Grouping and Aggregate Functions

Set of Data

- So far we have only selected rows and left it at that
- We can do more!
- What if we want a total of the value of products in a warehouse?
- What if we want the average population of planets?
- There's an aggregate function for that

Aggregates and Groups

- Aggregate functions work on many rows
  - They add or average or do whatever they are going to do across many rows
  - Which rows get included?
- GROUP BY will group rows into sets to which operations are applied

Some Examples

- SELECT student_name, AVG(test_score) FROM student GROUP BY student_name;
- SELECT student_name, AVG(test_score)
  - Selects student name and the average test_score for the group of records under that name
  - AVG requires a GROUP BY statement
- FROM student GROUP BY student_name;
  - Just like before but adds how to group for the AVG function

Examples Continued

- SELECT student_name, AVG(test_score) FROM student GROUP BY student_name;
- Will return a table with a single row for every student name (eg. Every name only gets returned once)
- That row will contain a name and the average of all test_scores for that name

Another (more complex) Example

```
SELECT C.title, COUNT(P.id) AS `CertCount`
FROM bsg_cert C
INNER JOIN bsg_cert_people CP ON CP.cid = C.id
INNER JOIN bsg_people P ON P.id = CP.pid
GROUP BY C.title;
```

Example Explained

- SELECT C.title, COUNT(P.id) AS `CertCount`
  - Selected the title and the count of person ids in the groups we specify later
- GROUP BY C.title
  - Says that the groups will be made based on certification title
- So this will count person within each certification title
  - In other words it will tell us how many unique people have each certification

Go Learn More

- There are many more aggregate functions
- They all work the same way
- We won't talk more about them in this class because they all work the same way