DATABASE-MySQL

SQL Lesson 1: SELECT queries 101

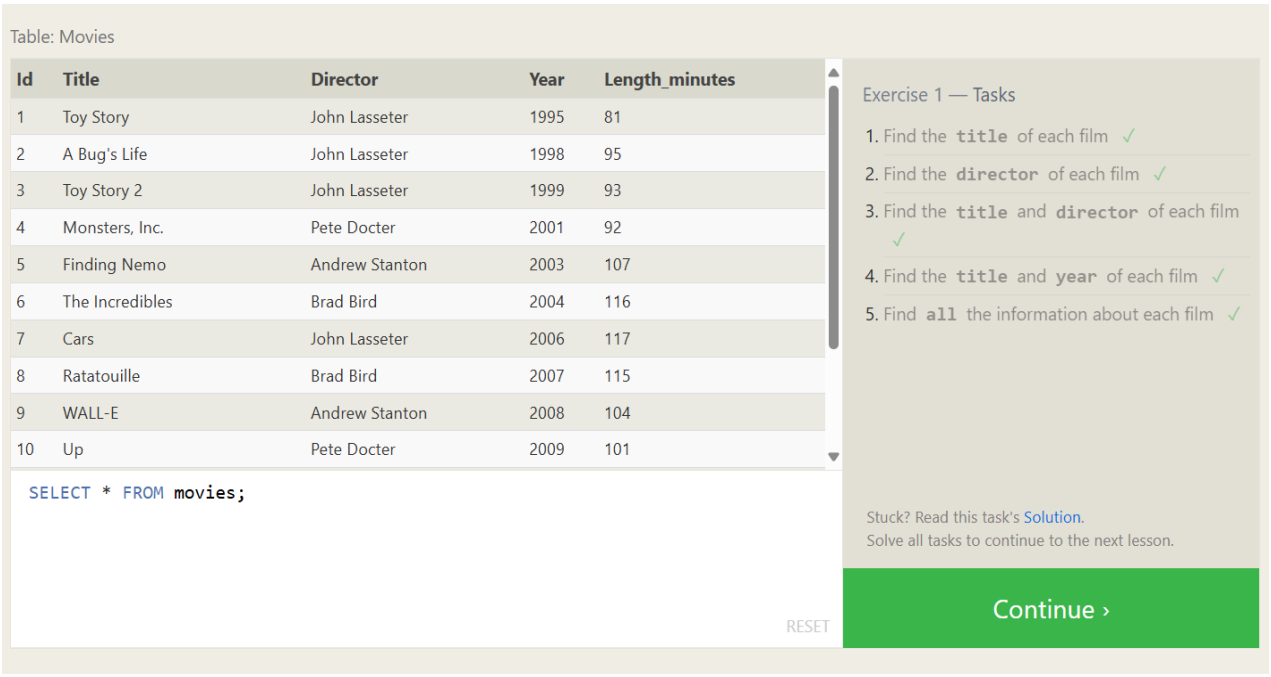


Table: Movies

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

```
SELECT * FROM movies;
```

RESET

Exercise 1 — Tasks

1. Find the `title` of each film ✓
2. Find the `director` of each film ✓
3. Find the `title` and `director` of each film ✓
4. Find the `title` and `year` of each film ✓
5. Find `all` the information about each film ✓

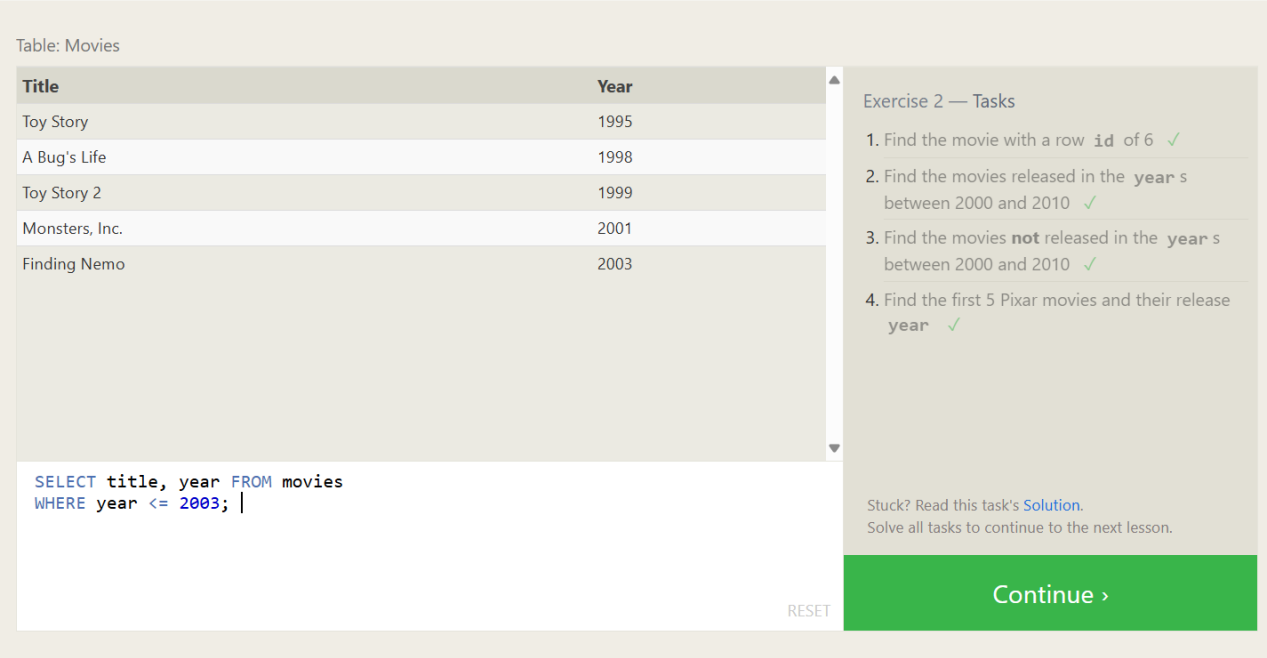
Stuck? Read this task's Solution.
Solve all tasks to continue to the next lesson.

Continue ›

Solutions :

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;**

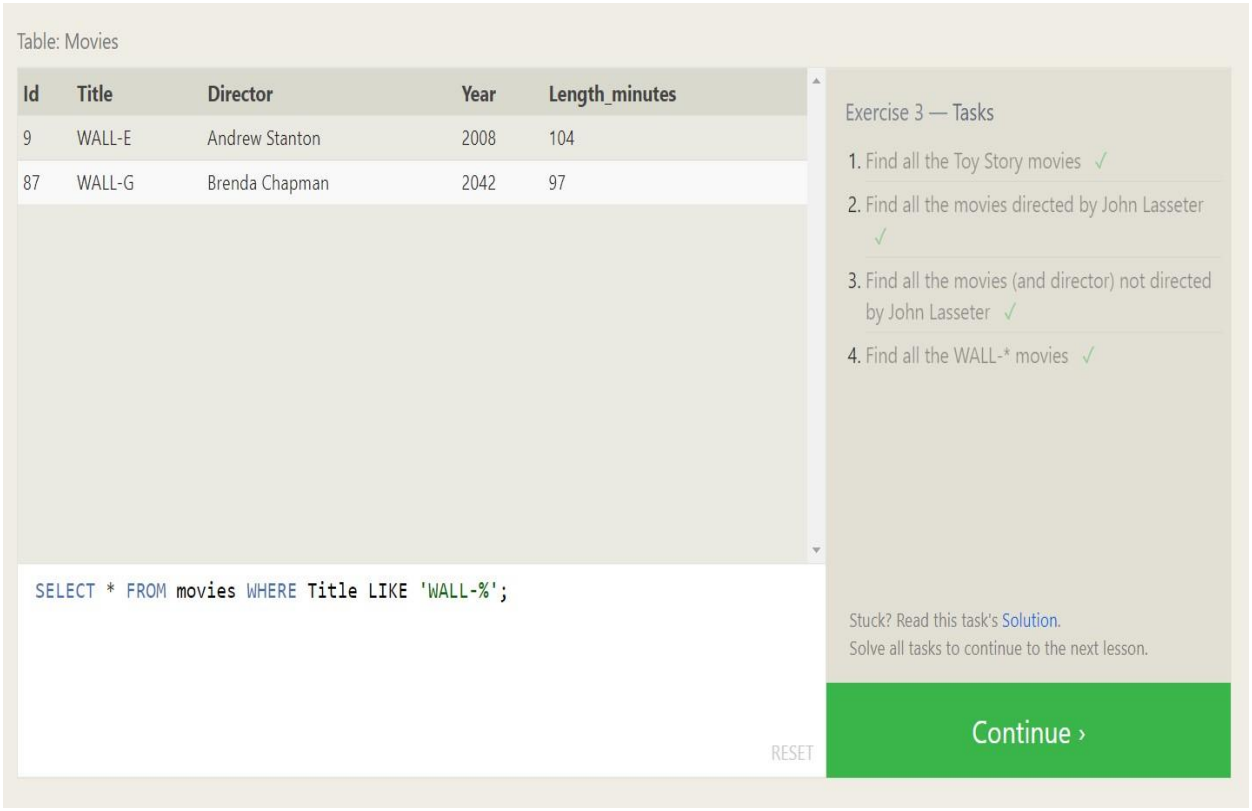
SQL Lesson 2: Queries with constraints (Pt. 1)



Solutions :

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)



Solutions :

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

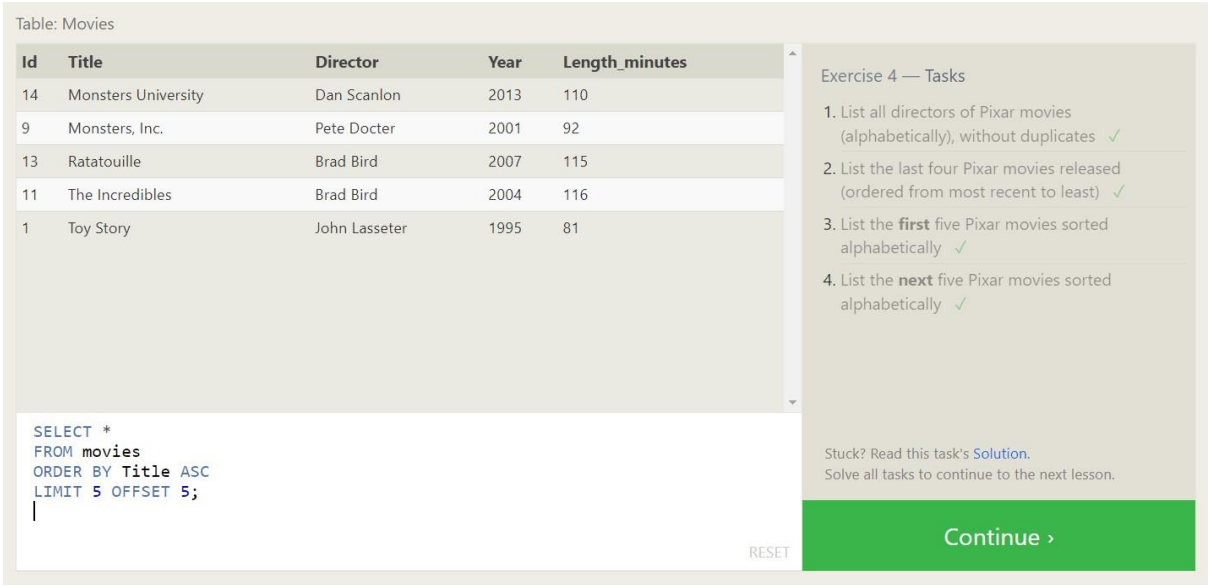


Table: Movies

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 ✓

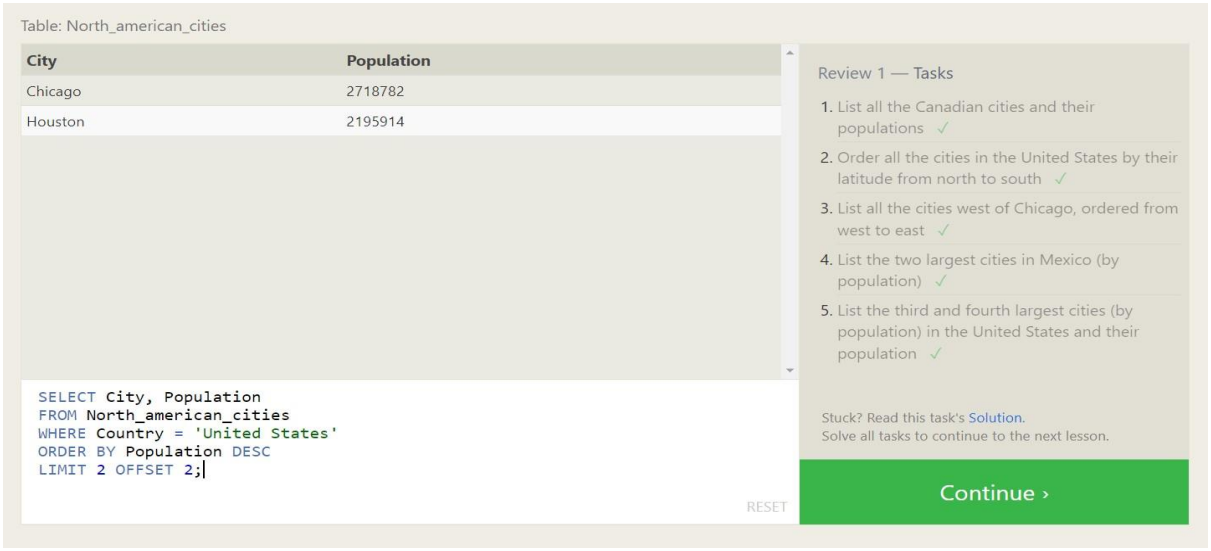
Stuck? Read this task's Solution.
Solve all tasks to continue to the next lesson.

Continue ›

Solutions :

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



Solutions :

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 ✓

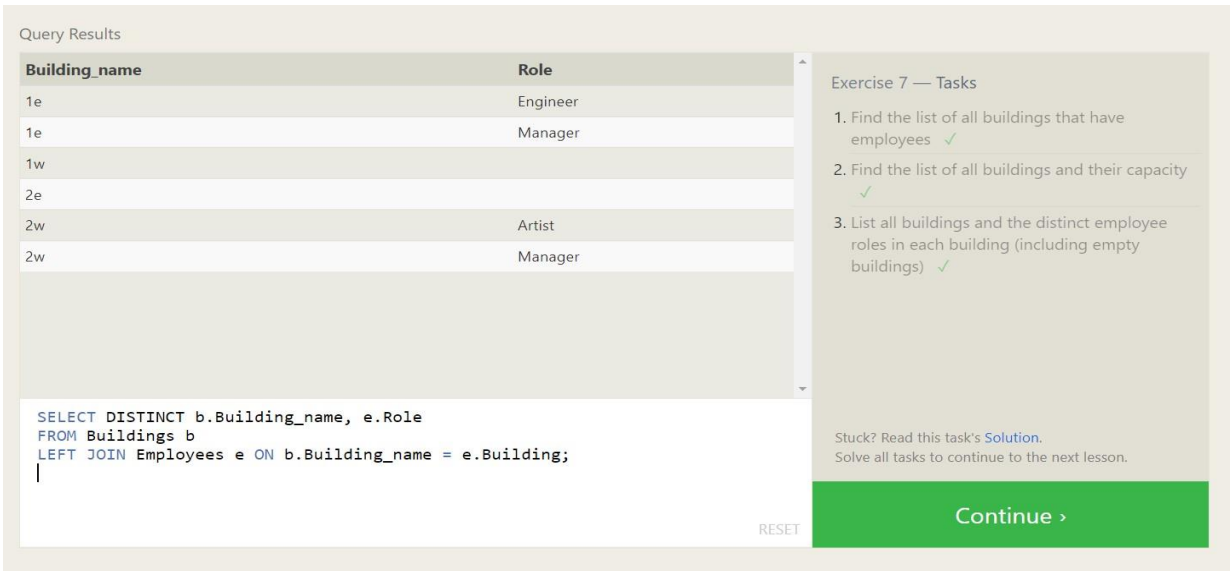
Stuck? Read this task's Solution.
Solve all tasks to continue to the next lesson.

Continue ›

Solutions :

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;

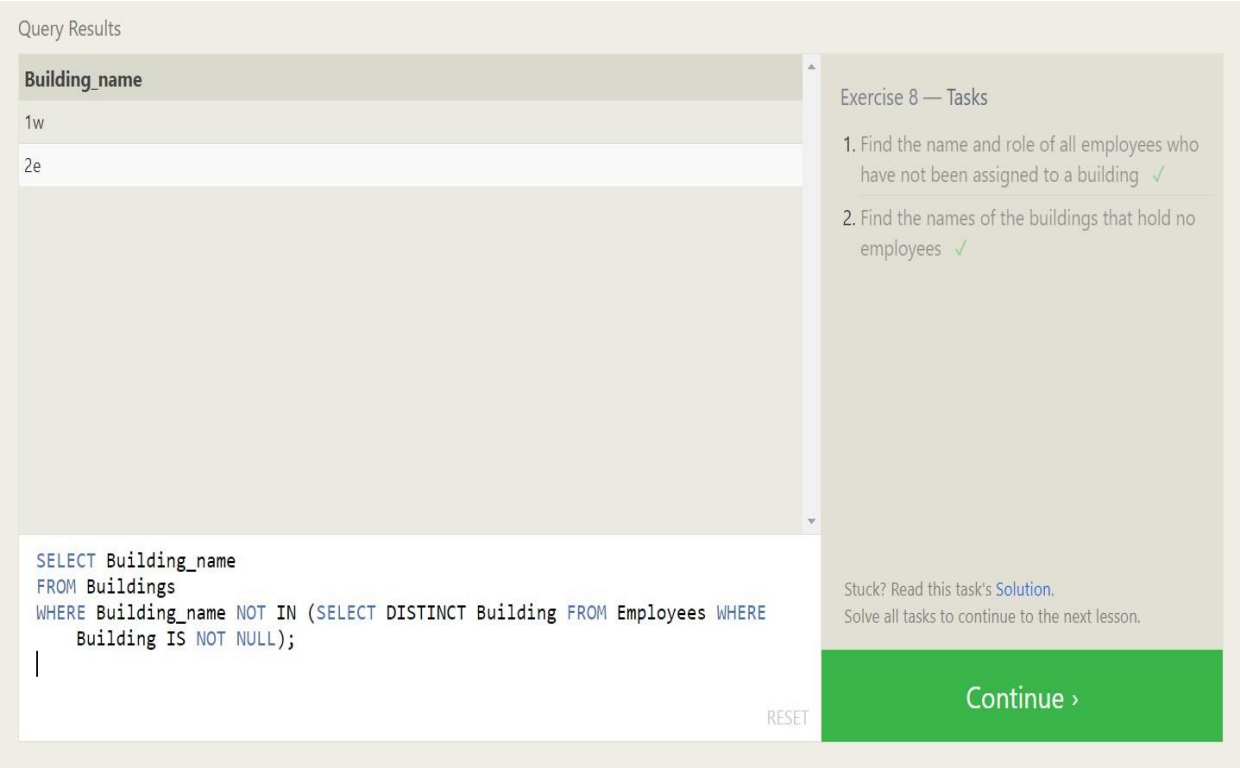
SQL Lesson 7: OUTER JOINs



Solutions :

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;

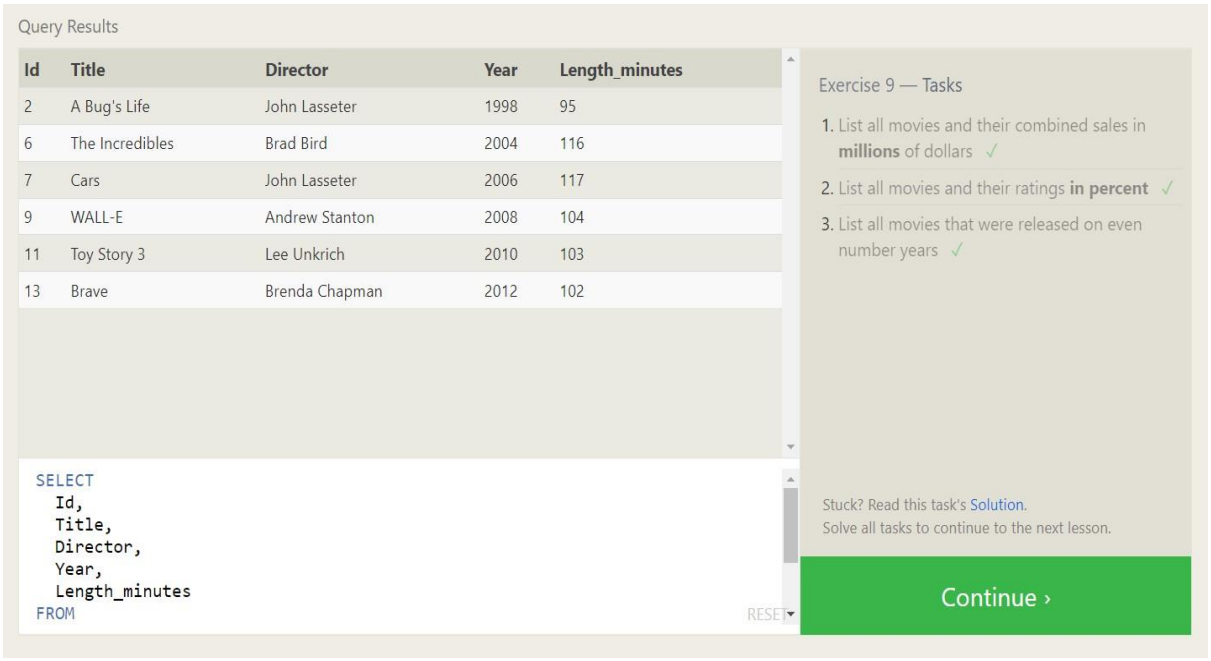
SQL Lesson 8: A short note on NULLs



Solutions :

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



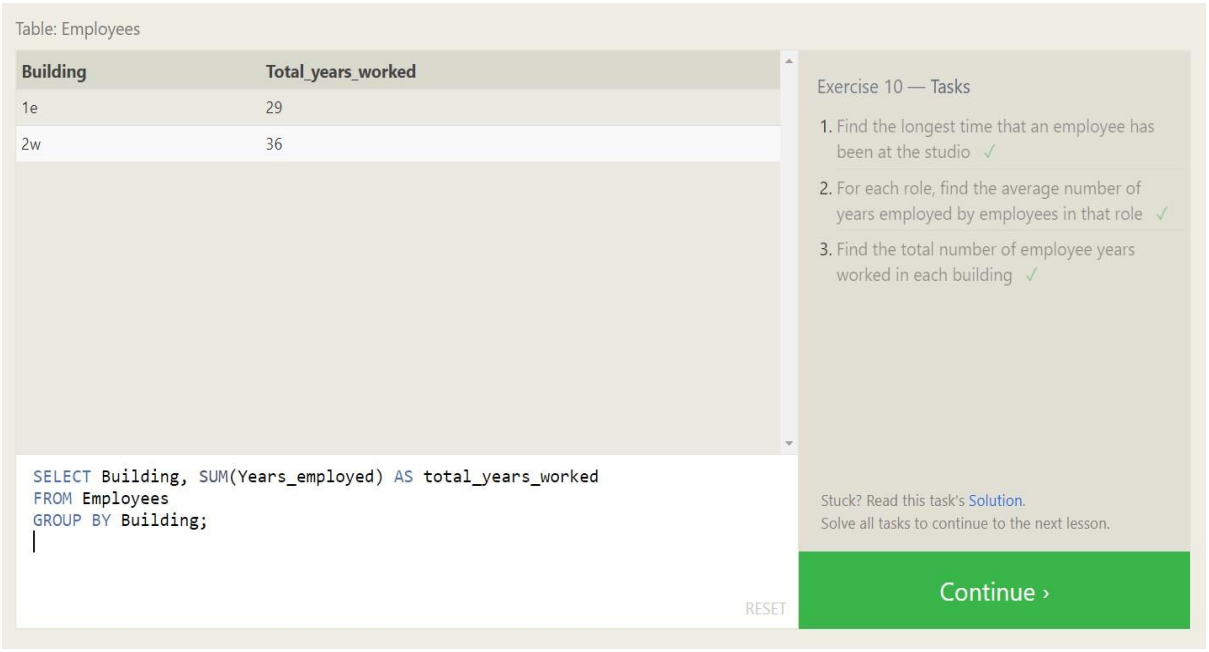
Solutions :

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;
```

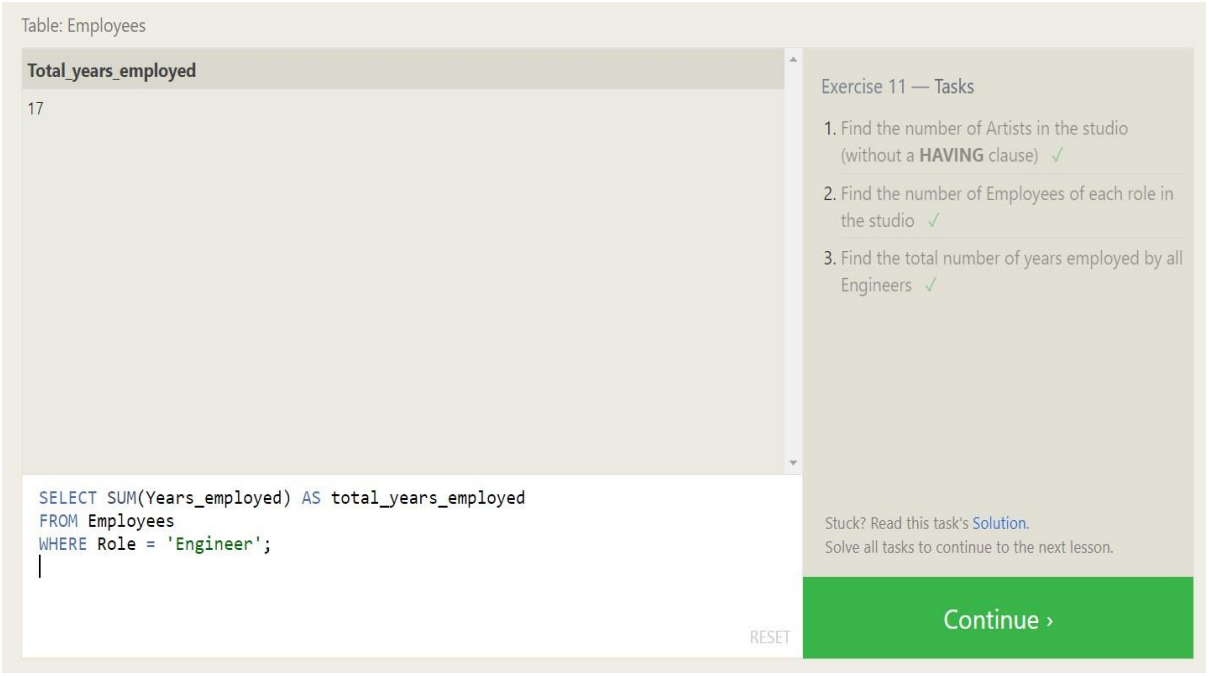
SQL Lesson 10: Queries with aggregates (Pt. 1)



Solutions :

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;

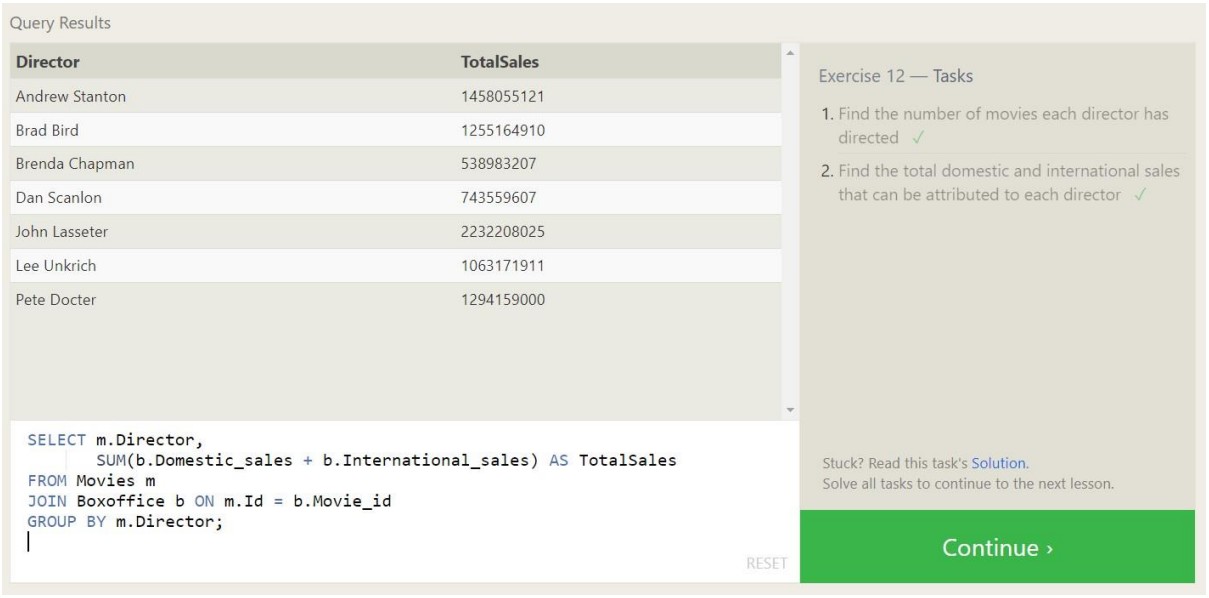
SQL Lesson 11: Queries with aggregates (Pt. 2)



Solutions :

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';

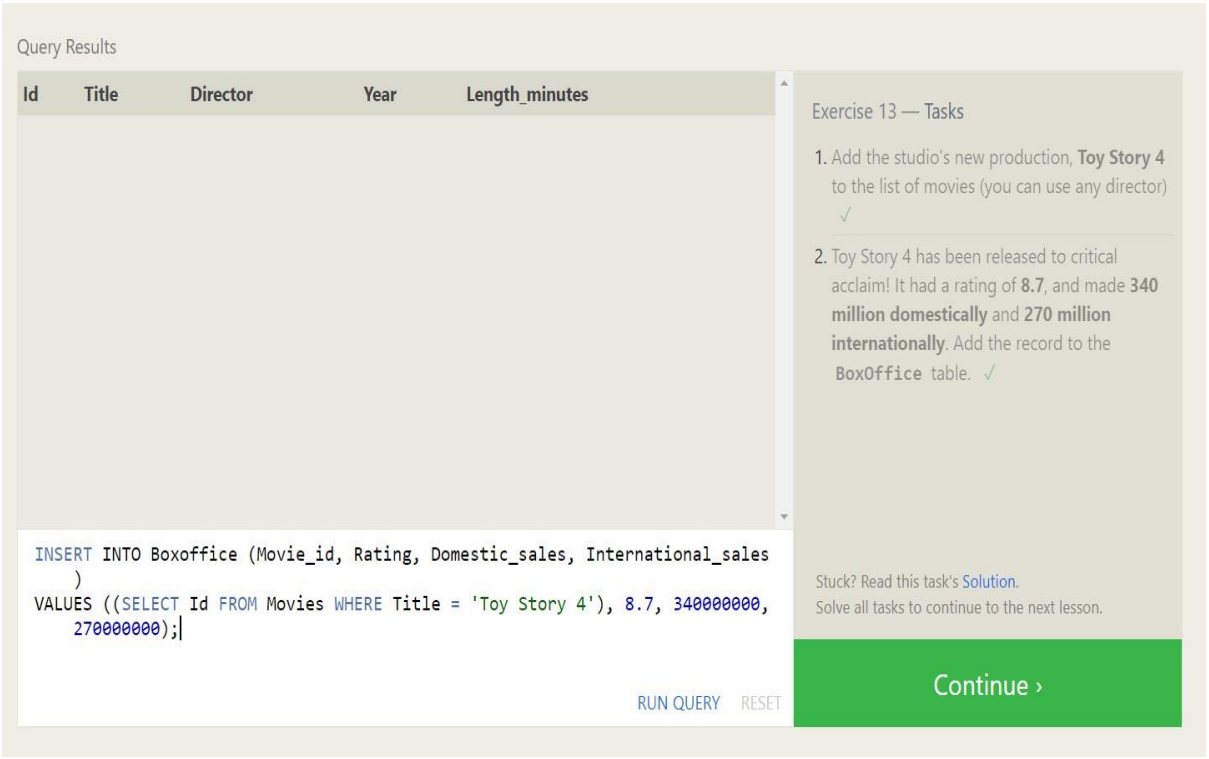
SQL Lesson 12: Order of execution of a Query



Solutions :

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



Solutions :

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

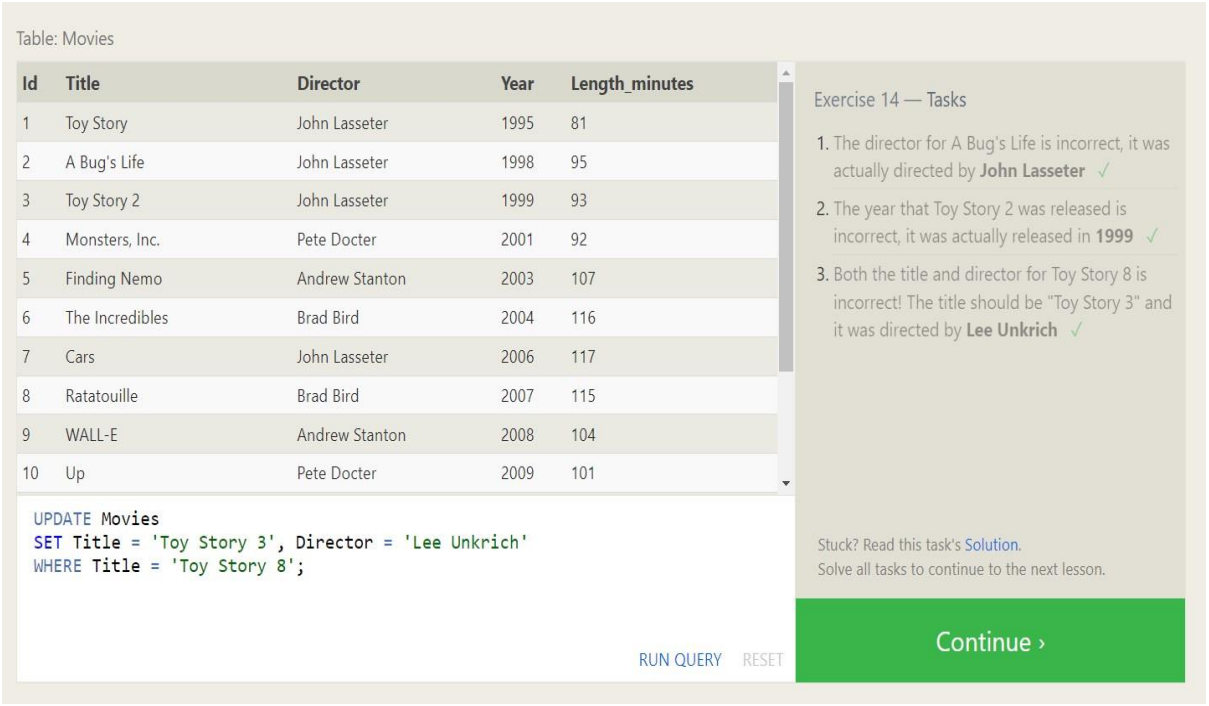


Table: Movies

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 ›

Solutions :

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

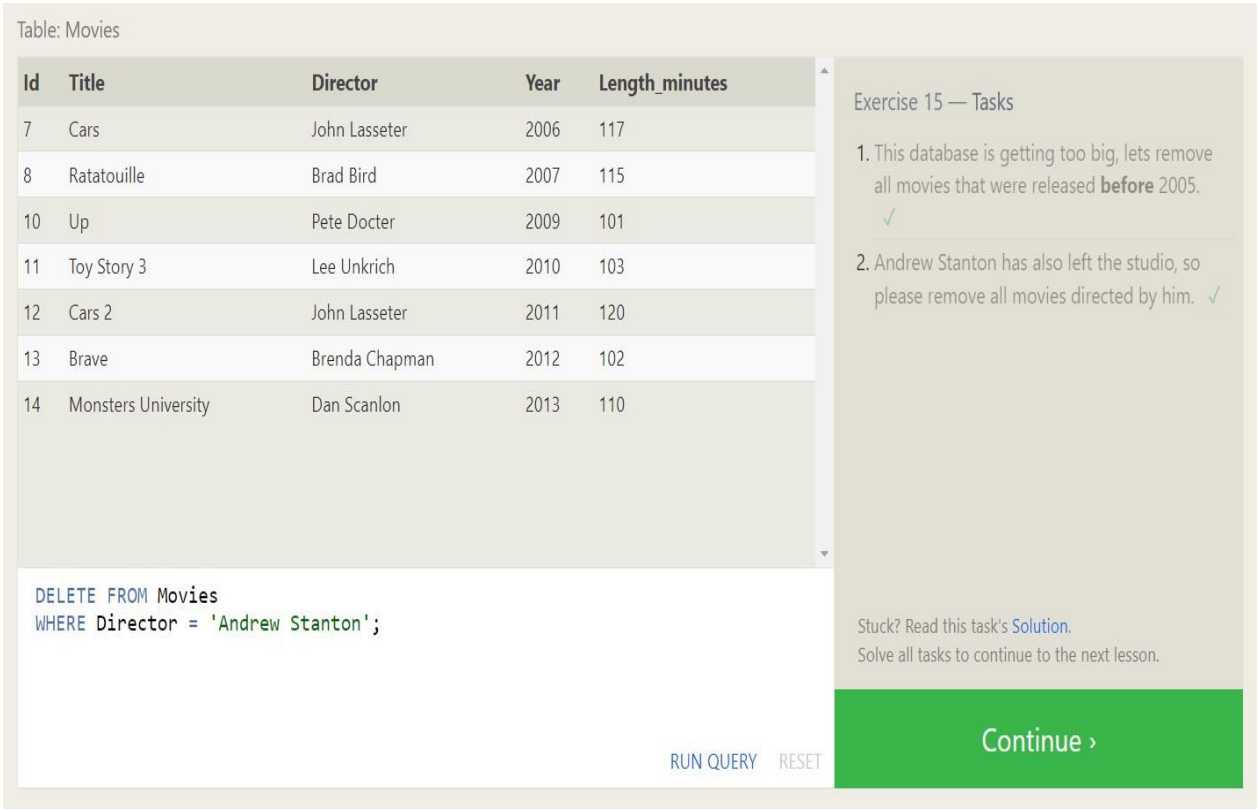


Table: Movies

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

```
DELETE FROM Movies
WHERE Director = 'Andrew Stanton';
```

RUN QUERY RESET

Exercise 15 — Tasks

1. This database is getting too big, lets remove all movies that were released **before** 2005. ✓
2. Andrew Stanton has also left the studio, so please remove all movies directed by him. ✓

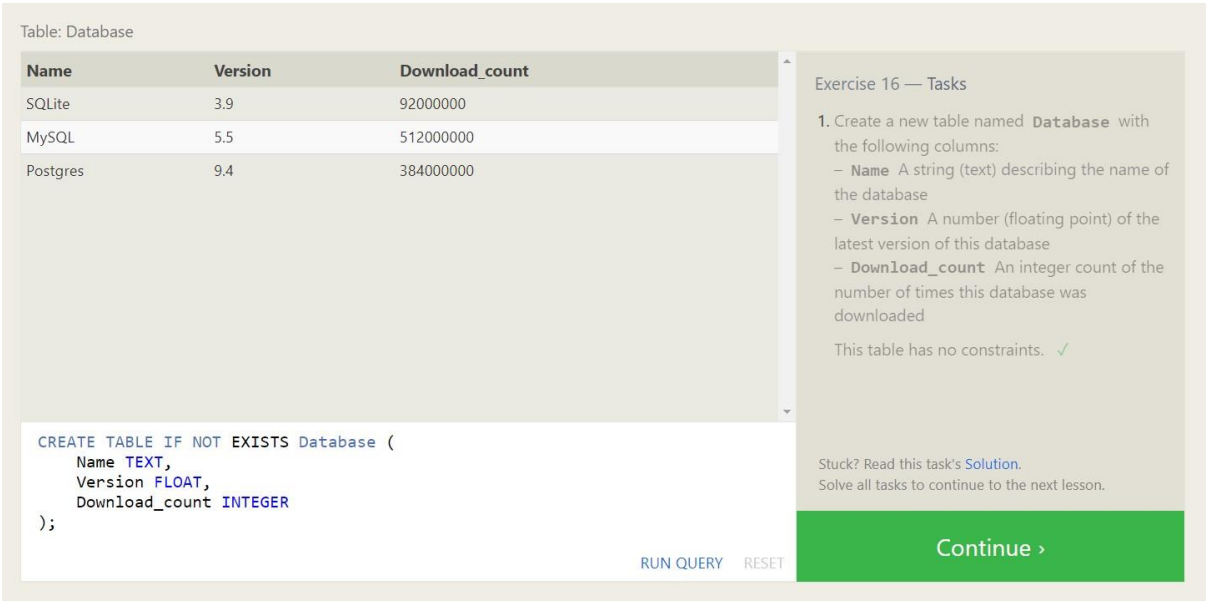
Stuck? Read this task's Solution.
Solve all tasks to continue to the next lesson.

Continue ›

Solutions :

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

SQL Lesson 16: Creating tables



Solutions :

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

SQL Lesson 17: Altering tables

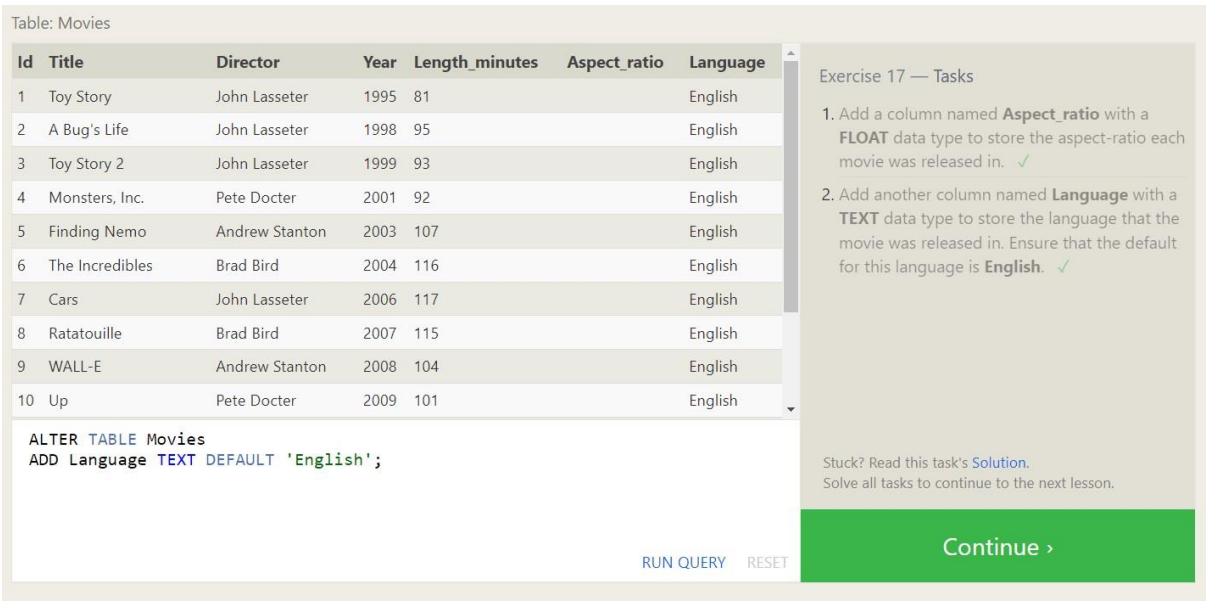


Table: Movies

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**. ✓

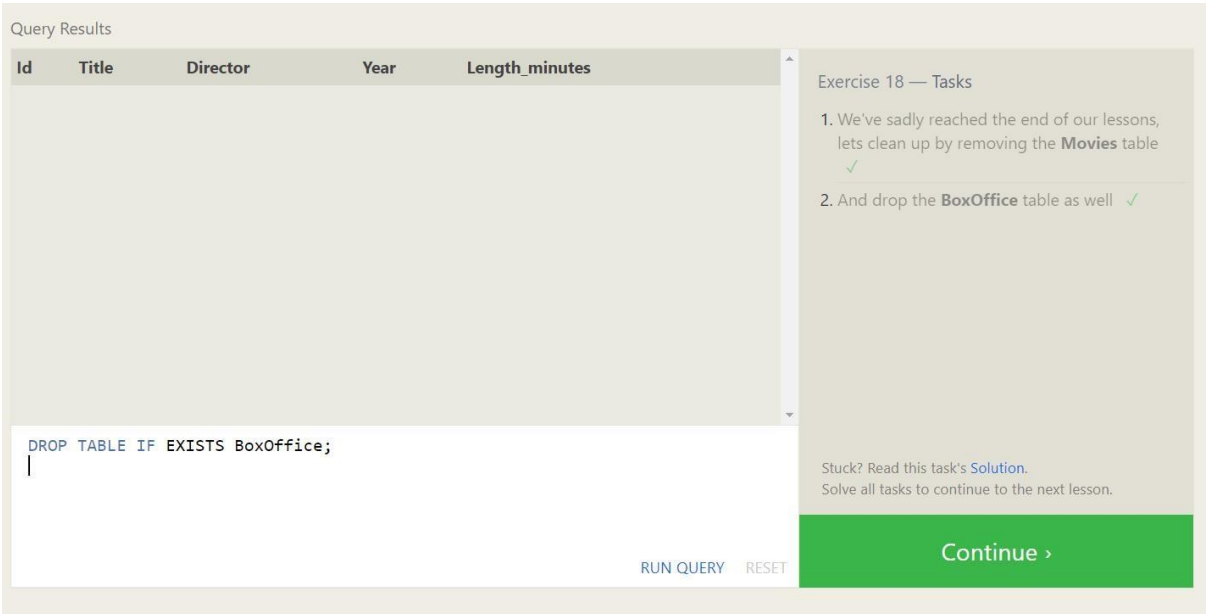
Stuck? Read this task's Solution.
Solve all tasks to continue to the next lesson.

Continue ›

Solutions :

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

SQL Lesson 18: Dropping tables



Solutions :

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

COMPLETION STATUS