Database- Day -1: MySQL Task

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;
-- 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;
```

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 ›

SQL Lesson 2: Queries with constraints

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;
-- 1).SELECT * FROM movies WHERE id=6;
-- 2).SELECT title FROM movies WHERE year BETWEEN 2000 AND 2010;
-- 3).SELECT title FROM movies WHERE year NOT BETWEEN 2000 AND 2010;
-- 4). SELECT title,year FROM movies WHERE id BETWEEN 1 AND 5;
```

RESET

Exercise 2 — Tasks

1. Find the movie with a row `id` of 6 ✓
2. Find the movies released in the `year`s between 2000 and 2010 ✓
3. Find the movies **not** released in the `year`s between 2000 and 2010 ✓
4. Find the first 5 Pixar movies and their release `year` ✓

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

Continue ›

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

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;
-- 1). SELECT * FROM movies WHERE title LIKE "%Toy%";
-- 2). SELECT * FROM movies WHERE director IN("John Lasseter");
-- 3). SELECT title,director FROM movies WHERE director NOT IN("John
    Lasseter");
-- 4).SELECT * FROM movies WHERE title LIKE "WALL-_";
```

RESET

Exercise 3 — Tasks

1. Find all the Toy Story movies ✓
2. Find all the movies directed by John Lasseter ✓
3. Find all the movies (and director) not directed by John Lasseter ✓
4. Find all the WALL-* movies ✓

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

Continue ›

SQL Lesson 4: Filtering and sorting Query results

Table: Movies

Id	Title	Director	Year	Length_minutes
1	Monsters, Inc.	Pete Docter	2001	92
2	Toy Story 3	Lee Unkrich	2010	103
3	The Incredibles	Brad Bird	2004	116
4	Toy Story 2	John Lasseter	1999	93
5	Ratatouille	Brad Bird	2007	115
6	Finding Nemo	Andrew Stanton	2003	107
7	Toy Story	John Lasseter	1995	81
8	A Bug's Life	John Lasseter	1998	95
9	Cars 2	John Lasseter	2011	120
10	Up	Pete Docter	2009	101

```
SELECT * FROM movies;
-- 1).SELECT DISTINCT director FROM movies ORDER BY director;
-- 2). SELECT title FROM movies ORDER BY Year DESC LIMIT 4;
-- 3).SELECT Title FROM movies ORDER BY Title ASC LIMIT 5;
-- 4). SELECT Title 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 ›

SQL Review: Simple SELECT Queries

Table: North_american_cities

City	Country	Population	Latitude	Longitude
Guadalajara	Mexico	1500800	20.659699	-103.349609
Toronto	Canada	2795060	43.653226	-79.383184
Houston	United States	2195914	29.760427	-95.369803
New York	United States	8405837	40.712784	-74.005941
Philadelphia	United States	1553165	39.952584	-75.165222
Havana	Cuba	2106146	23.05407	-82.345189
Mexico City	Mexico	8555500	19.432608	-99.133208
Phoenix	United States	1513367	33.448377	-112.074037
Los Angeles	United States	3884307	34.052234	-118.243685
Ecatepec de Morelos	Mexico	1742000	19.601841	-99.050674

```
SELECT * FROM north_american_cities;
-- 1).SELECT city,population FROM north_american_cities WHERE country
    ="Canada";
-- 2). SELECT city FROM north_american_cities WHERE country="United
    States" ORDER BY Latitude DESC;
-- 3). SELECT city FROM north_american_cities WHERE Longitude<-87.629798
    ORDER BY Longitude;
```

RESET

Review 1 — Tasks

1. List all the Canadian cities and their populations ✓
2. Order all the cities in the United States by their latitude from north to south ✓
3. List all the cities west of Chicago, ordered from west to east ✓
4. List the two largest cities in Mexico (by population) ✓
5. List the third and fourth largest cities (by population) in the United States and their population ✓

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

Continue ›

Havana	Cuba	2106146	23.05407	-82.345189
Mexico City	Mexico	8555500	19.432608	-99.133208
Phoenix	United States	1513367	33.448377	-112.074037
Los Angeles	United States	3884307	34.052234	-118.243685
Ecatepec de Morelos	Mexico	1742000	19.601841	-99.050674

```
    States" ORDER BY Latitude DESC;
-- 3). SELECT city FROM north_american_cities WHERE Longitude<-87.629798
    ORDER BY Longitude;
-- 4). SELECT city FROM north_american_cities WHERE country="Mexico" ORDER
    BY Population DESC LIMIT 2;
-- 5). SELECT city FROM north_american_cities WHERE country="United
    States" ORDER BY Population DESC LIMIT 2 OFFSET 2;
```

RESET

4. List the two largest cities in Mexico (by population) ✓
5. List the third and fourth largest cities (by population) in the United States and their population ✓

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

Continue ›

SQL Lesson 6: Multi-table queries with JOINs

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;
-- 1).SELECT title, Domestic_sales, International_sales from Movies
-- inner join Boxoffice on Movies.Id = Boxoffice.Movie_id;
-- 2). SELECT Domestic_sales, International_sales,title from Movies inner
    join Boxoffice on Movies.Id = Boxoffice.Movie_id WHERE
    International_sales>Domestic_sales;
-- 3). SELECT title,rating from Movies inner join Boxoffice on Movies.Id
```

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 ›

Query Results

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

```
-- 2). SELECT Domestic_sales, International_sales,title from Movies inner
    join Boxoffice on Movies.Id = Boxoffice.Movie_id WHERE
    International_sales>Domestic_sales;
-- 3). SELECT title,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 ›

SQL Lesson 7: OUTER JOINs

Query Results

Role	Name	Building	Years_employed
Engineer	Becky A.	1e	4
Engineer	Dan B.	1e	2
Engineer	Sharon F.	1e	6
Engineer	Dan M.	1e	4
Engineer	Malcom S.	1e	1
Artist	Tylar S.	2w	2
Artist	Sherman D.	2w	8
Artist	Jakob J.	2w	6
Artist	Lillia A.	2w	7
Artist	Brandon J.	2w	7

```
SELECT * FROM employees;
-- 1). SELECT DISTINCT (Building) FROM employees;
-- 2). SELECT * FROM Buildings;
-- 3). SELECT distinct(Building_name), Role FROM Buildings LEFT JOIN
    Employees ON Buildings.Building_name = Employees.Building;
```

RESET

Exercise 7 — Tasks

1. Find the list of all buildings that have employees ✓
2. Find the list of all buildings and their capacity ✓
3. List all buildings and the distinct employee roles in each building (including empty buildings) ✓

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

Continue ›

SQL Lesson 8: A short note on NULLs

Query Results

Role	Name	Building	Years_employed
Engineer	Becky A.	1e	4
Engineer	Dan B.	1e	2
Engineer	Sharon F.	1e	6
Engineer	Dan M.	1e	4
Engineer	Malcom S.	1e	1
Artist	Tylar S.	2w	2
Artist	Sherman D.	2w	8
Artist	Jakob J.	2w	6
Artist	Lillia A.	2w	7
Artist	Brandon J.	2w	7

```
SELECT * FROM employees;
-- 1).SELECT Name,Role FROM employees WHERE Building IS NULL;
-- 2).SELECT Building_name FROM Buildings LEFT JOIN employees ON Buildings
    .building_name=employees.building WHERE Name IS NULL;
```

RESET

Exercise 8 — Tasks

1. Find the name and role of all employees who have not been assigned to a building ✓
2. Find the names of the buildings that hold no employees ✓

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

Continue ›

SQL Lesson 9: Queries with expressions

Query Results

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;
--1). SELECT Title,(Domestic_sales + International_sales)/1000000 as sales
    from Movies inner join Boxoffice on Movies.Id = Boxoffice.Movie_id;
-- 2). SELECT title,(rating*10) as rating FROM movies INNER JOIN Boxoffice
    on Movies.Id = Boxoffice.Movie_id;
-- 3). SELECT Title FROM Movies INNER JOIN Boxoffice ON Movies.Id =
    Boxoffice.Movie_id WHERE Year%2=0;
```

RESET

Exercise 9 — Tasks

1. List all movies and their combined sales in **millions** of dollars ✓
2. List all movies and their ratings **in percent** ✓
3. List all movies that were released on even number years ✓

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

Continue ›

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

Table: Employees

Role	Name	Building	Years_employed
Engineer	Becky A.	1e	4
Engineer	Dan B.	1e	2
Engineer	Sharon F.	1e	6
Engineer	Dan M.	1e	4
Engineer	Malcom S.	1e	1
Artist	Tylar S.	2w	2
Artist	Sherman D.	2w	8
Artist	Jakob J.	2w	6
Artist	Lillia A.	2w	7
Artist	Brandon J.	2w	7

```
SELECT * FROM employees;
-- 1).SELECT SUM(Years_employed) as year,Name FROM employees Group by (name)
    order by year DESC limit 1;
-- 2).SELECT avg(years_employed) as year,role from employees group by role;
-- 3).select sum(years_employed)as year,building from employees group by
    building;
```

RESET

Exercise 10 — Tasks

1. Find the longest time that an employee has been at the studio ✓
2. For each role, find the average number of years employed by employees in that role ✓
3. Find the total number of employee years worked in each building ✓

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

Continue ›

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

Table: Employees

Role	Name	Building	Years_employed
Engineer	Becky A.	1e	4
Engineer	Dan B.	1e	2
Engineer	Sharon F.	1e	6
Engineer	Dan M.	1e	4
Engineer	Malcom S.	1e	1
Artist	Tylar S.	2w	2
Artist	Sherman D.	2w	8
Artist	Jakob J.	2w	6
Artist	Lillia A.	2w	7
Artist	Brandon J.	2w	7

```
SELECT * FROM employees;
-- 1). SELECT COUNT(ROLE) FROM employees where role="Artist";
-- 2). SELECT COUNT(*),role FROM employees GROUP BY role;
-- 3). SELECT SUM(years_employed) as year,role FROM employees GROUP BY role
    having role="Engineer";
```

RESET

Exercise 11 — Tasks

1. Find the number of Artists in the studio (without a **HAVING** clause) ✓
2. Find the number of Employees of each role in the studio ✓
3. Find the total number of years employed by all Engineers ✓

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

Continue ›

SQL Lesson 12: Order of execution of a Query

Query Results

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;
-- 1).SELECT COUNT(Title) as count,director FROM movies JOIN Boxoffice ON
    Movies.id=Boxoffice.Movie_id GROUP BY Director;
-- 2). SELECT SUM(domestic_sales) as domestic,SUM(international_sales) as
    international,director FROM movies JOIN Boxoffice ON Movies.id=Boxoffice
    .Movie_id GROUP BY Director;
```

RESET

Exercise 12 — Tasks

1. Find the number of movies each director has directed ✓
2. Find the total domestic and international sales that can be attributed to each director ✓

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

Continue ›

SQL Lesson 13: Inserting rows

Query Results

Movie_id	Rating	Domestic_sales	International_sales
3	7.9	245852179	239163000
1	8.3	191796233	170162503
2	7.2	162798565	200600000
15	8.7	340000000	270000000

```
SELECT * FROM Movies;
-- 1). INSERT INTO Movies (Title, director) values('Toy Story 4', 'John
    Lasseter');
-- 2). INSERT INTO BoxOffice (Movie_id,Rating,Domestic_sales
    ,International_sales) values (15,8.7,340000000,270000000);
```

RUN QUERY RESET

Exercise 13 — Tasks

1. Add the studio's new production, **Toy Story 4** to the list of movies (you can use any director) ✓
2. Toy Story 4 has been released to critical acclaim! It had a rating of **8.7**, and made **340 million domestically** and **270 million internationally**. Add the record to the `BoxOffice` table. ✓

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

Continue ›

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

```
SELECT * FROM movies;
-- UPDATE Movies SET Director="John Lasseter" WHERE Title="A Bug's Life";
-- UPDATE Movies SET Year=1999 WHERE Title="Toy Story 2";
-- 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 ›

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

```
SELECT * FROM movies;
-- DELETE FROM Movies WHERE Year<2005;
-- 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 ›

SQL Lesson 16: Creating tables

Table: Database

Missing table...

```
CREATE TABLE Database (
    id INTEGER PRIMARY KEY,
    Name TEXT,
    Version FLOAT,
    Download_count INTEGER
);
```

RUN QUERY RESET

Exercise 16 — Tasks

1. Create a new table named `Database` with the following columns:
   - `Name` A string (text) describing the name of the database
   - `Version` A number (floating point) of the latest version of this database
   - `Download_count` An integer count of the number of times this database was downloaded

   This table has no constraints. ✓

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

Continue ›

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

```
SELECT * FROM movies;
-- 1). ALTER TABLE Movies ADD  Aspect_ratio  DataType FLOAT;
-- 2). 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 ›

SQL Lesson 18: Dropping tables

Query Results

Id	Title	Director	Year	Length_minutes

```
SELECT * FROM movies;
DROP TABLE Movies;
DROP TABLE BoxOffice;
```

RUN QUERY RESET

Exercise 18 — Tasks

1. We've sadly reached the end of our lessons, lets clean up by removing the **Movies** table ✓
2. And drop the **BoxOffice** table as well ✓

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

Continue ›