Data Boot Camp

Lesson 7.2

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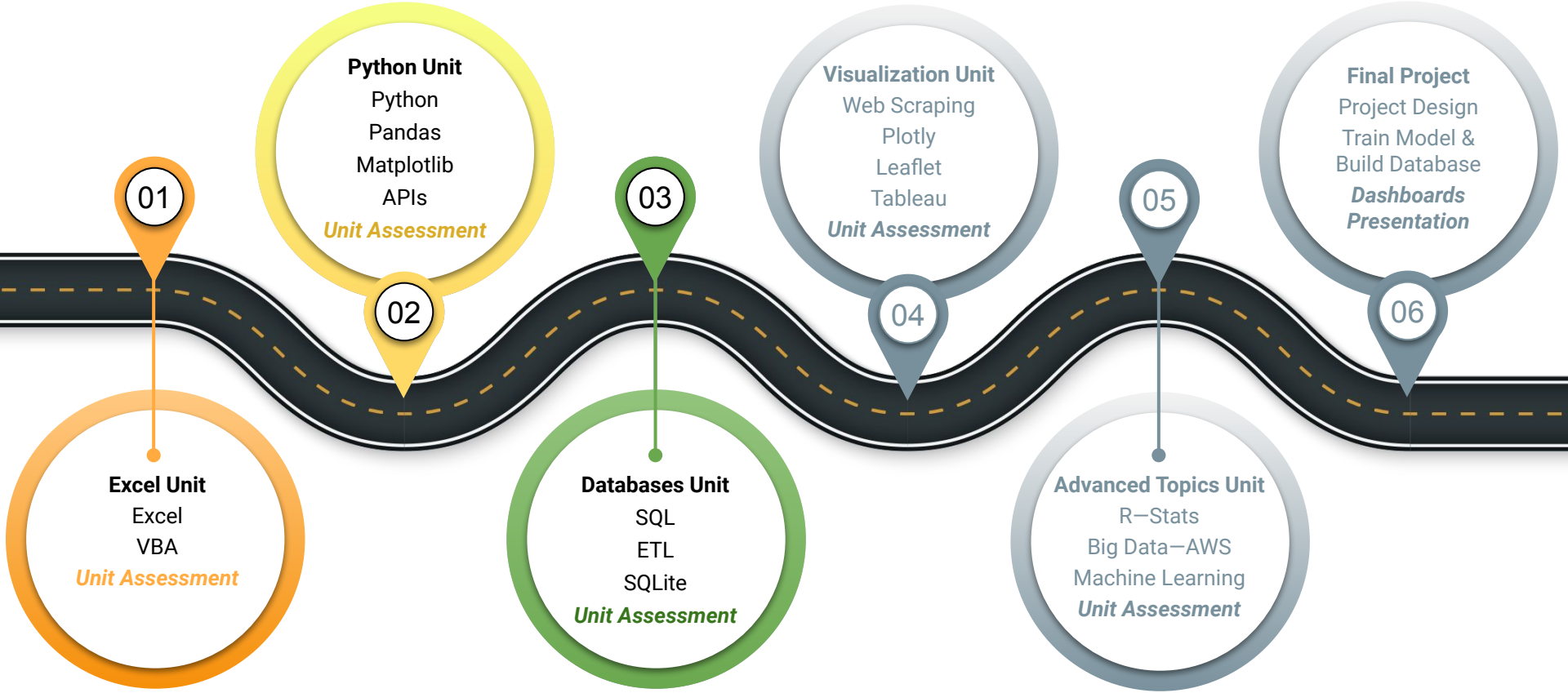
The Big Picture



This Week: SQL

By the end of this week, you'll know how to:

Perform queries using aggregate functions.

Perform complex queries with grouping and ordering.

Perform complex queries using multiple joins and filtering.

Perform queries to get unique and non-duplicate values.

This Week's Challenge

Using the skills learned throughout the week, create two tables that would help a company determine employee eligibility for a mentorship program.

Module 7

Today’s Agenda

Today's Agenda

By completing today's activities, you'll learn the following skills:

01 `GROUP BY` and `ORDER BY`

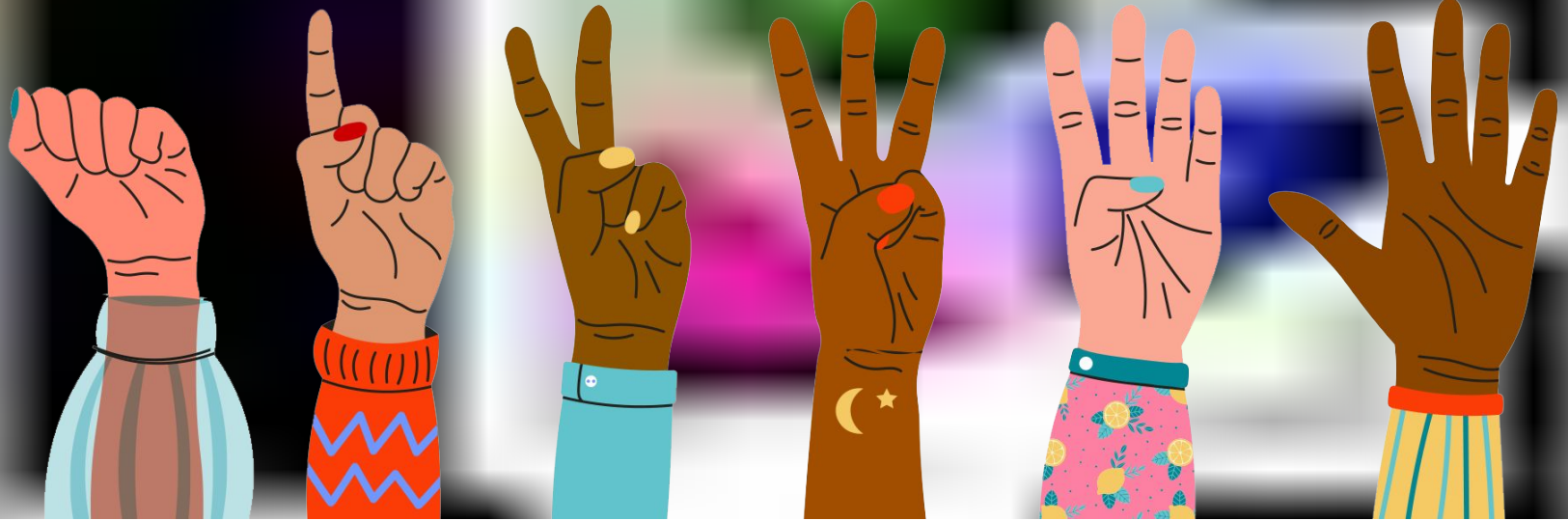
02 Aggregate Functions

03 Filtering with Multiple Joins

Make sure you've downloaded any relevant class files!

FIST TO FIVE:

How comfortable do you feel with this topic?



Time to Code

Pagila Database Setup

Suggested Time:

15 minutes

Aggregate Functions, Aliases, and Grouping

Aggregate functions allow you to perform a calculation on a set of values to return a single value.

Aggregate Functions, Aliases, and Grouping

The most commonly used aggregate functions are:

AVG	Calculates the average of a set of values.
COUNT	Counts the rows in a specific table or view.
MIN	Returns the minimum value in a set of values.
MAX	Returns the maximum value in a set of values.
SUM	Calculates the sum of a set of values.

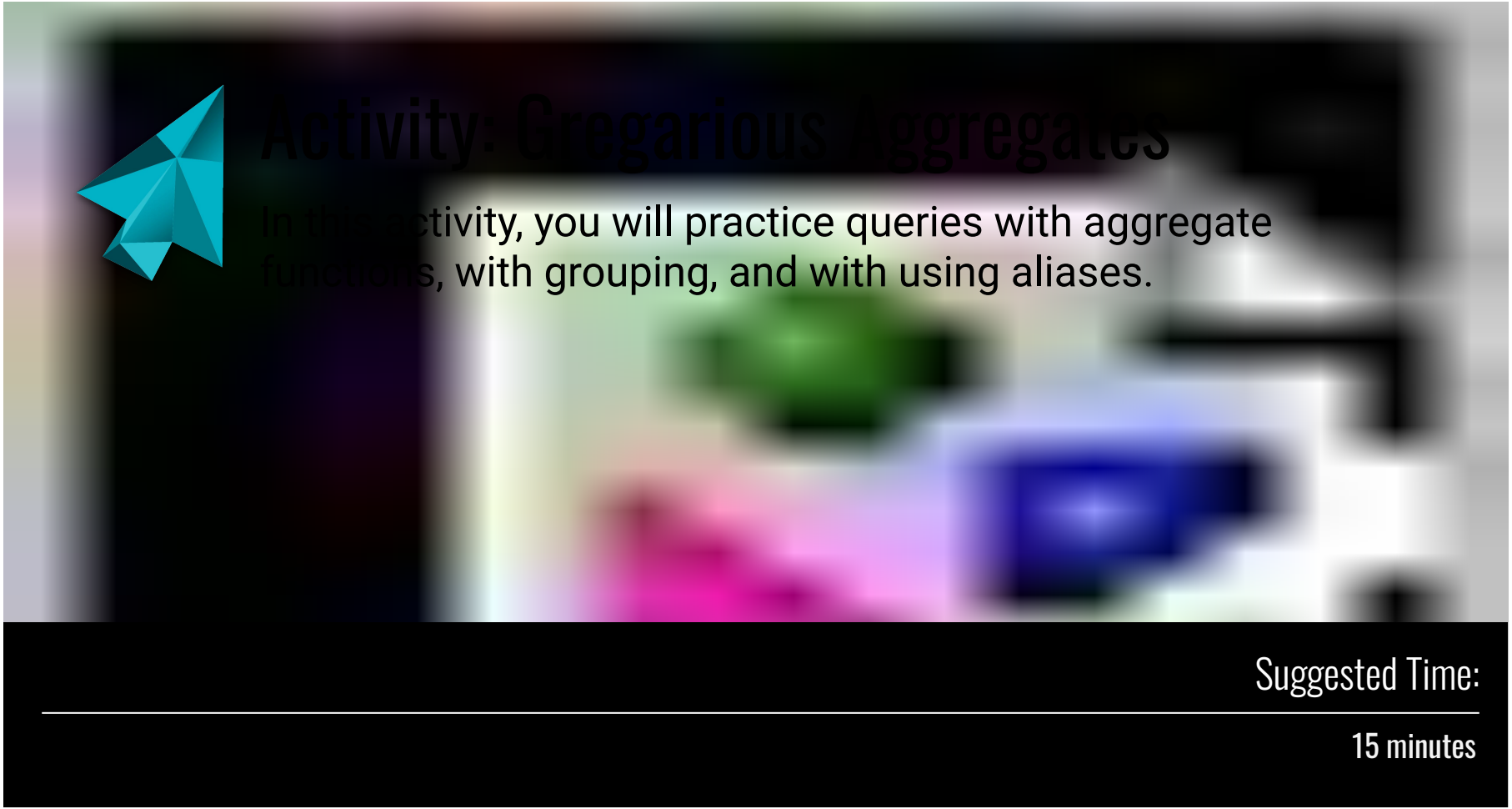
Aggregate Functions, Aliases, and Grouping

Aggregate Functions are often used with:

Instructor Demonstration

Aggregate Functions, Aliases, and Grouping

Questions?



Activity: Gregarious Aggregates

In this activity, you will practice queries with aggregate functions, with grouping, and with using aliases.

Suggested Time:

15 minutes

Activity: Gregarious Aggregates

Use aggregate functions as you run queries to answer the following questions. You will have to search the internet for some of them. Try to use aliases for more informative column headings.

- What is the average cost to rent a film in the stores?
- What is the average rental cost of films by rating?
  On average, what is the cheapest rating of films to rent? What is the most expensive?
- How much would it cost to replace all films in the database?
- How much would it cost to replace all films in each ratings category?
- How long is the longest movie in the database? How long is the shortest movie?

Hint: Consult the Postgres documentation on the “Aggregate Functions” section for a summary of the available functions.


Time’s Up! Let’s Review.

Movies Ordered By

Aggregate functions return the results in a random order.

This can be tough when trying to find the top or bottom numerical results.

The ORDER BY function

Postgres has a clause or statement called `ORDER BY` that will resolve the random order of the results when using aggregate functions.

When `ORDER BY` is added at the end of a query, the results will be sorted in ascending order by default.

```
SELECT rental_rate, AVG(length) AS "avg length"
GROUP BY rental_rate
ORDER BY "avg length";
```

The ORDER BY function

Is added towards the end of a query.

It returns in an ascending order by default.

It can also return in a descending order by adding `DESC`

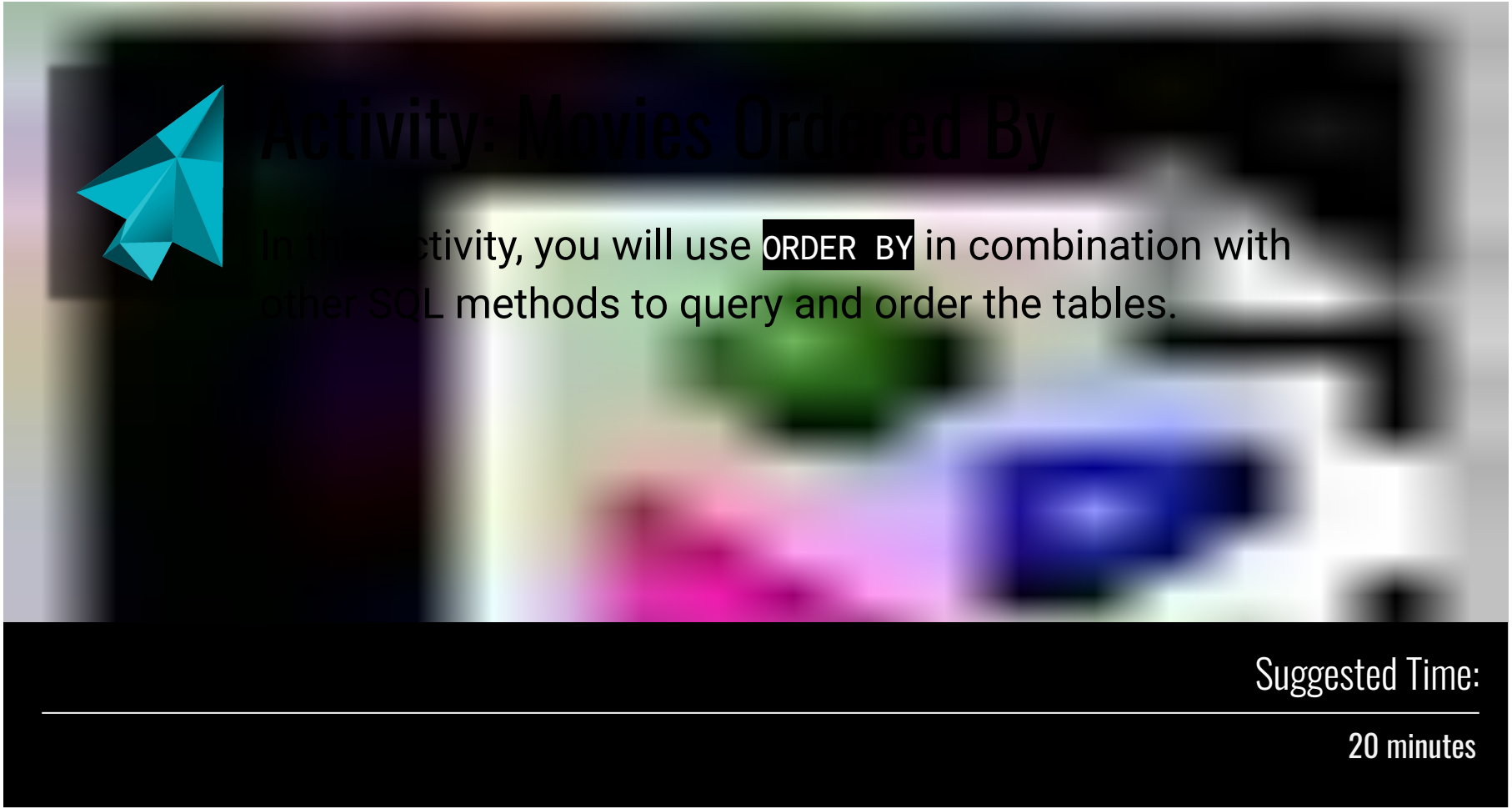
It can limit the return by adding `LIMIT`

NOTE: Use the `ROUND` function to round up the number after the the decimal.

Instructor Demonstration

Order By Aggregates

Questions?



Activity: Movies Ordered By

In this activity, you will use `ORDER BY` in combination with other SQL methods to query and order the tables.

Suggested Time:

20 minutes

Activity: Movies Ordered By

Instructions:

Determine the count of actor first name ordered in descending order.

Determine the average rental duration for each rating rounded to two decimals. Order these in ascending order.

Determine the top 10 average replace costs for movies by their length.

BONUS: Using the city and country tables, determine the count of countries in descending order.

Distinct Queries


The SQL statements covered in this demonstration will help you complete the Employee Database Challenge.

Instructor Demonstration

Distinct Queries

Questions?

Activity: Distinct Queries

In this activity, you will practice writing queries using `DISTINCT ON ()` with joins and filtering with the `WHERE` clause.

Suggested Time:

15 minutes


Time’s Up! Let’s Review.

Questions?