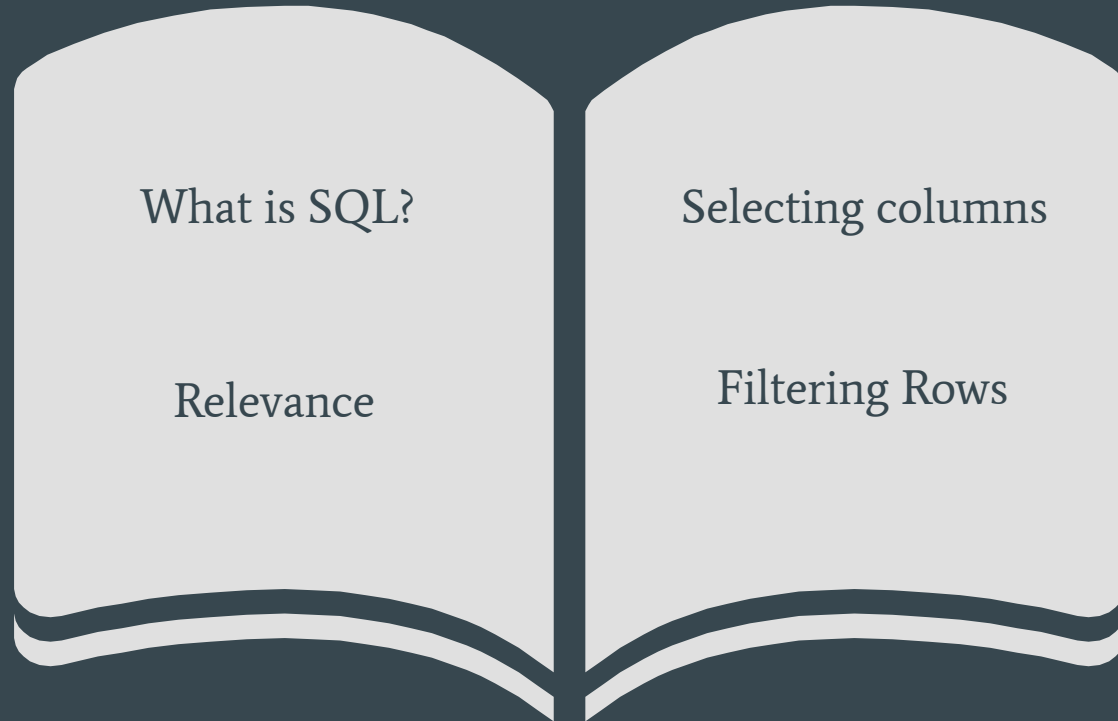


# Introduction to SQL

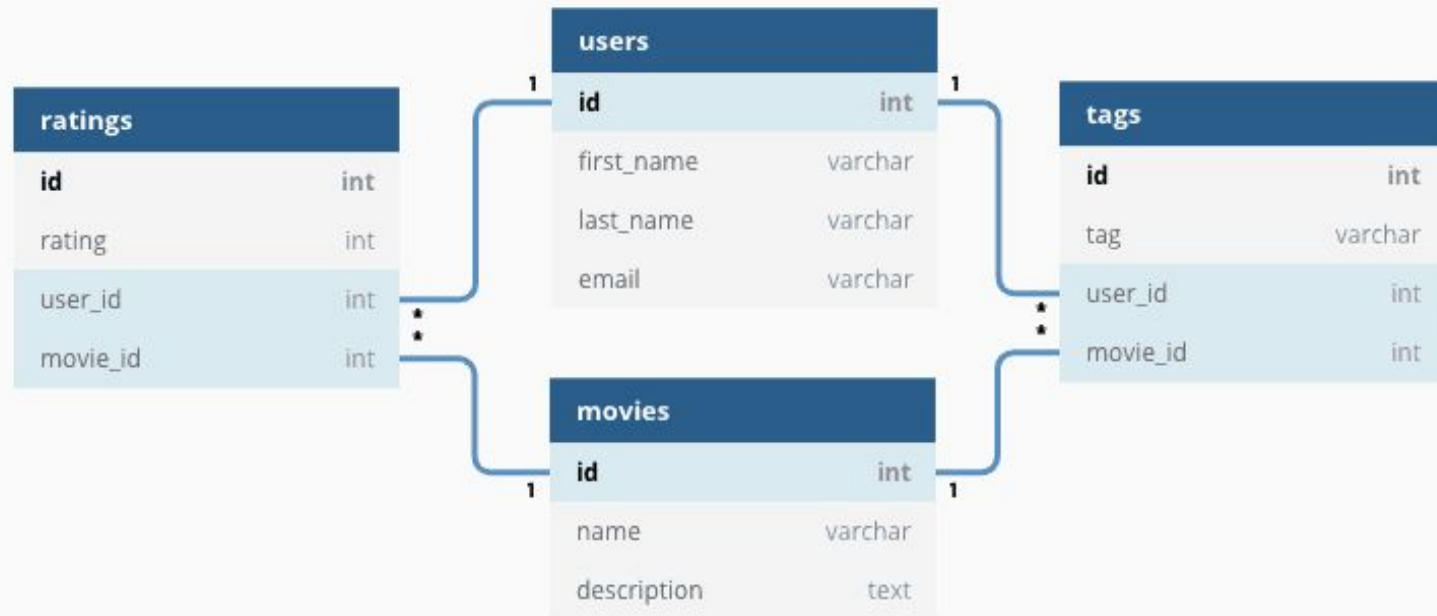
...

Emily Nomura

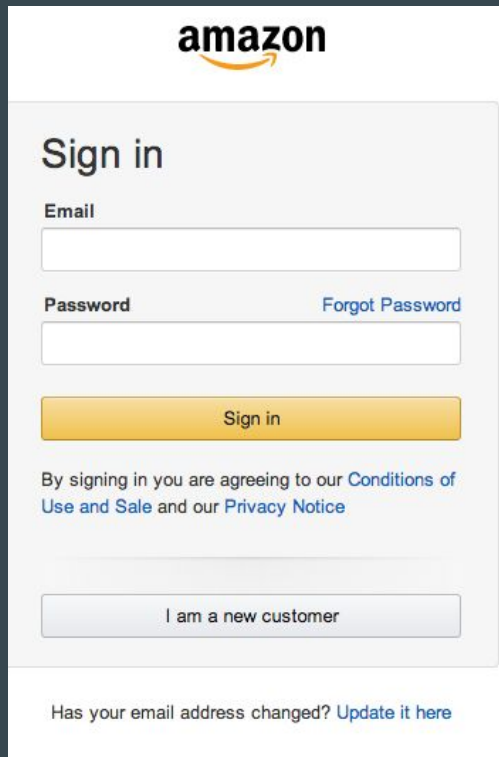
# Learning Outcomes



# What is SQL?



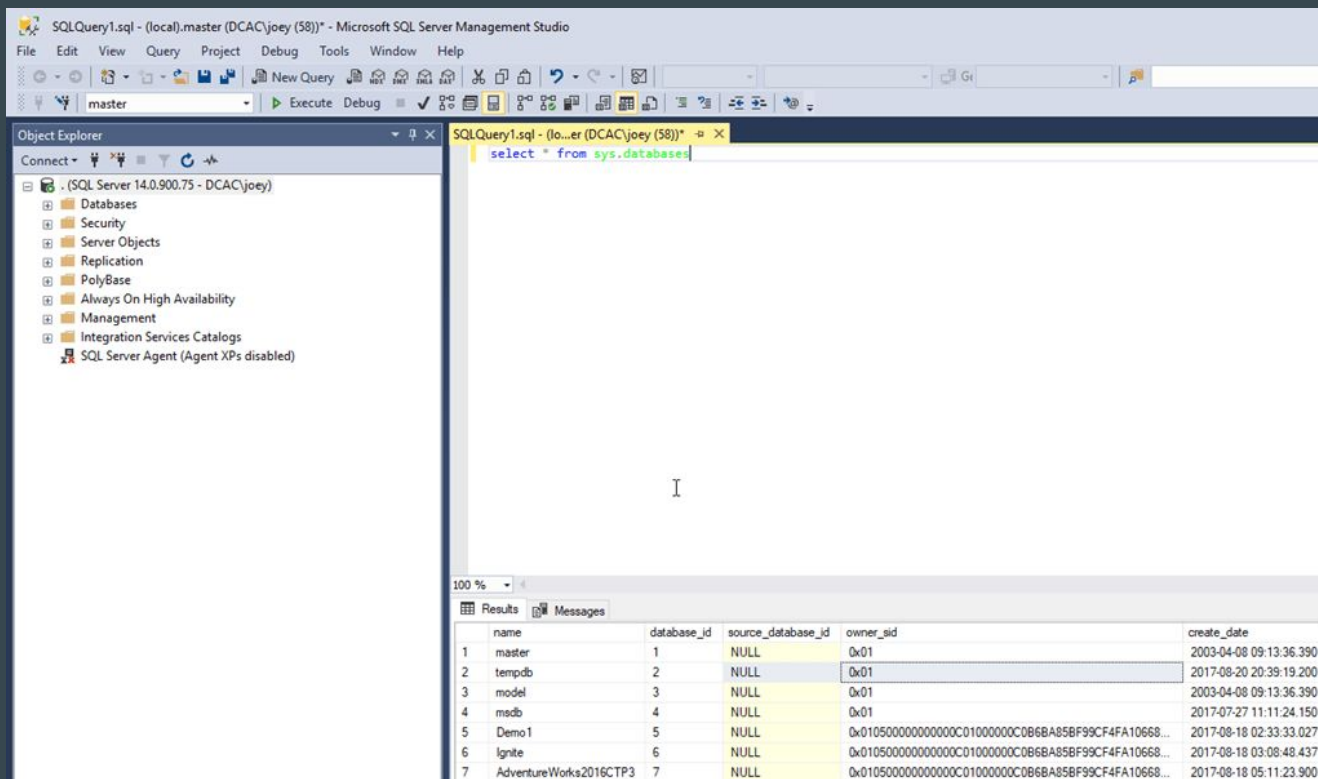
# SQL “in the wild”



The image shows the Amazon sign-in page. At the top is the Amazon logo. Below it is the heading "Sign in". There are two input fields: "Email" and "Password". To the right of the "Password" field is a link "Forgot Password". Below the input fields is a yellow "Sign in" button. Under the button, there is a line of text: "By signing in you are agreeing to our [Conditions of Use and Sale](#) and our [Privacy Notice](#)". At the bottom of the sign-in section is a button that says "I am a new customer". Below the sign-in section, there is a link: "Has your email address changed? [Update it here](#)".

- Customer data:
  - Logins
  - Personal info (billing address, payment type, etc.)
  - Past purchases
  - Browsing history
  - Support requests

# User Interface



# SELECT Statements

countries				
	name	population	area	unemployment
1	Canada	37,694,085	9,984,670	6.30
2	Canada	37,487,816	null	5.79
3	Chile	18,186,770	756,102	6.70
4	Colombia	49,084,841	1,138,910	9.30

SELECT name, unemployment  
FROM countries

	name	unemployment
1	Canada	6.30
2	Canada	5.79
3	Chile	6.70
4	Colombia	9.30

---

SELECT \*  
FROM countries

# Other Useful Operations

- Filtering rows
  - Example: Only interested in customer ID 123
- Aggregate functions
  - Sum, count, avg, min, max, etc.

# SELECT Statements with DISTINCT and COUNT

SELECT DISTINCT name  
FROM countries

	name
1	Canada
2	Chile
3	Colombia

SELECT DISTINCT area  
FROM countries

	area
1	null
2	9,984,670
3	756,102
4	1,138,910

SELECT COUNT(\*)  
FROM countries

	count
1	4

---

SELECT COUNT(area)  
FROM countries

	count
1	3



# SELECT Statements with DISTINCT

SELECT DISTINCT name  
FROM countries

	name
1	Canada
2	Chile
3	Colombia

SELECT DISTINCT area  
FROM countries

	area
1	null
2	9,984,670
3	756,102
4	1,138,910

# Combining DISTINCT and COUNT

countries				
	name	population	area	unemployment
1	Canada	37,694,085	9,984,670	6.30
2	Chile	18,186,770	756,102	6.70
3	Colombia	49,084,841	1,138,910	9.30
4	Canada	37,487,816	null	5.79

Quiz Q!

```
SELECT COUNT(DISTINCT area)
FROM countries
```

# Filtering Rows

= equal

<> not equal

< less than

> greater than

<= less than or equal to

>= greater than or equal to

IS NULL

IS NOT NULL

```
SELECT name, population
FROM countries
WHERE name = 'Canada'
```

	name	population
1	Canada	37,694,085
2	Canada	37,487,816

```
SELECT COUNT(*)
FROM countries
WHERE unemployment < 7
AND area > 1,000,000
```

	count
1	1

```
SELECT name, area
FROM countries
WHERE area IS NULL
```

	name	area
1	Canada	null

# Filtering Rows

= equal

<> not equal

< less than

> greater than

<= less than or equal to

>= greater than or equal to

IS NULL

IS NOT NULL

```
SELECT name, population
FROM countries
WHERE name = 'Canada'
```

	name	population
1	Canada	37,694,085
2	Canada	37,487,816

```
SELECT name, area
FROM countries
WHERE area IS NULL
```

	name	area
1	Canada	null

# Filtering Rows with BETWEEN and IN

```
SELECT name, area  
FROM countries  
WHERE area BETWEEN 1e+6 AND 1e+7
```

	name	area
1	Canada	9,984,670
2	Colombia	1,138,910

```
SELECT name, unemployment  
FROM countries  
WHERE unemployment IN (6.3, 6.7, 9.3)
```

	name	unemployment
1	Canada	6.30
2	Chile	6.70
3	Columbia	9.30

# Filtering Rows with LIKE and NOT LIKE

Wildcards:

'%'

Placeholder for one or many  
integers or characters

'\_'

Placeholder for a *single* character

```
SELECT name
FROM countries
WHERE name LIKE 'Ca%'
```

	name
1	Canada
2	Canada

```
SELECT name
FROM countries
WHERE name NOT LIKE 'Ca%'
```

	name
1	Chile
2	Colombia

# Additional Resources

[DataCamp](#)

[W3Schools](#)

