Managing Data & Databases

Session 6
Retrieving your lists

Today's Dose of SQL DML

- ORDER BY
- GROUP BY
- HAVING
- DISTINCT
- COUNT
- MIN
- MAX
- AVG

SQL Clause
ORDER BY

- Use case
  - Sorts the selected result set according to a number of columns
- Simplified Syntax
  - SELECT `field1_name`, ...
    FROM `table_name`
    ORDER BY `field1_name`, ...
    [ASC | DESC];
- Example
  - SELECT * FROM people ORDER BY first_name;

SQL Command
DISTINCT

- Use case
  - Returns the list of distinct values in a result set
- Simplified Syntax
  - SELECT DISTINCT `field1_name`, ...
    FROM `table_name`;
- Example
  - SELECT DISTINCT(first_name) FROM people;
  - SELECT DISTINCT first_name FROM people;

SQL Aggregation Functions
COUNT, MIN, MAX, AVG, SUM

- Use case
  - They aggregate the results in a select column in the way their name suggests!
- Simplified Syntax
  - SELECT FUNC(`field1_name`) FROM `table_name`;
- Example
  - SELECT COUNT(*) FROM people;
  - SELECT COUNT(birth_date) FROM people;
  - SELECT MAX(last_name) FROM people;
  - SELECT AVG(level) FROM people;

SQL Clause
GROUP BY

- Use case
  - Aggregates one column based on the distinct values of another column
- Simplified Syntax
  - SELECT `field1_name`, ..., FUNC(`field2_name`)
    FROM `table_name`
    GROUP BY `field1_name`, ...;
- Example
  - SELECT major, AVG(level)
    FROM people
    GROUP BY major;

SQL Clause HAVING

- Use case
  - Used to limit the output based on aggregations
- Simplified Syntax
  - SELECT `field1_name`, …
    FROM `table_name`
    HAVING condition;
- Example
  - SELECT last_name FROM people HAVING MIN(birth_date);
- Important
  - HAVING is often used with GROUP BY
  - SELECT major, AVG(seniority) FROM people GROUP BY major HAVING COUNT(*)>2;

Beware of funny aggregations!

ID	Book	Author	Quantity
1	Voyage au bout de la nuit	Louis-Ferdinand Céline	NULL
11	Anna Karenina	Leo Tolstoy	NULL
21	War & Peace	Leo Tolstoy	0
31	À la recherche du temps perdu	Marcel Proust	5000

- SELECT COUNT(*) FROM Books;
- SELECT COUNT(ID) FROM Books;
- SELECT COUNT(Author) FROM Books;
- SELECT COUNT(DISTINCT Author) FROM Books;
- SELECT COUNT(Quantity) FROM Books;
- SELECT SUM(Quantity) FROM Books;
- SELECT AVG(Quantity) FROM Books;
- SELECT MAX(Author) FROM Books;
- SELECT MIN(Book) FROM Books;