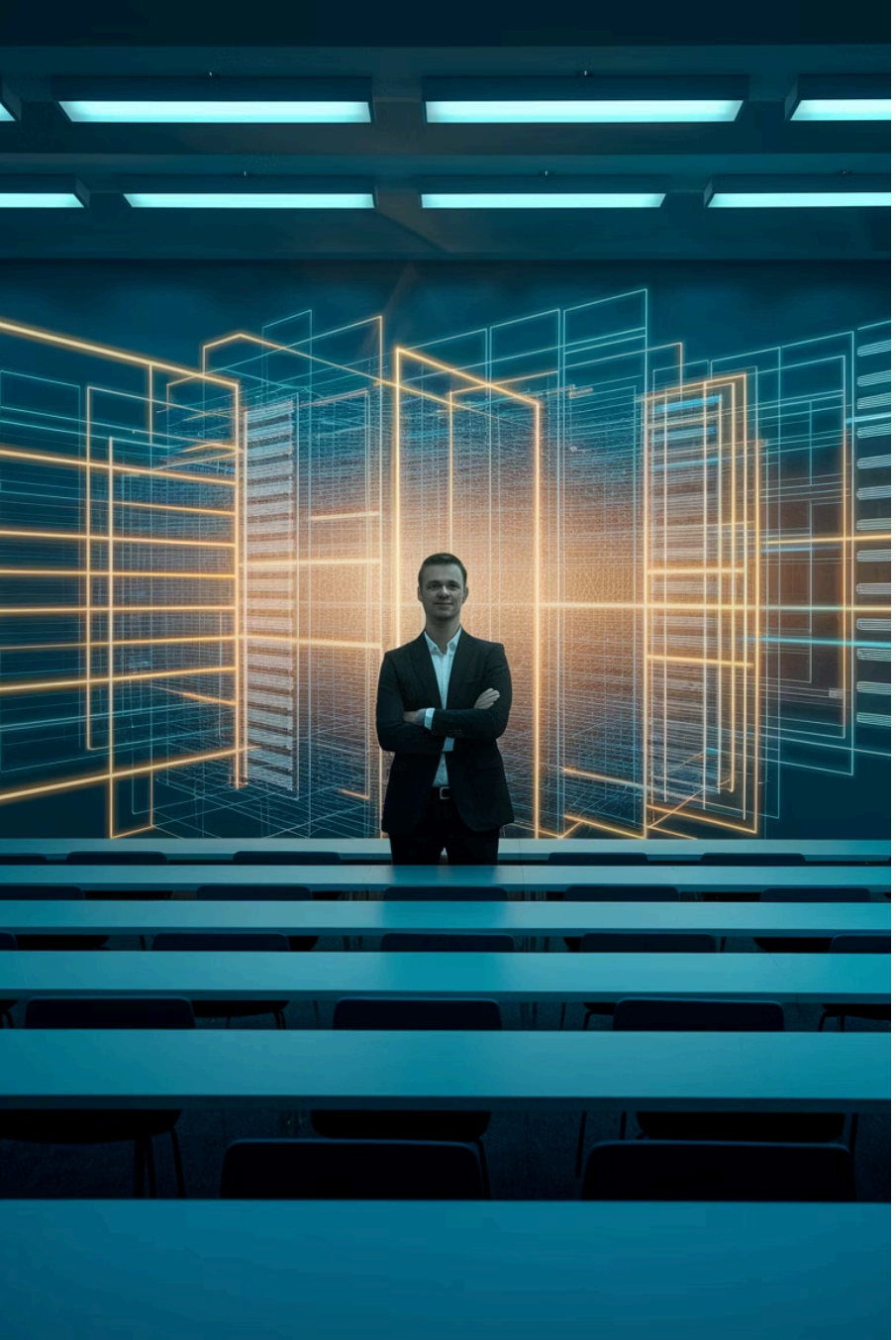
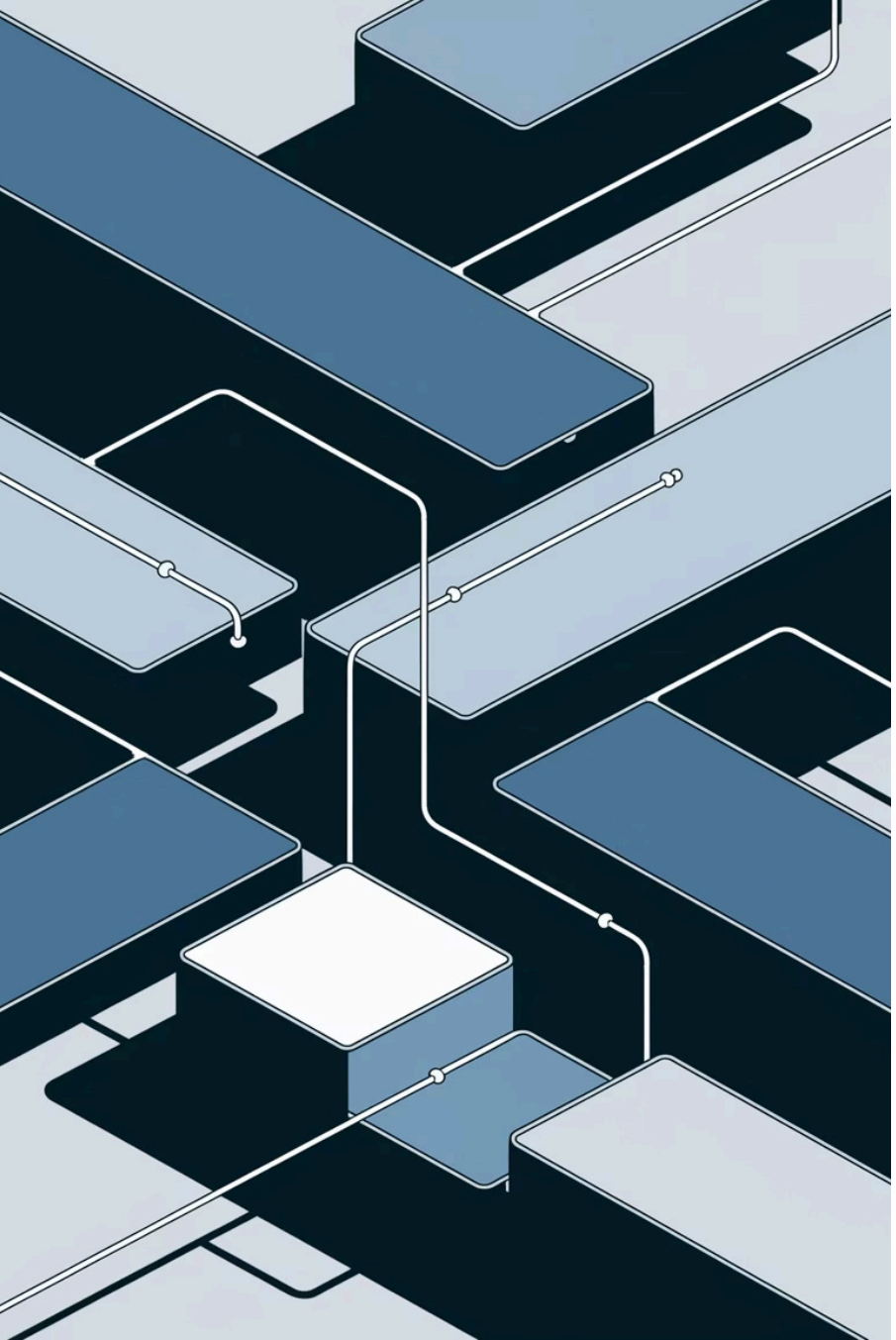


Exploring Data Models: The Treasure Map of Databases

por Mayko Silva



What is a Data Model?

Detective's Board

A data model is like a detective's board, showing connections between database elements.

Database Structure

It reveals how tables in our database are connected and provides details about each table.

Database Map

Acts as a guide, helping us navigate the complex world of database relationships.

The Hogwarts Database Example

Students Table

Contains information about each wizard-in-training, including their unique identifier, name, and date of birth.

Grades Table

Stores the academic performance of students in various magical subjects.

Understanding Table Columns and Primary Keys

1 Columns as Subjects

Each column represents a specific piece of information, like different subjects studied by young wizards.

2 Primary Key (PK)

The student_id serves as a unique identifier for each student, similar to a player's number in sports.

3 Ensuring Uniqueness

Primary keys prevent duplicate entries and help maintain data integrity in the database.

Relationships Between Tables

1

Connecting Tables

Lines between tables show relationships, like family ties in a magical genealogy book.

2

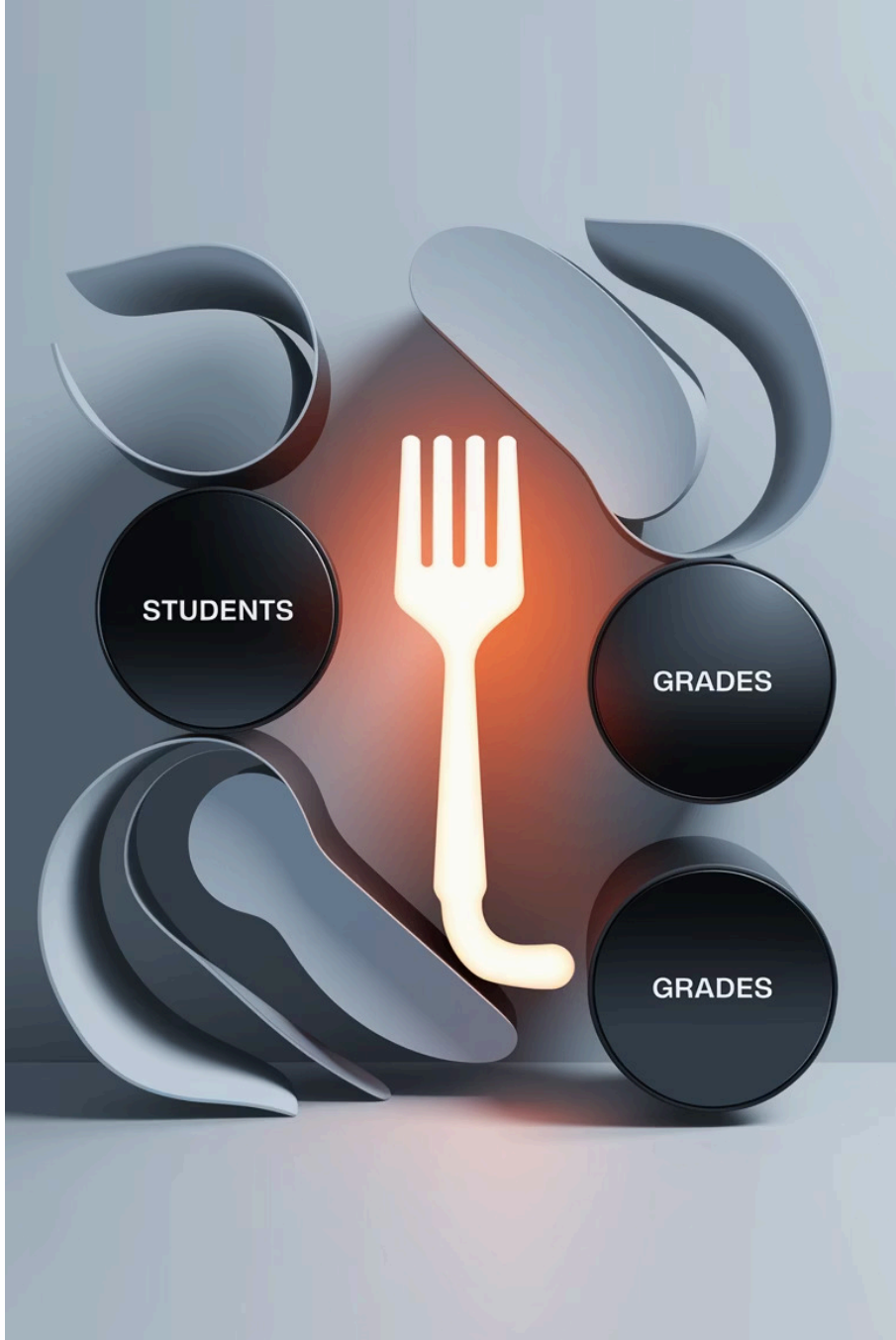
One-to-Many Relationship

The fork symbol indicates that one student can have many grades.

3

Visual Representation

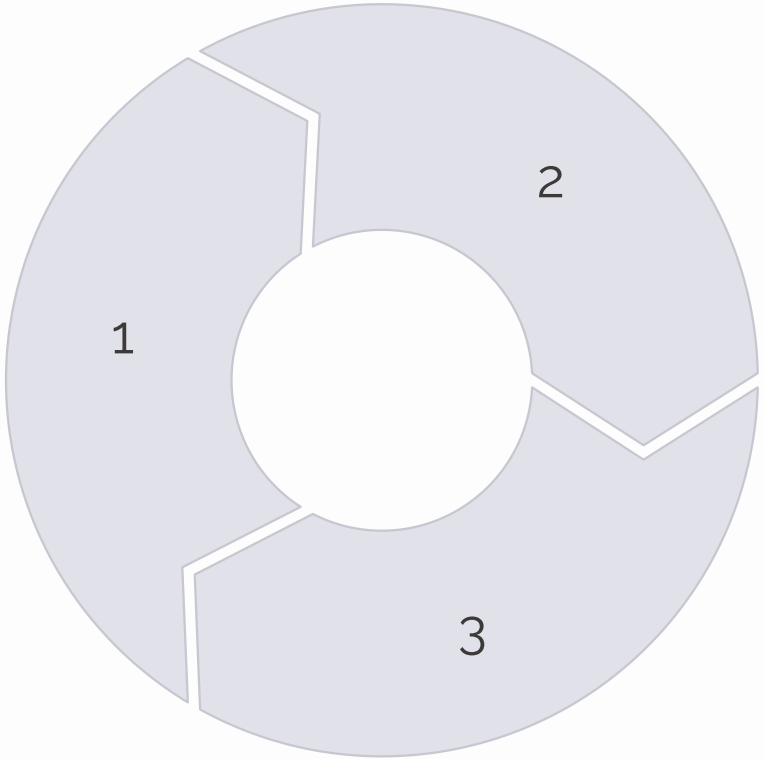
These connections help us understand how data is linked across different tables.



One-to-Many Relationships Explained

Tree Branch Analogy

One student (main branch) can have many grades (smaller branches).



Database Perspective

One row in the Students table connects to multiple rows in the Grades table.

Real-world Example

Harry Potter could have grades for Potions, Charms, and Defense Against the Dark Arts.

Foreign Keys: Connecting the Dots

Foreign Key (FK)

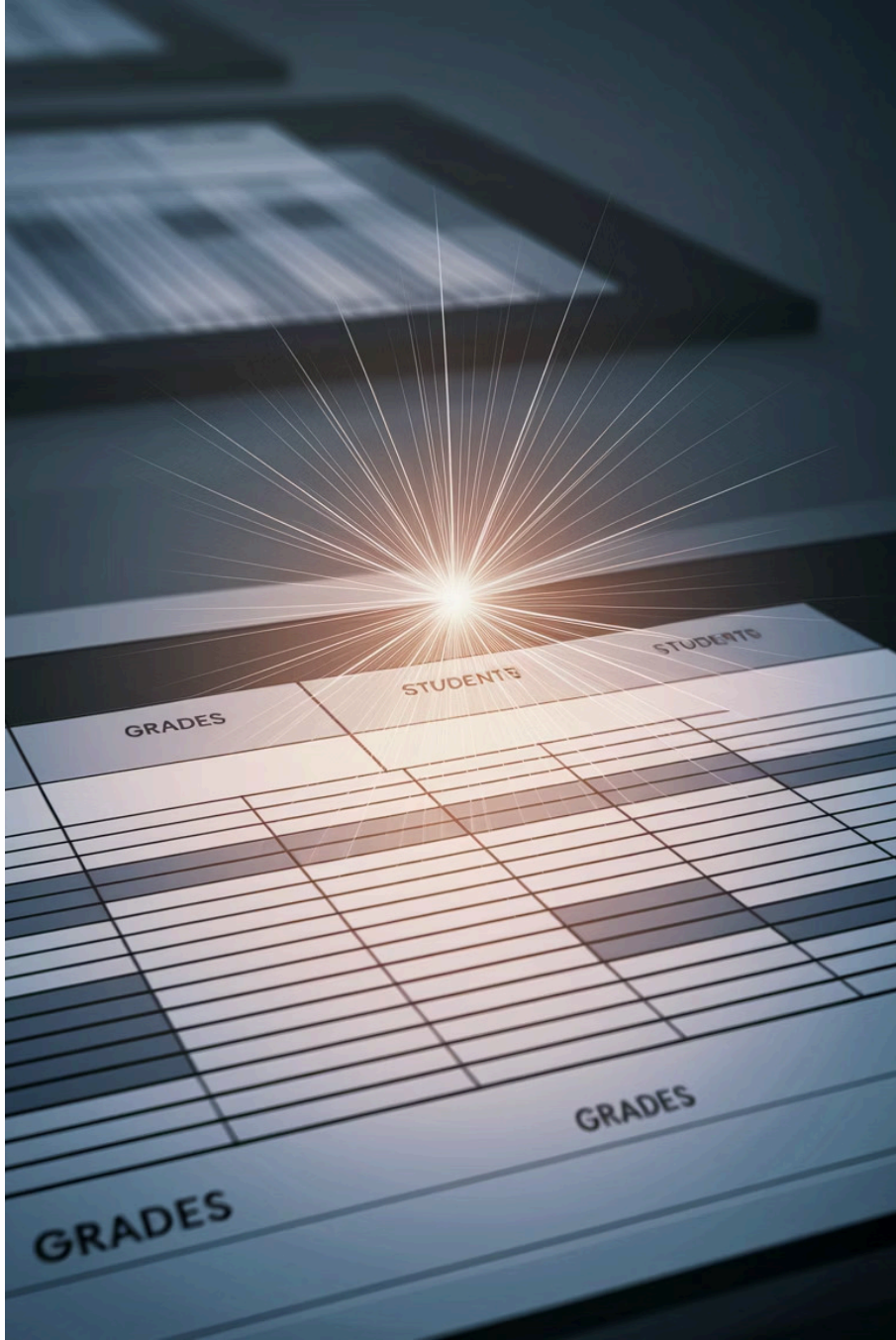
The student_id in the Grades table acts as a foreign key, connecting each grade to a specific student.

Practical Analogy

Like a student's ID written on each grade paper, linking the grade back to the student.

Maintaining Relationships

Foreign keys ensure data integrity and allow us to easily retrieve related information across tables.



The Importance of Data Models in SQL

1

Types of Relationships

One-to-many, one-to-one, and many-to-many relationships show how rows in different tables are connected.

2

Navigation Aid

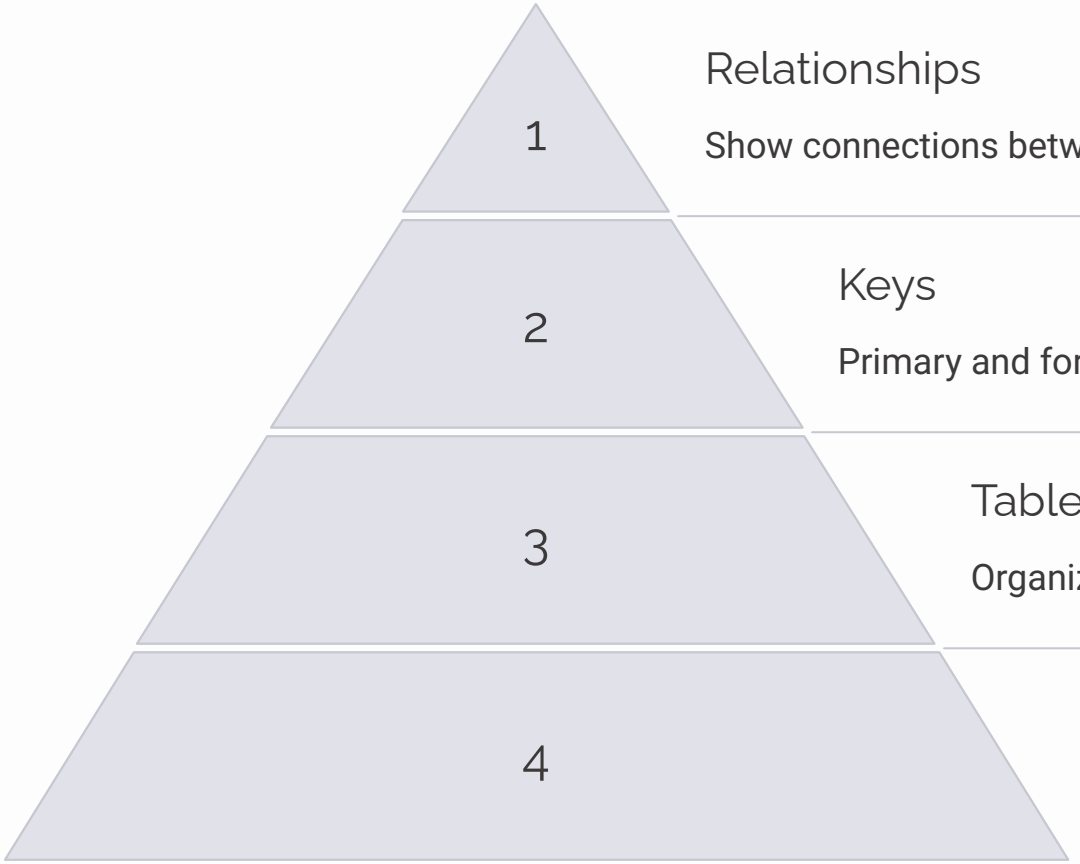
Data models are like maps, making it easier to write SQL queries and navigate the database structure.

3

Query Optimization

Understanding the data model helps in writing more efficient and accurate SQL queries.

Key Takeaways and Next Steps



Relationships

Show connections between tables

Keys

Primary and foreign keys link data

Tables and Columns

Organize and store specific data

Data Model

Visual representation of database structure

In our next lesson, we'll start writing SQL queries using this data model. Remember, understanding your data model is like having the Marauder's Map of your database. It shows you all the secret passages between your data!