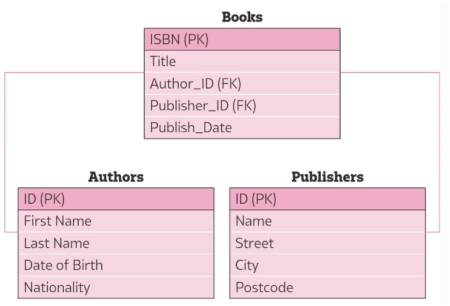
4. Data Modelling

Data Models

- Details how information is organized
- Show relationships between tables
- **3 data model levels of granularity for Relational Database:**
  - **Conceptual** - very broad level business understanding of the data structure
  - **Logical** - defines the structure of the data elements independent of the database management
  - **Physical** - details the specific implementation of the data model dependent on the RDBMS being used.

Conceptual Data Model

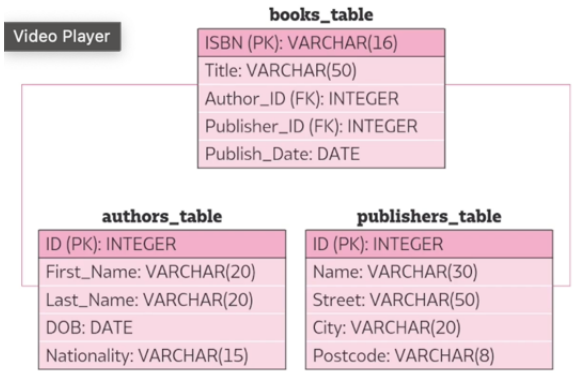


Least Granular Level Model

- Entity names
- Entity Relationships
- Attributes
- Primary Keys

- Foreign Keys

Physical Data Model



Most Granular Level Model

- Primary Keys
- Foreign Keys
- Table Names
- Columns Name
- Column Data Types

Types of Relationships

One-To-One - one record can have only one connection with a record in another table.

One-To-Many - one record can have multiple relationships with records in another table.

Many-To-Many - many records can have multiple relationships with records in another table

Junction tables - Actor-Films

Actors

Video Player	r Name
123	Judi Dench
124	Colin Firth
125	Reese Witherspoon

Actors-Films

Actor ID	Film ID
123	1
124	1
123	2
124	2
125	2
124	3
125	3

Films

ID	Film Name
1	Shakespeare in Love
2	The Importance of Being Earnest
3	Devil's Knot

In general, in RDBMS, one or more rows in a table can be related to 0,1 or many rows in another tables.