of records in a subquery. When using Exists, you can have multiple columns in the subquery, the Exists conditional will assert true if any records are in the subquery result set. (Consider if you need to use a correlated subquery, to limit the subquery to appropriate values.)
    - Examples:
        - `Select * from table WHERE exists (select * from table2)`