

# CMSC424: Database Design

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## Databases

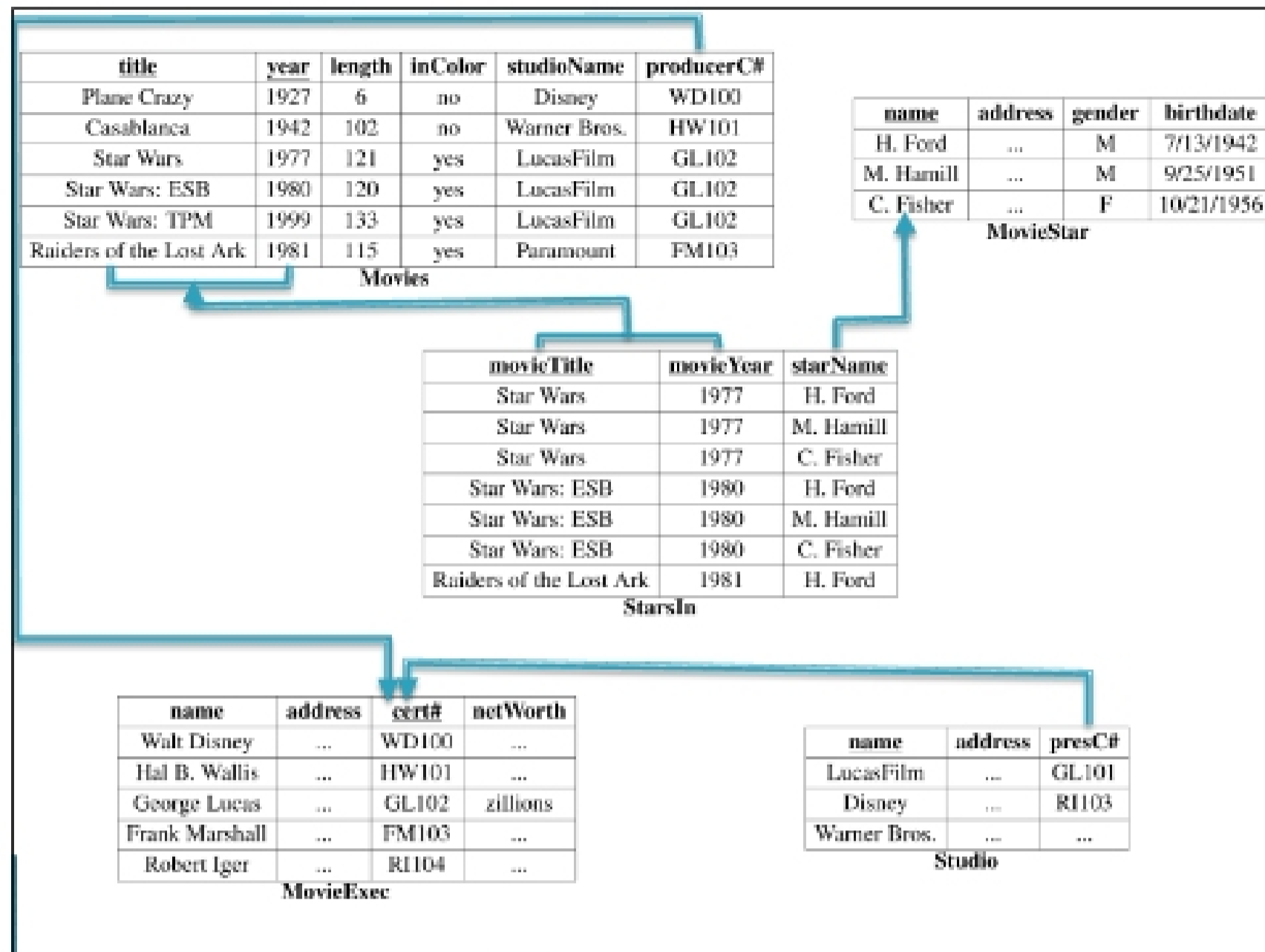
- ▶ Data Models
  - Conceptual representation of the data
- ▶ Data Retrieval
  - How to ask questions of the database
  - How to answer those questions
- ▶ Data Storage
  - How/where to store data, how to access it
- ▶ Data Integrity
  - Manage crashes, concurrency
  - Manage semantic inconsistencies

## Outline

- ▶ SQL
- ▶ Relational Algebra
- ▶ Formal Semantics of SQL
- ▶ More SQL

## SQL Query Examples

- ▶ `Movie(title, year, length, inColor, studioName, producerC#)`
- ▶ `StarsIn(movieTitle, movieYear, starName)`
- ▶ `MovieStar(name, address, gender, birthdate)`
- ▶ `MovieExec(name, address, cert#, netWorth)`
- ▶ `Studio(name, address, presC#)`



## SQL Constructs: Data Definition Language

- ▶ Data Definition Language
  - Create table, insert into <> values() etc...