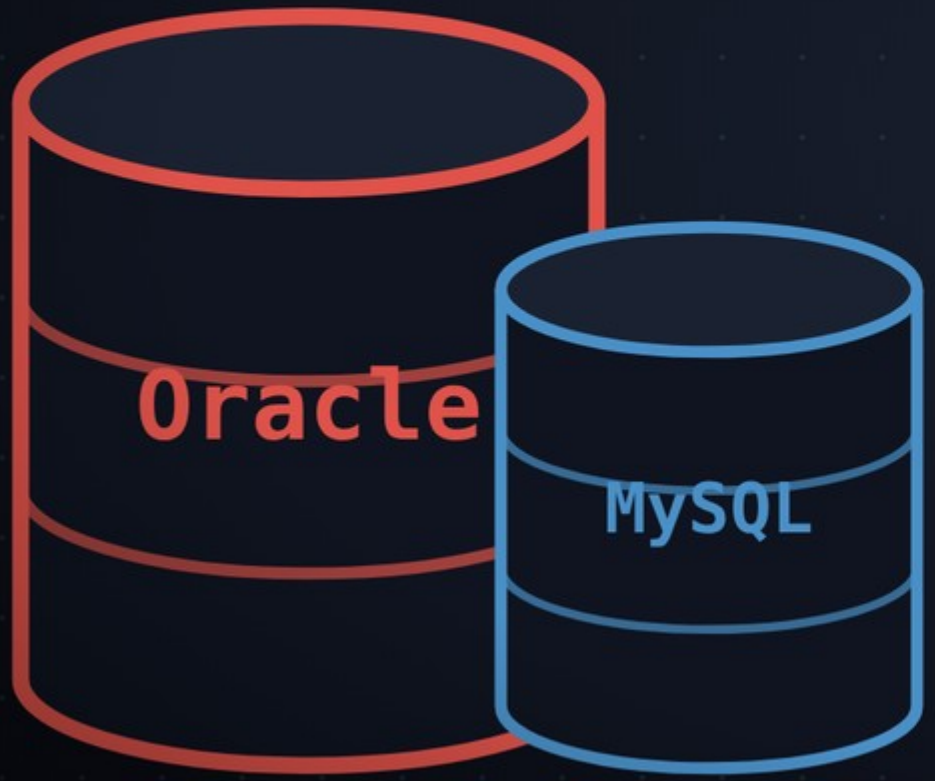
@MyWebUniversity

# SQL

## Oracle · MySQL




How the World
Stores Its Data

CODD · ELLISON · MONTY




```
SELECT * FROM world;
```

A MYWEBUNIVERSITY STORY

# SQL

## Oracle · MySQL

How the World Stores Its Data

# Edgar Codd's Big Idea, 1970




- 1970: Edgar Codd (IBM) — the relational model
- Tables of rows and columns, linked by keys
- Describe WHAT you want, not HOW

01

# SEQUEL Becomes SQL

~~SEQUEL~~

SQL

1974 · Chamberlin & Boyce · IBM

ANSI 1986 · ISO 1987

```
SELECT c.name, SUM(o.total)
FROM customers c
JOIN orders o ON o.cust_id = c.id
WHERE c.city = 'Kabul'
GROUP BY c.name;

Ali | 130
```

"sequel" or "S-Q-L" — both are correct

- 1974: SEQUEL (Chamberlin & Boyce, IBM) → SQL
- ANSI 1986 · ISO 1987
- "sequel" or "S-Q-L" — both correct

02

# Oracle: The First Commercial SQL Database



Larry Ellison

Photo: via Wikimedia Commons

1977 · Ellison · Bob Miner · Ed Oates

**1979: Oracle V2**

(there was no Version 1)

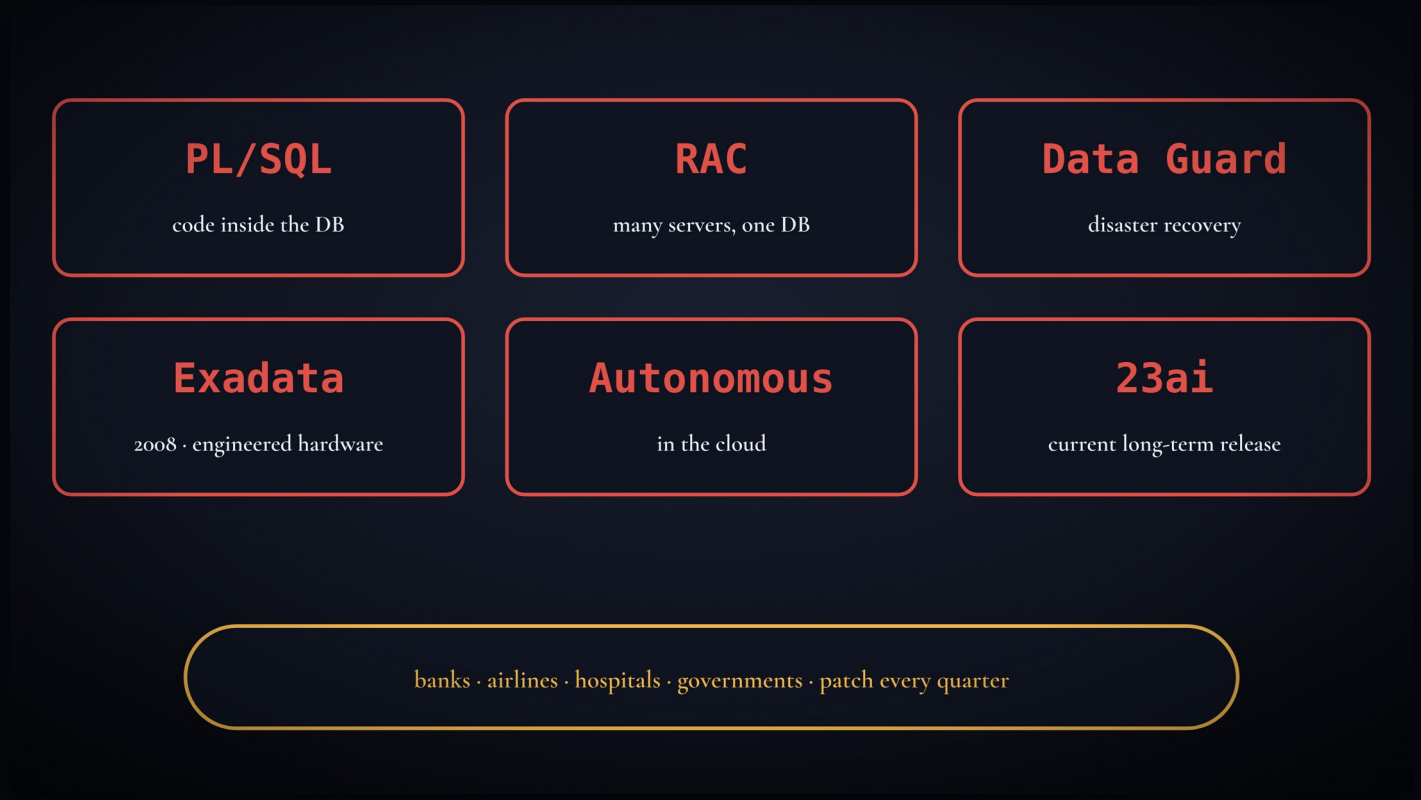
one of the first commercial SQL databases

name from an earlier CIA-funded project, “Oracle”

- 1977: Ellison, Miner, Oates
- 1979: Oracle Version 2 (there was no V1)
- Name from an earlier CIA-funded project, “Oracle”

03

# Oracle Database Today




- PL/SQL · RAC · Data Guard
- Exadata (2008) · Autonomous Database · 23ai
- Powerful, complex, licensed · quarterly CPUs

04

# MySQL: Free for Everyone




- 1995: MySQL (Widenius, Axmark, Larsson) — named after “My”
- LAMP: Linux, Apache, MySQL, PHP
- 2008 Sun · 2010 Oracle · MariaDB (named after “Maria”)

05

# SQL in Four Words

**INSERT**
add

**SELECT**
read

**UPDATE**
change

**DELETE**
remove

```
CREATE INDEX idx_city ON customers(city);
SELECT name FROM customers
WHERE city = 'Herat' ORDER BY name;
```

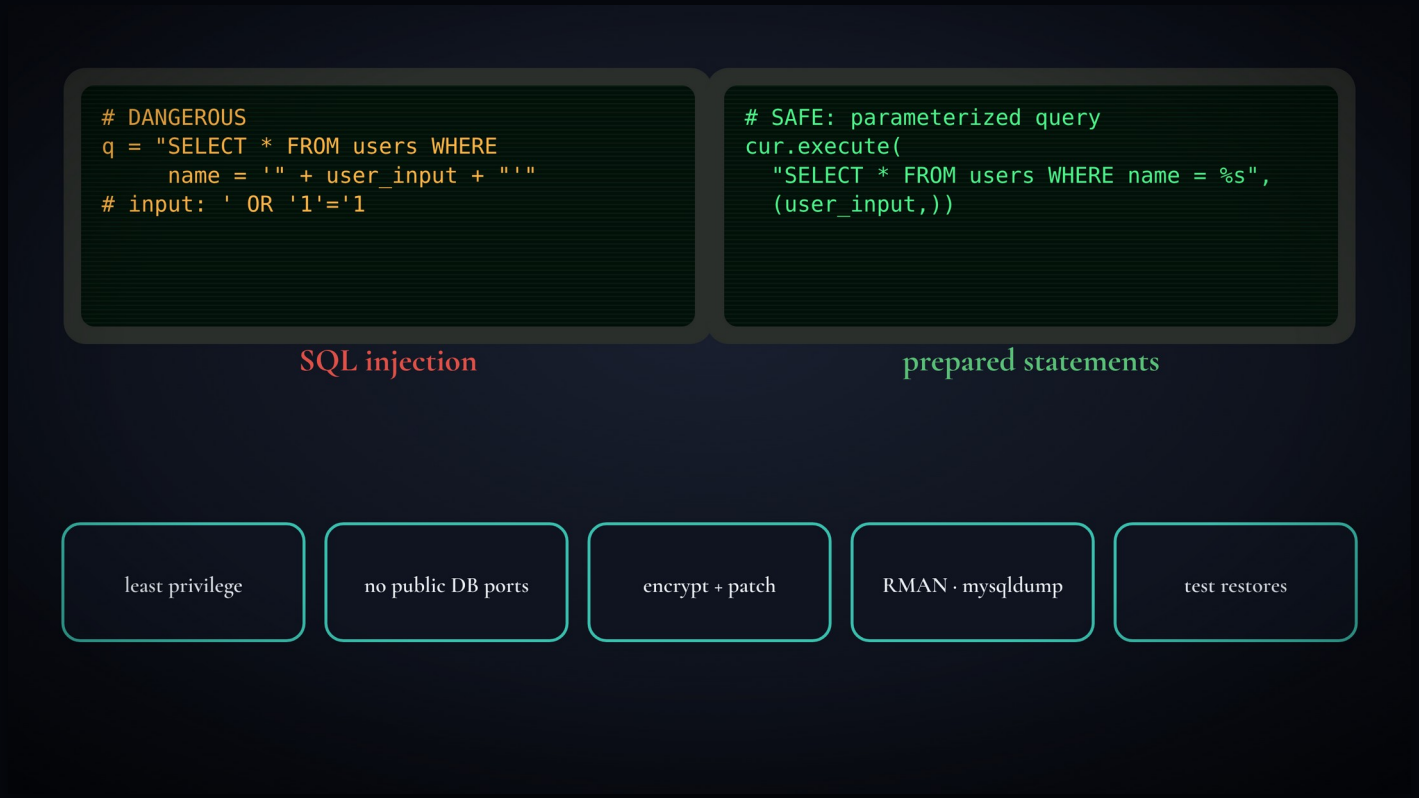
**ACID**
all or nothing
even if the power fails

an index is like the index at the back of a book

- INSERT · SELECT · UPDATE · DELETE
- JOIN · WHERE · ORDER BY · indexes
- ACID transactions

06

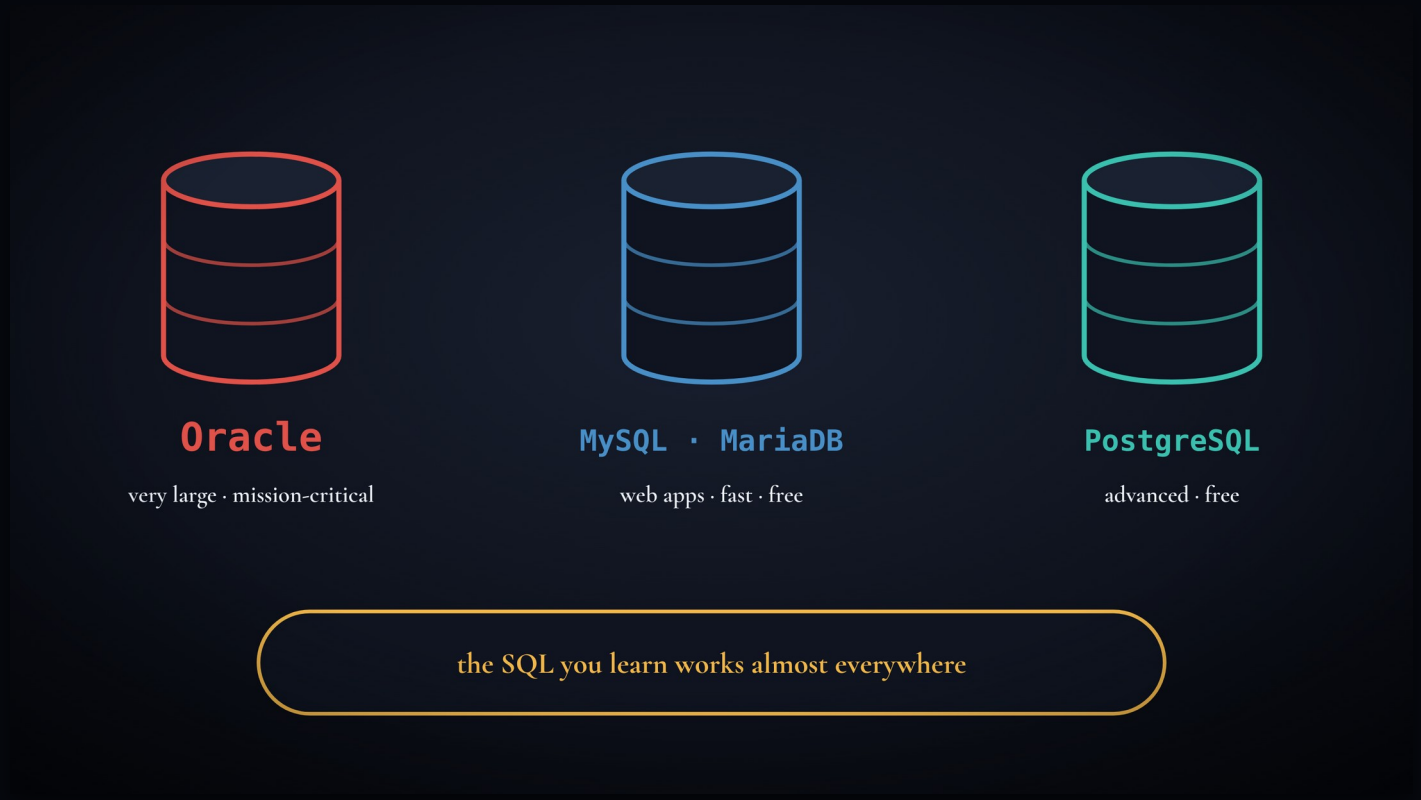
# Protect Your Data




- Stop SQL injection: parameterized queries
- Least privilege · no public DB ports · encrypt · patch
- Back up: RMAN · mysqldump · test restores

07

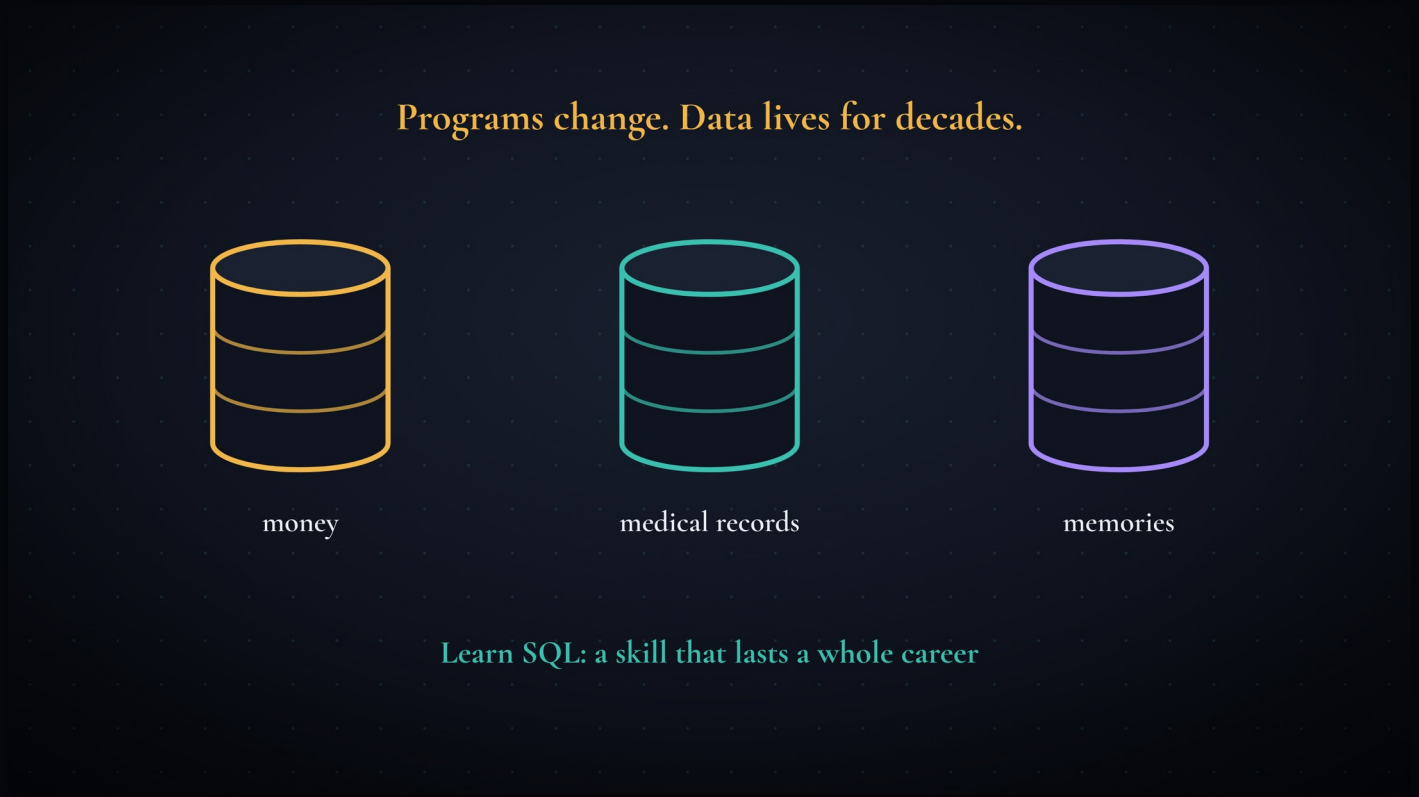
# Which Database?




- Oracle: very large mission-critical systems
- MySQL / MariaDB: web apps · PostgreSQL: advanced free option
- SQL skills transfer everywhere

08

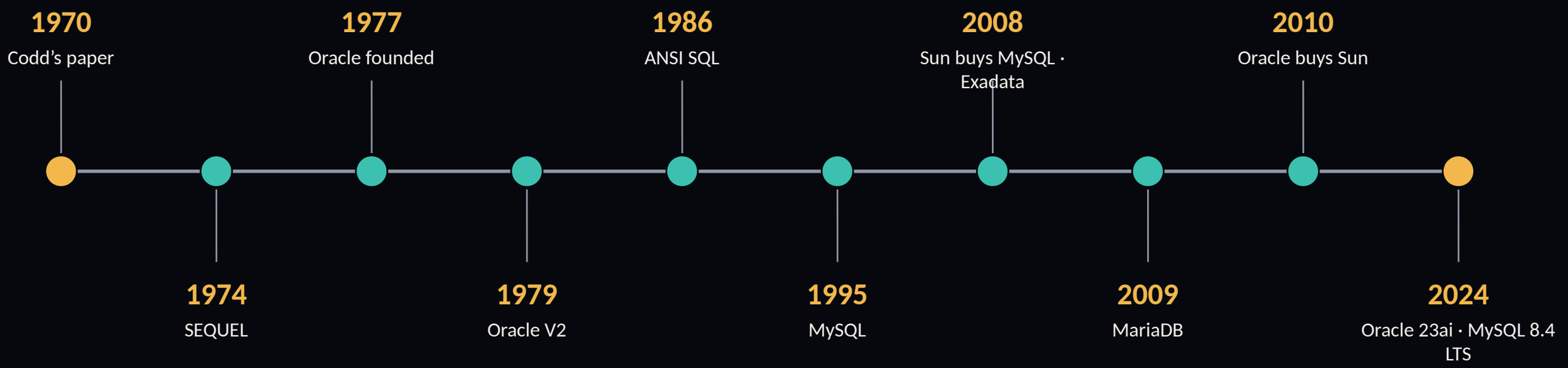
# Data Is Forever




- Programs change; data lives for decades
- Codd's tables still hold the world's data
- SQL: a skill that lasts a career

09

# Timeline: 1970 to 2024

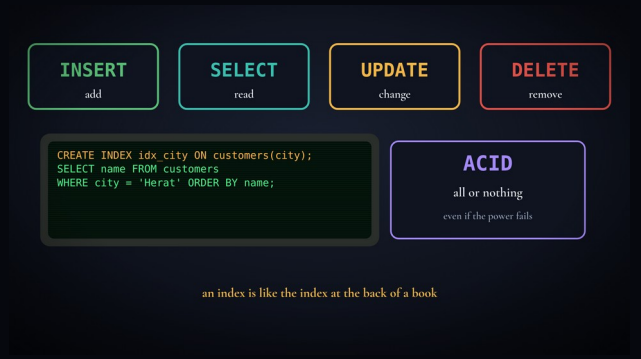


# Sources and Further Reading


1. E. F. Codd, “A Relational Model of Data for Large Shared Data Banks,” Communications of the ACM, 1970
2. D. Chamberlin & R. Boyce, “SEQUEL: A Structured English Query Language,” 1974
3. Oracle corporate history — oracle.com · Oracle Database 23ai documentation
4. MySQL history — dev.mysql.com · MariaDB Foundation — mariadb.org
5. OWASP SQL Injection Prevention Cheat Sheet — owasp.org
6. Photo: Larry Ellison — via Wikimedia Commons (original author and license listed there).







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