SQL Lesson 1: SELECT queries 101

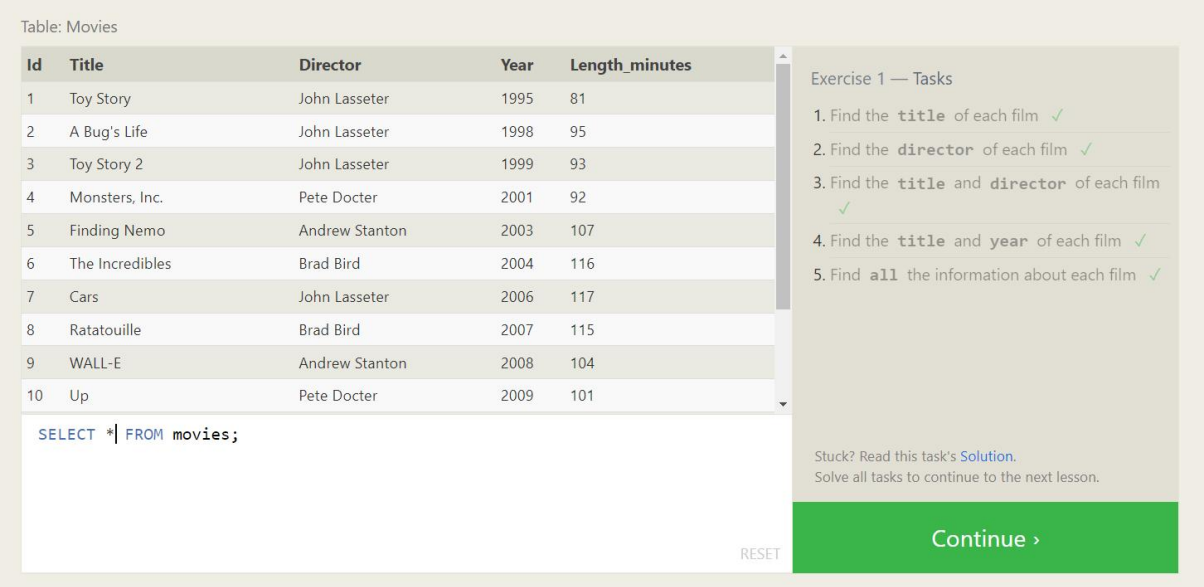
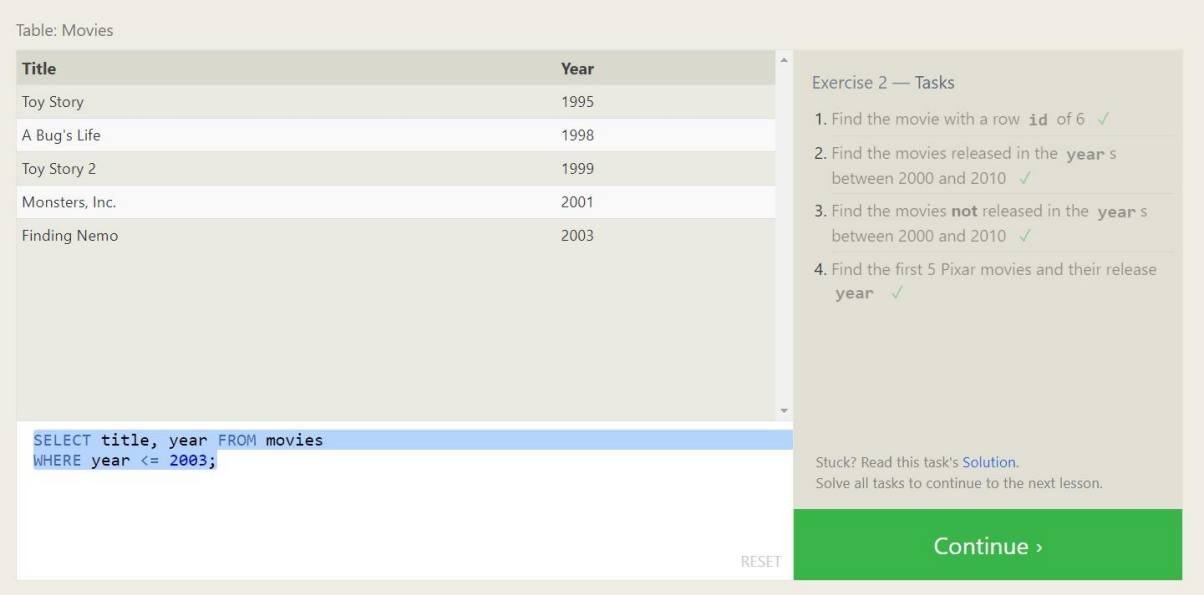


Table: Movies

Id	Title	Director	Year	Length_minutes
1	Toy Story	John Lasseter	1995	81
2	A Bug's Life	John Lasseter	1998	95
3	Toy Story 2	John Lasseter	1999	93
4	Monsters, Inc.	Pete Docter	2001	92
5	Finding Nemo	Andrew Stanton	2003	107
6	The Incredibles	Brad Bird	2004	116
7	Cars	John Lasseter	2006	117
8	Ratatouille	Brad Bird	2007	115
9	WALL-E	Andrew Stanton	2008	104
10	Up	Pete Docter	2009	101

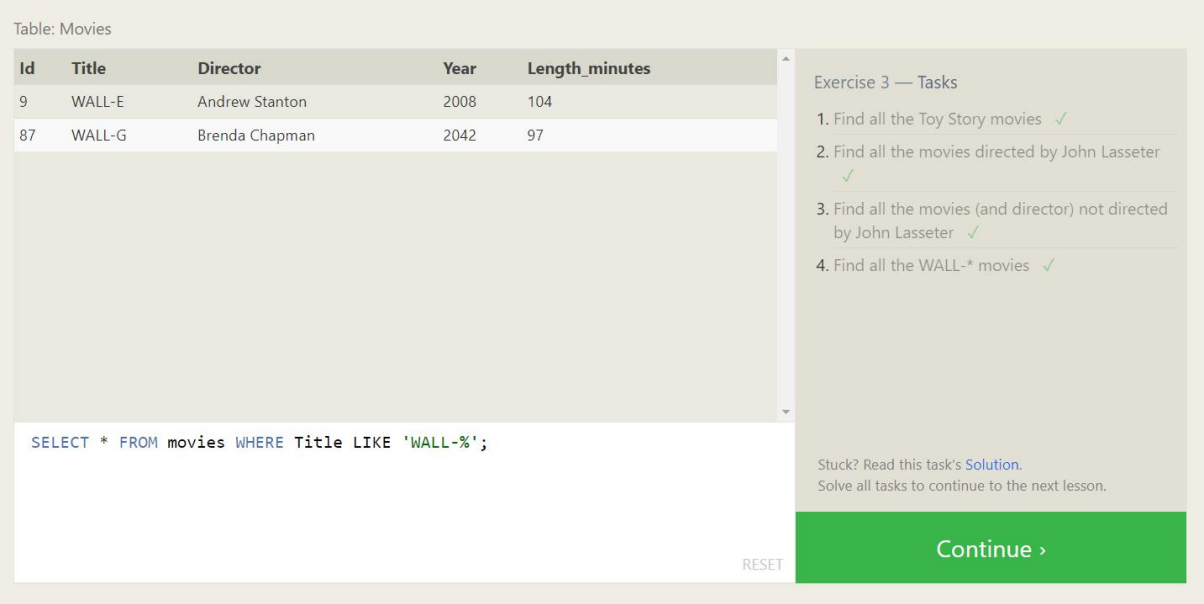
1. SELECT title FROM movies;
2. SELECT director FROM movies;
3. SELECT title,director FROM movies;
4. SELECT title,year FROM movies;
5. SELECT * FROM movies;

SQL Lesson 2: Queries with constraints (Pt. 1)



1. SELECT * FROM movies
   WHERE Id = 6;
2. SELECT * FROM movies
   WHERE year BETWEEN 2000 AND 2010;
3. SELECT * FROM movies
   WHERE Year NOT BETWEEN 2000 AND 2010;
4. SELECT title, year FROM movies
   WHERE year <= 2003;

SQL Lesson 3: Queries with constraints (Pt. 2)



1. SELECT * FROM movies WHERE Title LIKE 'Toy Story%';
2. SELECT * FROM movies WHERE Director = 'John Lasseter';
3. SELECT * FROM movies WHERE Director != 'John Lasseter';
4. SELECT * FROM movies WHERE Title LIKE 'WALL-%';

SQL Lesson 4: Filtering and sorting Query results

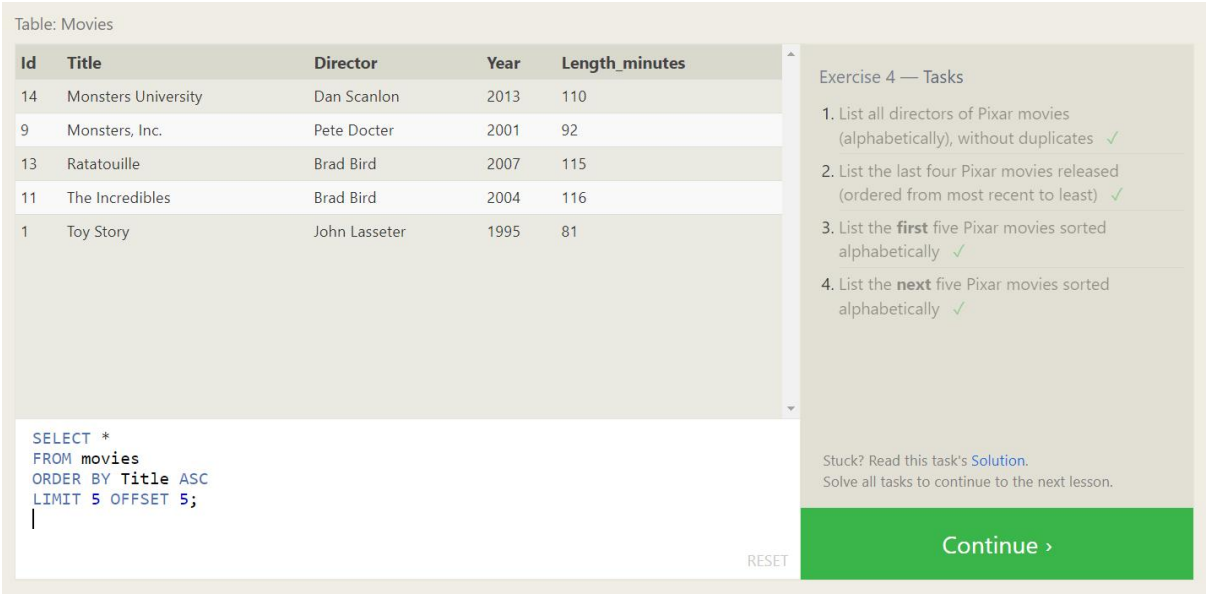


Table: Movies

Id	Title	Director	Year	Length_minutes
14	Monsters University	Dan Scanlon	2013	110
9	Monsters, Inc.	Pete Docter	2001	92
13	Ratatouille	Brad Bird	2007	115
11	The Incredibles	Brad Bird	2004	116
1	Toy Story	John Lasseter	1995	81

```
SELECT *
FROM movies
ORDER BY Title ASC
LIMIT 5 OFFSET 5;
```

RESET

Exercise 4 — Tasks

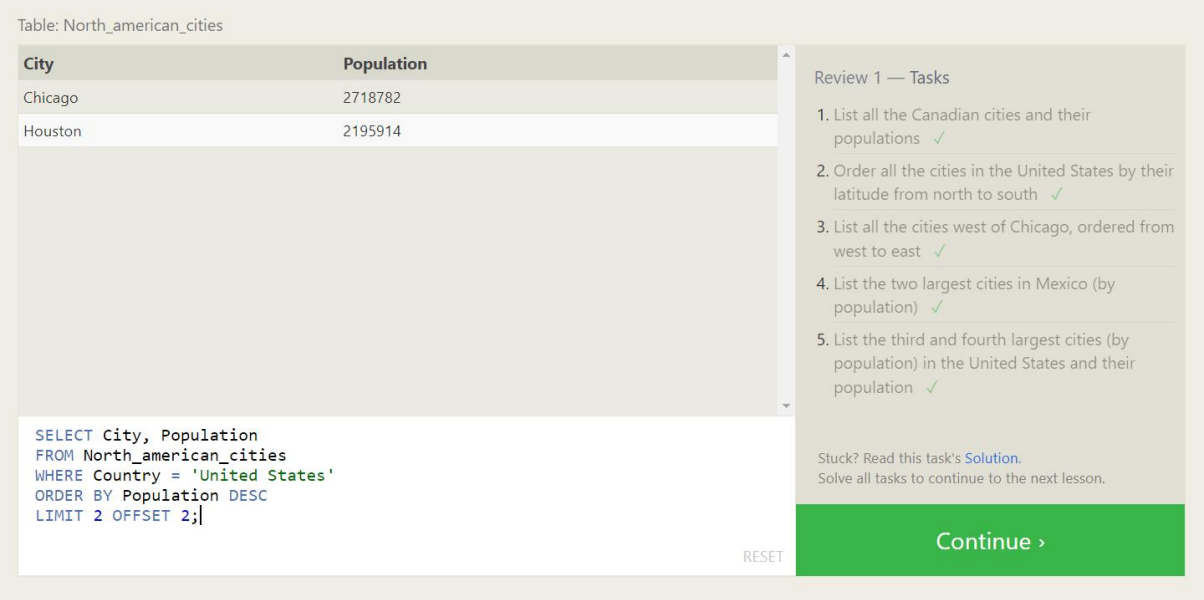
1. List all directors of Pixar movies (alphabetically), without duplicates ✓
2. List the last four Pixar movies released (ordered from most recent to least) ✓
3. List the **first** five Pixar movies sorted alphabetically ✓
4. List the **next** five Pixar movies sorted alphabetically ✓

Stuck? Read this task's Solution.
Solve all tasks to continue to the next lesson.

Continue ›

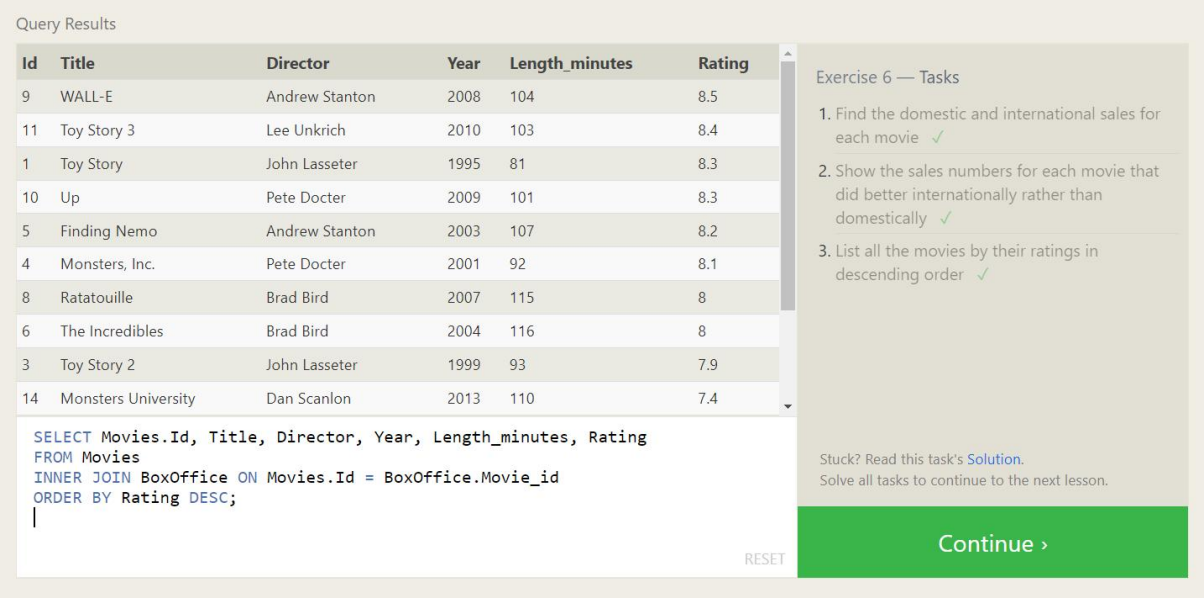
1. SELECT DISTINCT Director
   FROM movies
   ORDER BY Director ASC;
2. SELECT *
   FROM movies
   ORDER BY Year DESC
   LIMIT 4;
3. SELECT *
   FROM movies
   ORDER BY Title ASC
   LIMIT 5;
4. SELECT *
   FROM movies
   ORDER BY Title ASC
   LIMIT 5 OFFSET 5;

SQL Review: Simple SELECT Queries



1. SELECT City, Population
   FROM North_american_cities
   WHERE Country = 'Canada';
2. SELECT City, Latitude
   FROM North_american_cities
   WHERE Country = 'United States'
   ORDER BY Latitude DESC;
3. SELECT City, Longitude
   FROM North_american_cities
   WHERE Longitude < (SELECT Longitude FROM North_american_cities WHERE City = 'Chicago')
   ORDER BY Longitude ASC;
4. SELECT City, Population
   FROM North_american_cities
   WHERE Country = 'Mexico'
   ORDER BY Population DESC
   LIMIT 2;
5. SELECT City, Population
   FROM North_american_cities
   WHERE Country = 'United States'
   ORDER BY Population DESC
   LIMIT 2 OFFSET 2;

SQL Lesson 6: Multi-table queries with JOINs



Query Results

Id	Title	Director	Year	Length_minutes	Rating
9	WALL-E	Andrew Stanton	2008	104	8.5
11	Toy Story 3	Lee Unkrich	2010	103	8.4
1	Toy Story	John Lasseter	1995	81	8.3
10	Up	Pete Docter	2009	101	8.3
5	Finding Nemo	Andrew Stanton	2003	107	8.2
4	Monsters, Inc.	Pete Docter	2001	92	8.1
8	Ratatouille	Brad Bird	2007	115	8
6	The Incredibles	Brad Bird	2004	116	8
3	Toy Story 2	John Lasseter	1999	93	7.9
14	Monsters University	Dan Scanlon	2013	110	7.4

```
SELECT Movies.Id, Title, Director, Year, Length_minutes, Rating
FROM Movies
INNER JOIN BoxOffice ON Movies.Id = BoxOffice.Movie_id
ORDER BY Rating DESC;
```

RESET

Exercise 6 — Tasks

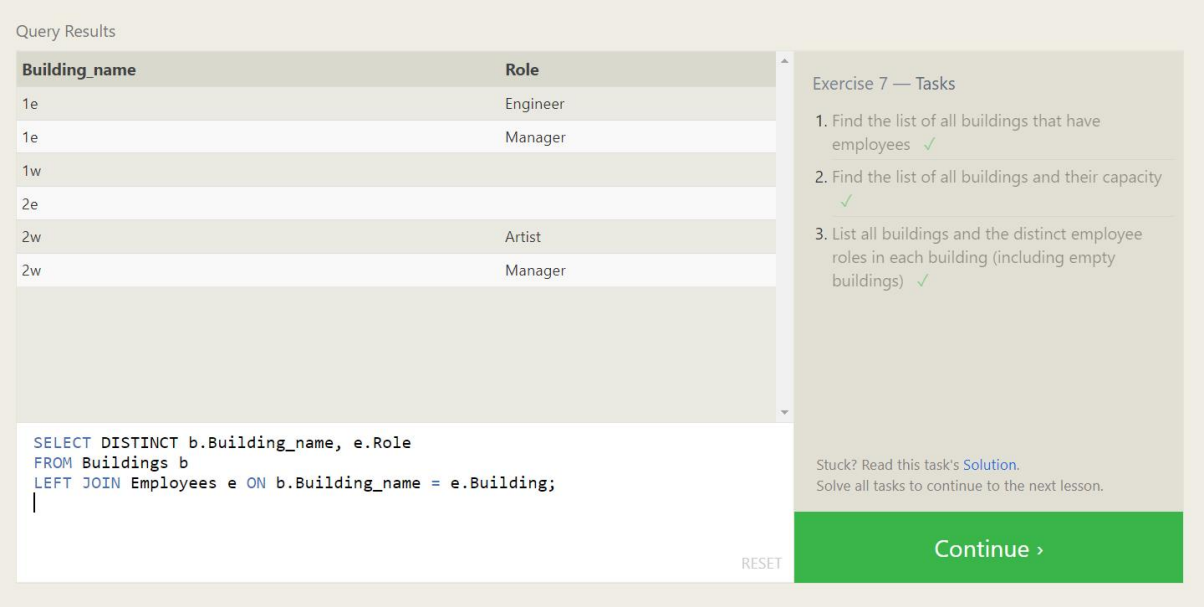
1. Find the domestic and international sales for each movie ✓
2. Show the sales numbers for each movie that did better internationally rather than domestically ✓
3. List all the movies by their ratings in descending order ✓

Stuck? Read this task's Solution.
Solve all tasks to continue to the next lesson.

Continue ›

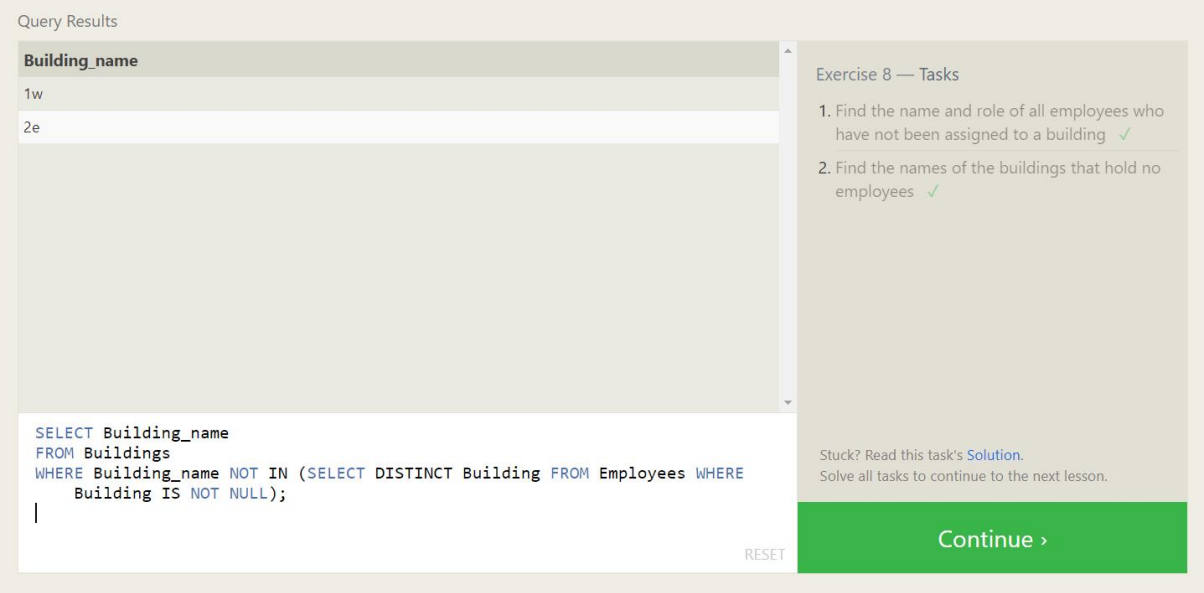
1. SELECT Movies.Id, Title, Director, Year, Length_minutes, Domestic_sales, International_sales
   FROM Movies
   INNER JOIN BoxOffice ON Movies.Id = BoxOffice.Movie_id;
2. SELECT Movies.Id, Title, Director, Year, Length_minutes, Domestic_sales, International_sales
   FROM Movies
   INNER JOIN BoxOffice ON Movies.Id = BoxOffice.Movie_id
   WHERE International_sales > Domestic_sales;
3. SELECT Movies.Id, Title, Director, Year, Length_minutes, Rating
   FROM Movies
   INNER JOIN BoxOffice ON Movies.Id = BoxOffice.Movie_id
   ORDER BY Rating DESC;

SQL Lesson 7: OUTER JOINs



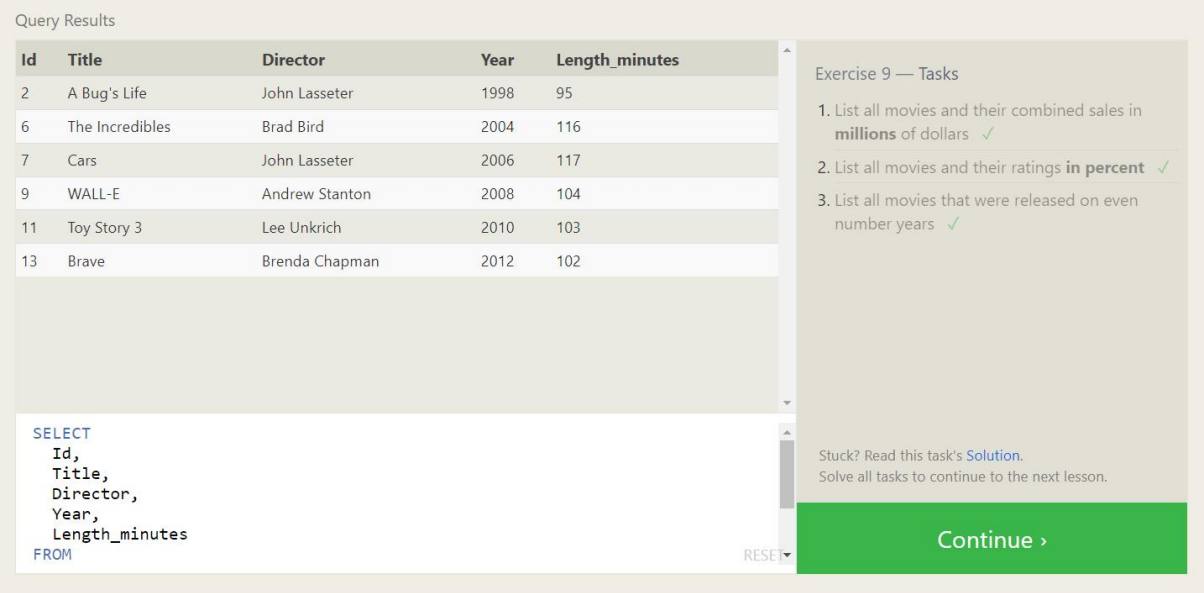
1. SELECT DISTINCT e.Building
   FROM Employees e
   LEFT JOIN Buildings b ON e.Building = b.Building_name
   WHERE e.Building IS NOT NULL;
2. SELECT b.Building_name, b.Capacity
   FROM Buildings b
   LEFT JOIN Employees e ON b.Building_name = e.Building
   GROUP BY b.Building_name, b.Capacity;
3. SELECT DISTINCT b.Building_name, e.Role
   FROM Buildings b
   LEFT JOIN Employees e ON b.Building_name = e.Building;

SQL Lesson 8: A short note on NULLs



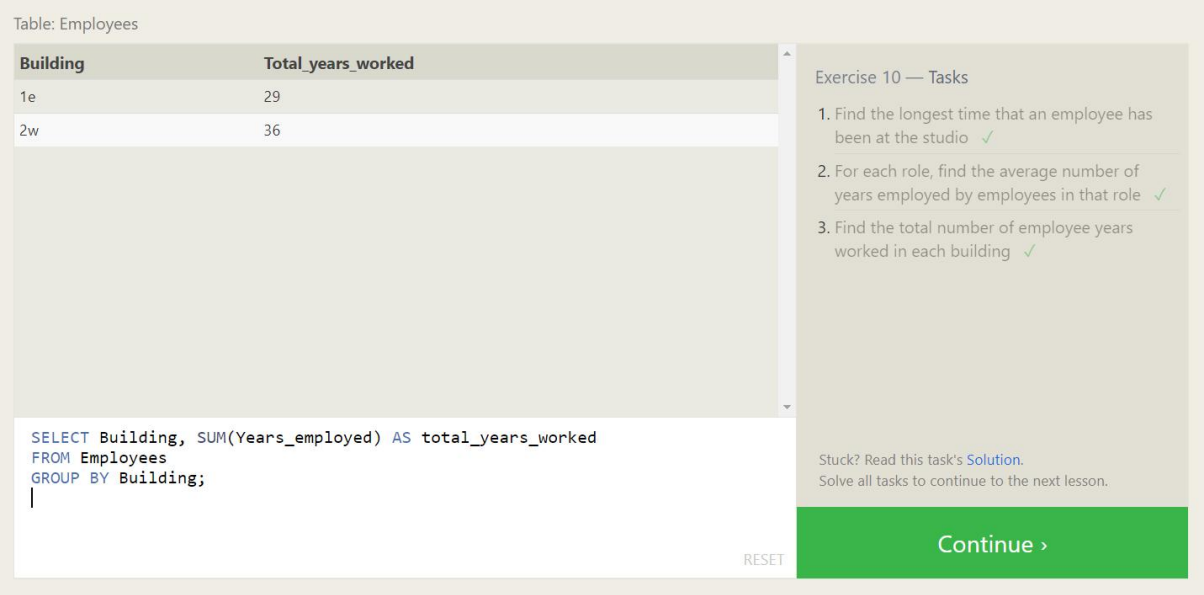
1. SELECT Name, Role
   FROM Employees
   WHERE Building IS NULL;
2. SELECT Building_name
   FROM Buildings
   WHERE Building_name NOT IN (SELECT DISTINCT Building FROM Employees WHERE Building IS NOT NULL);

SQL Lesson 9: Queries with expressions



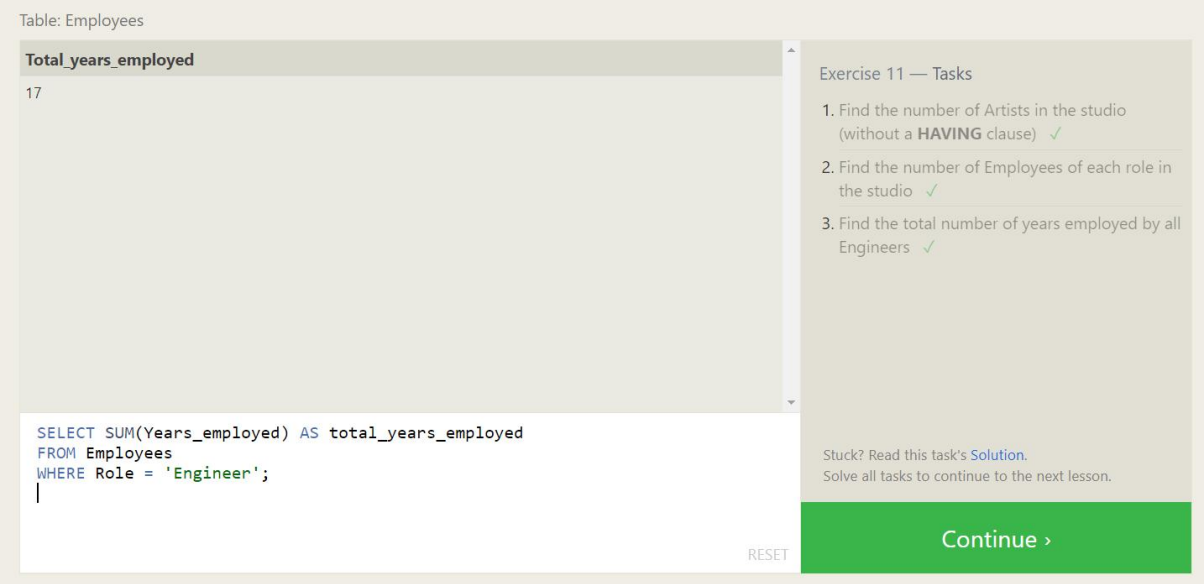
1. SELECT
   m.Id,
   m.Title,
   m.Director,
   m.Year,
   m.Length_minutes,
   (b.Domestic_sales + b.International_sales) / 1000000 AS combined_sales_millions
   FROM
   Movies m
   JOIN
   Boxoffice b ON m.Id = b.Movie_id;
2. SELECT
   m.Id,
   m.Title,
   m.Director,
   m.Year,
   m.Length_minutes,
   b.Rating * 10 AS rating_percent
   FROM
   Movies m
   JOIN
   Boxoffice b ON m.Id = b.Movie_id;
3. SELECT
   Id,
   Title,
   Director,
   Year,
   Length_minutes
   FROM
   Movies
   WHERE
   Year % 2 = 0;

SQL Lesson 10: Queries with aggregates (Pt. 1)



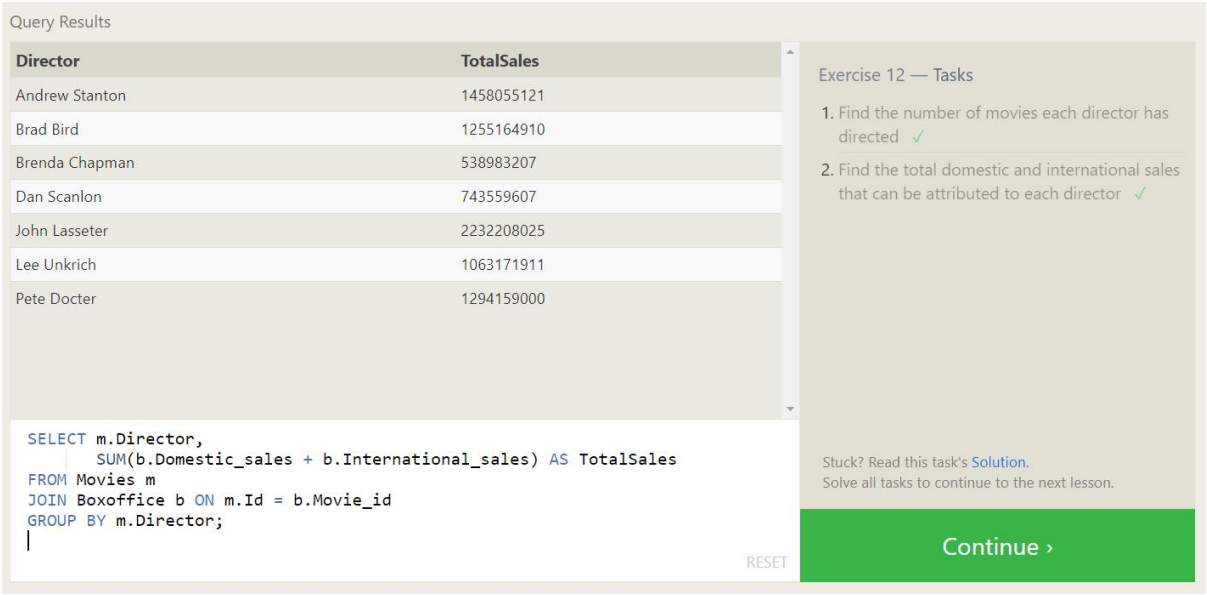
1. SELECT MAX(Years_employed) AS longest_time
   FROM Employees;
2. SELECT Role, AVG(Years_employed) AS avg_years_employed
   FROM Employees
   GROUP BY Role;
3. SELECT Building, SUM(Years_employed) AS total_years_worked
   FROM Employees
   GROUP BY Building;

SQL Lesson 11: Queries with aggregates (Pt. 2)



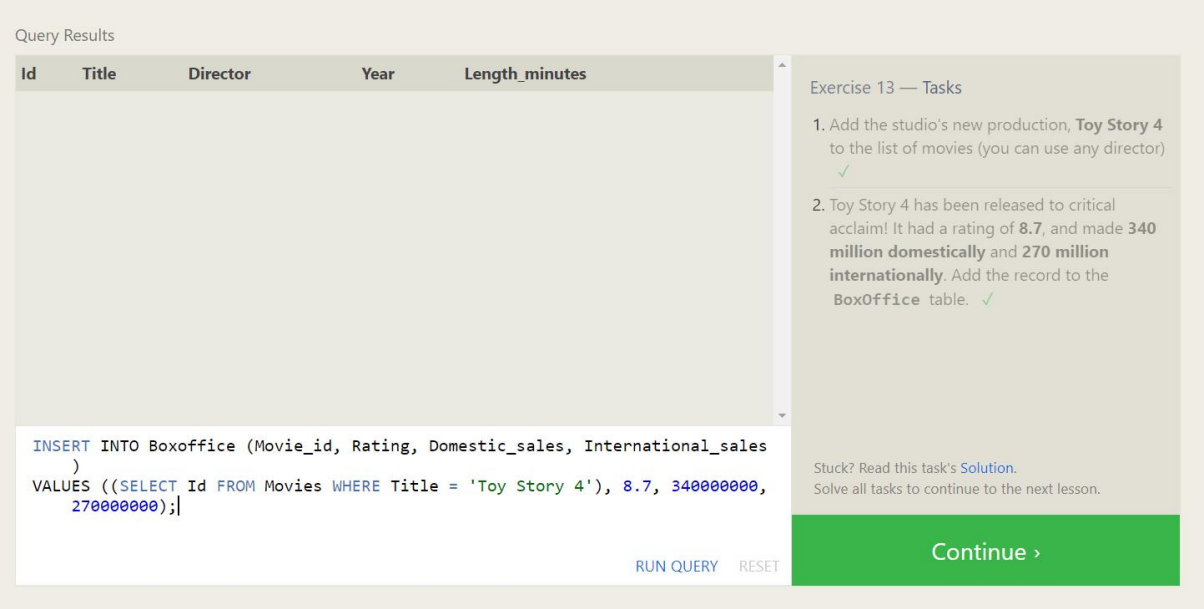
1. SELECT COUNT(*) AS num_artists
   FROM Employees
   WHERE Role = 'Artist';
2. SELECT Role, COUNT(*) AS num_employees
   FROM Employees
   GROUP BY Role;
3. SELECT SUM(Years_employed) AS total_years_employed
   FROM Employees
   WHERE Role = 'Engineer';

SQL Lesson 12: Order of execution of a Query



1. SELECT Director, COUNT(*) AS NumMoviesDirected
   FROM Movies
   GROUP BY Director;
2. SELECT m.Director,
   SUM(b.Domestic_sales + b.International_sales) AS TotalSales
   FROM Movies m
   JOIN Boxoffice b ON m.Id = b.Movie_id
   GROUP BY m.Director;

SQL Lesson 13: Inserting rows



1. INSERT INTO Movies (Title, Director, Year, Length_minutes)
   VALUES ('Toy Story 4', 'Any Director', 2023, 100);
2. INSERT INTO Boxoffice (Movie_id, Rating, Domestic_sales, International_sales)
   VALUES ((SELECT Id FROM Movies WHERE Title = 'Toy Story 4'), 8.7, 340000000, 270000000);

SQL Lesson 14: Updating rows

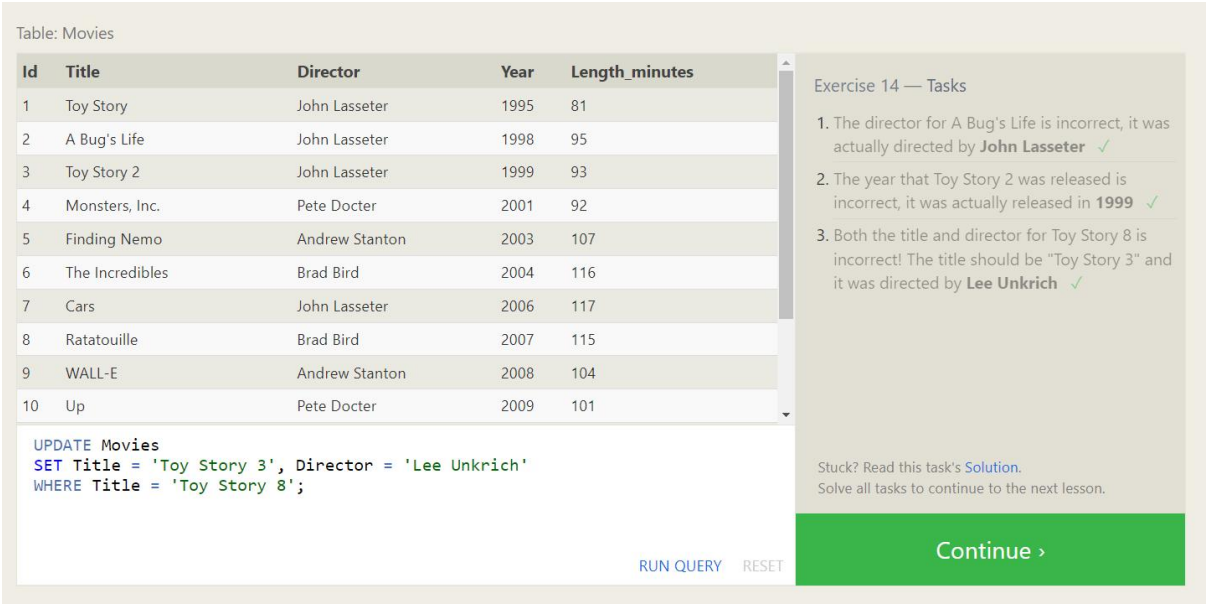


Table: Movies

Id	Title	Director	Year	Length_minutes
1	Toy Story	John Lasseter	1995	81
2	A Bug's Life	John Lasseter	1998	95
3	Toy Story 2	John Lasseter	1999	93
4	Monsters, Inc.	Pete Docter	2001	92
5	Finding Nemo	Andrew Stanton	2003	107
6	The Incredibles	Brad Bird	2004	116
7	Cars	John Lasseter	2006	117
8	Ratatouille	Brad Bird	2007	115
9	WALL-E	Andrew Stanton	2008	104
10	Up	Pete Docter	2009	101

```
UPDATE Movies
SET Title = 'Toy Story 3', Director = 'Lee Unkrich'
WHERE Title = 'Toy Story 8';
```

RUN QUERY RESET

Exercise 14 — Tasks

1. The director for A Bug's Life is incorrect, it was actually directed by **John Lasseter** ✓
2. The year that Toy Story 2 was released is incorrect, it was actually released in **1999** ✓
3. Both the title and director for Toy Story 8 is incorrect! The title should be "Toy Story 3" and it was directed by **Lee Unkrich** ✓

Stuck? Read this task's Solution.
Solve all tasks to continue to the next lesson.

Continue ›

1. UPDATE Movies
   SET Director = 'John Lasseter'
   WHERE Title = 'A Bug"s Life';
2. UPDATE Movies
   SET Year = 1999
   WHERE Title = 'Toy Story 2';
3. UPDATE Movies
   SET Title = 'Toy Story 3', Director = 'Lee Unkrich'
   WHERE Title = 'Toy Story 8';

SQL Lesson 15: Deleting rows

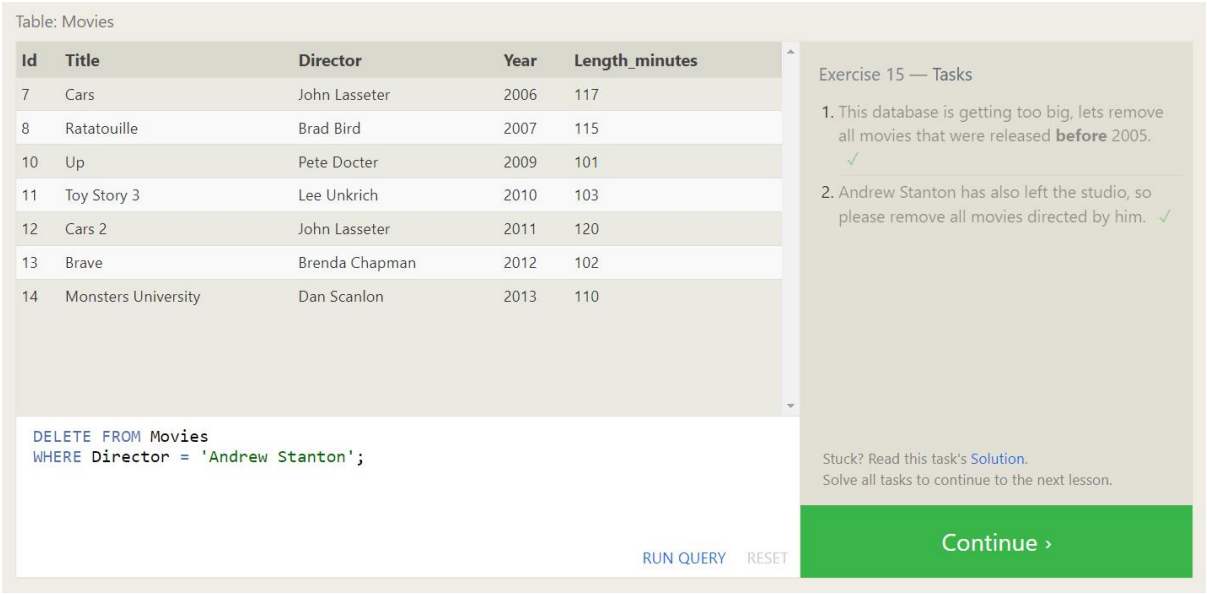
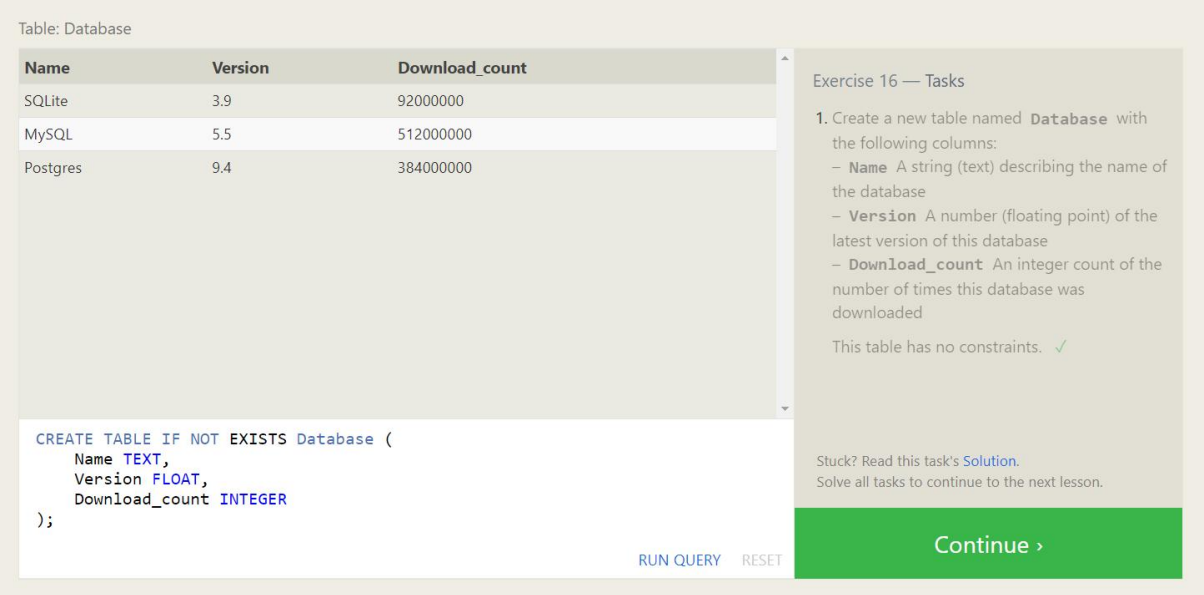


Table: Movies

Id	Title	Director	Year	Length_minutes
7	Cars	John Lasseter	2006	117
8	Ratatouille	Brad Bird	2007	115
10	Up	Pete Docter	2009	101
11	Toy Story 3	Lee Unkrich	2010	103
12	Cars 2	John Lasseter	2011	120
13	Brave	Brenda Chapman	2012	102
14	Monsters University	Dan Scanlon	2013	110

1. DELETE FROM Movies
   WHERE Year < 2005;
2. DELETE FROM Movies
   WHERE Director = 'Andrew Stanton';

SQL Lesson 16: Creating tables



1. CREATE TABLE IF NOT EXISTS Database (
   Name TEXT,
   Version FLOAT,
   Download_count INTEGER
   );

SQL Lesson 17: Altering tables

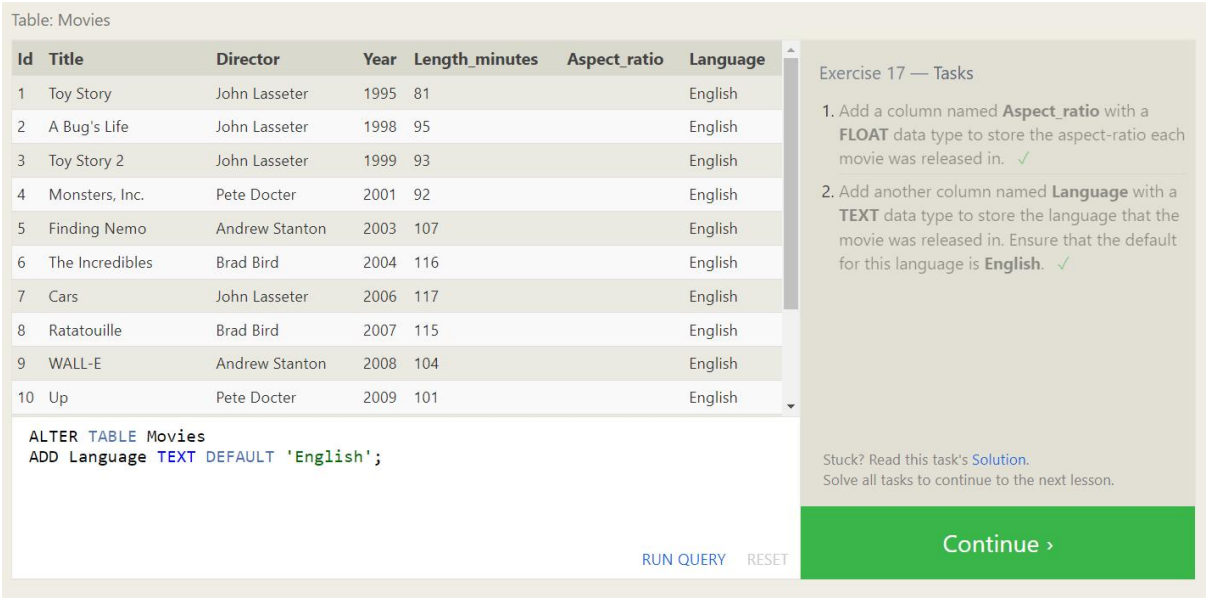


Table: Movies

Id	Title	Director	Year	Length_minutes	Aspect_ratio	Language
1	Toy Story	John Lasseter	1995	81		English
2	A Bug's Life	John Lasseter	1998	95		English
3	Toy Story 2	John Lasseter	1999	93		English
4	Monsters, Inc.	Pete Docter	2001	92		English
5	Finding Nemo	Andrew Stanton	2003	107		English
6	The Incredibles	Brad Bird	2004	116		English
7	Cars	John Lasseter	2006	117		English
8	Ratatouille	Brad Bird	2007	115		English
9	WALL-E	Andrew Stanton	2008	104		English
10	Up	Pete Docter	2009	101		English

```
ALTER TABLE Movies
ADD Language TEXT DEFAULT 'English';
```

RUN QUERY RESET

Exercise 17 — Tasks

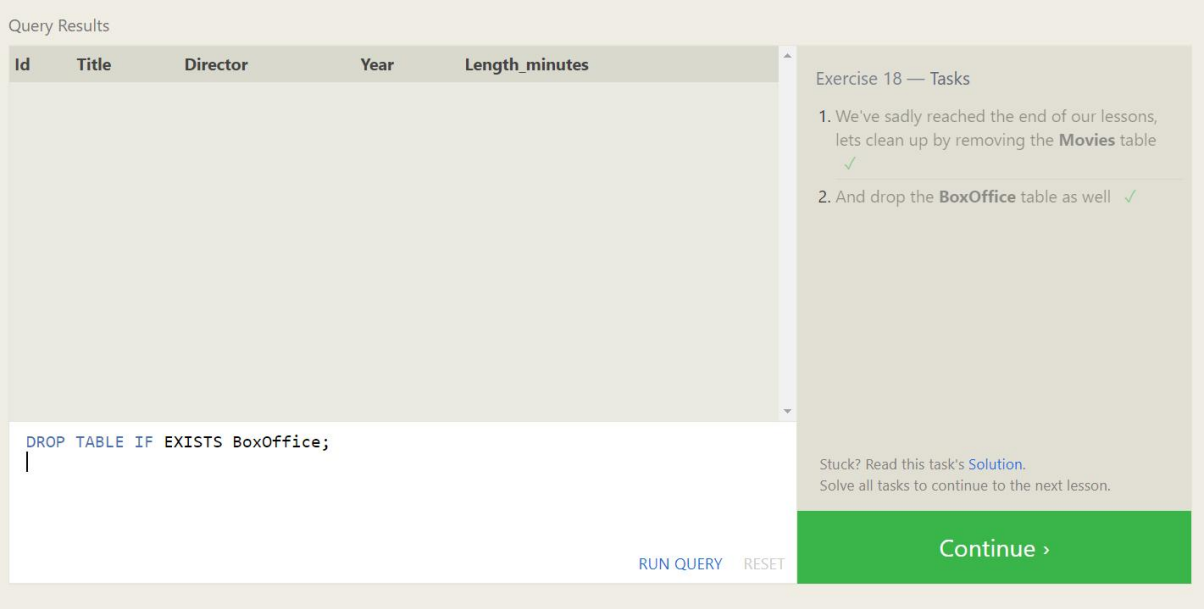
1. Add a column named **Aspect_ratio** with a **FLOAT** data type to store the aspect-ratio each movie was released in. ✓
2. Add another column named **Language** with a **TEXT** data type to store the language that the movie was released in. Ensure that the default for this language is **English**. ✓

Stuck? Read this task's Solution.
Solve all tasks to continue to the next lesson.

Continue ›

1. ALTER TABLE Movies
   ADD Aspect_ratio FLOAT;
2. ALTER TABLE Movies
   ADD Language TEXT DEFAULT 'English';

SQL Lesson 18: Dropping tables



1. DROP TABLE IF EXISTS Movies;
2. DROP TABLE IF EXISTS BoxOffice;