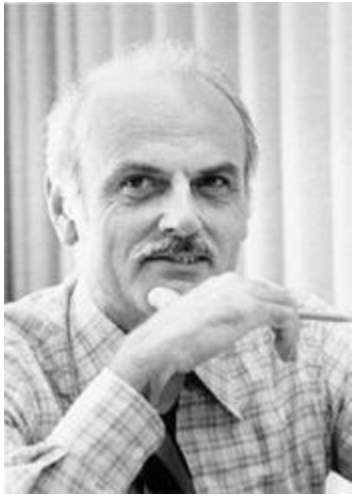
CSCI 475

Fall ‘24

Introduction - Relational Database Systems vs. NoSQL

Relational - data relates to each other

- Introduced by E.F. Codd (1970)
  - A Relational Model of Data for Large Shared Databanks
- Made up 75% of database management systems (2015)
- Uses tables to relate data
  - Data integrity, data security
  - Data is tight (not sparse)
- Lack of scalability



Introduction - Relational Database Systems vs. NoSQL

NoSQL - Not Only SQL

- The “New trend” 10 years ago
  - Amazon, Facebook, Netflix, Google, Twitter, Visa
- Scalability and faster than relational
- Unstructured, sparse data
- 5 V’s
  - Volume - high volume of data
  - Velocity - high growth rate of data
  - Variety - wide variety of data
  - Veracity - quality of data
  - Value - transform data to business

Introduction - Top DB Engines

Rank			DBMS	Database Model	Score		
Aug 2024	Jul 2024	Aug 2023			Aug 2024	Jul 2024	Aug 2023
1.	1.	1.	Oracle	Relational, Multi-model	1258.48	+18.12	+16.39
2.	2.	2.	MySQL	Relational, Multi-model	1026.86	-12.60	-103.59
3.	3.	3.	Microsoft SQL Server	Relational, Multi-model	815.18	+7.52	-105.64
4.	4.	4.	PostgreSQL	Relational, Multi-model	637.39	-1.52	+17.01
5.	5.	5.	MongoDB	Document, Multi-model	420.98	-8.85	-13.51

Source: https://db-engines.com/en/ranking

Course Overview

Relational Databases

MySQL

Go and PHP

HTML and CSS

NoSQL

Course Overview – Assignments

Labs – remember to bring your laptop on lab days!

Homework

Midterm

Final Project

- Milestones

Final Exam

- Take-home
- Practical