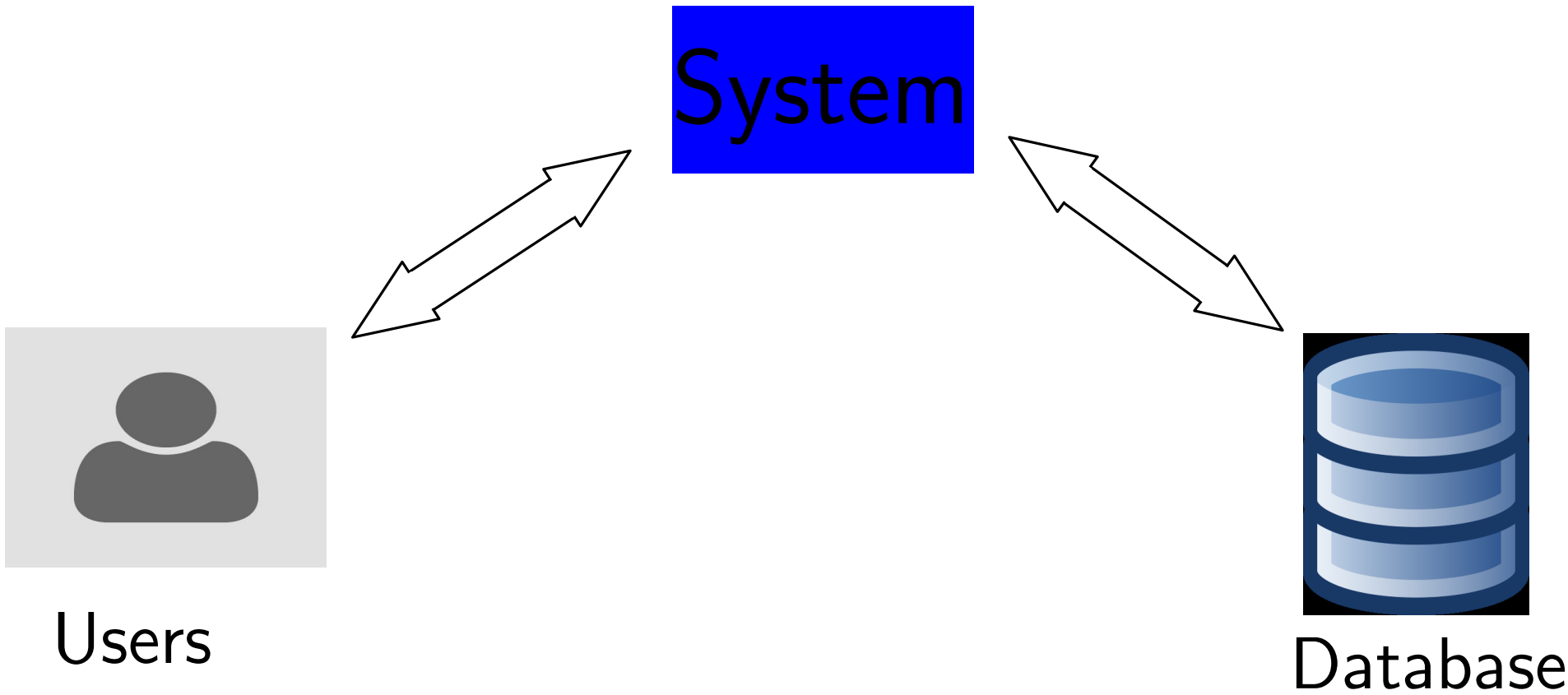
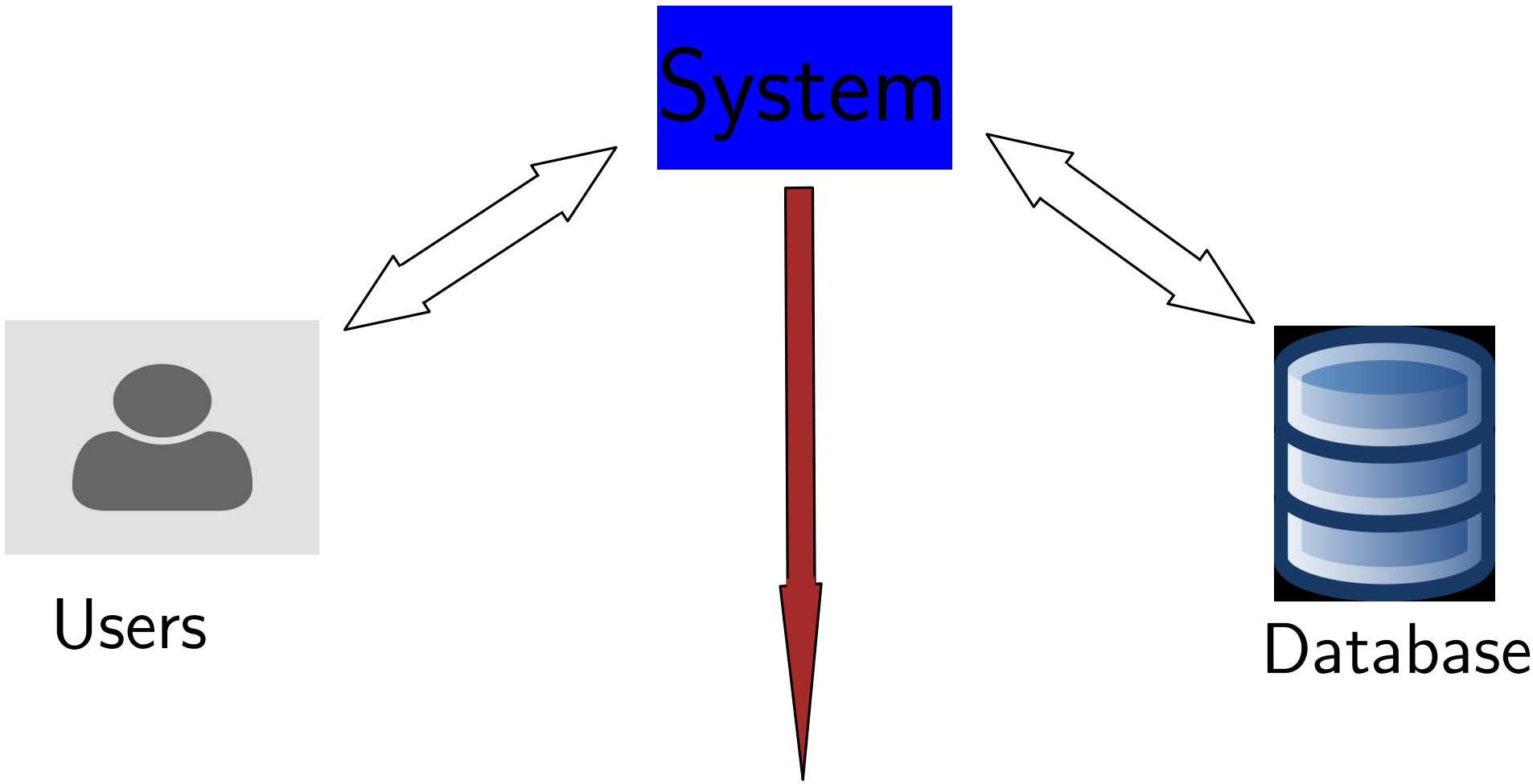
What is DATABASE?

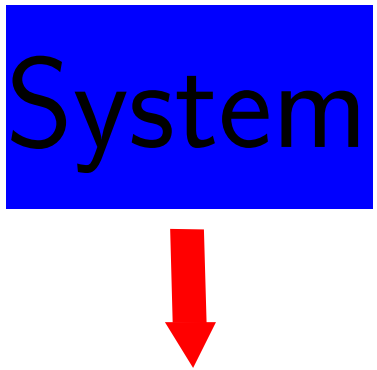
A database is an organized collection of data, stored and accessed electronically from a computer system.

Users

Database


System
Users
Database


System
Users
Database
The main focus of this course



Database management system (DBMS)

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Definition:

software system that enables users to define, create, maintain and control access to the database

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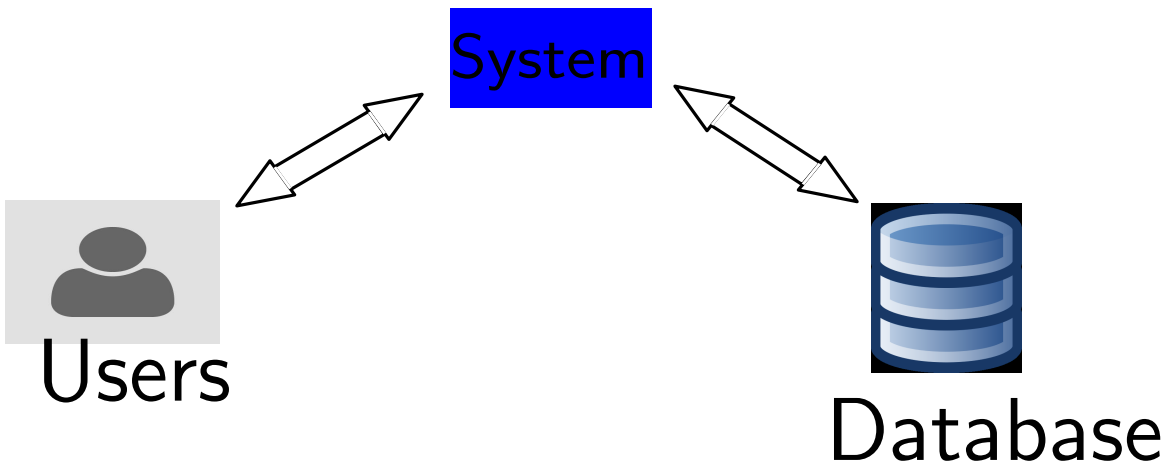

Example: Database at Polytech

- For every student, we store ID number, name, adress, and date of birth.
- For every course, we store ID number, name, start and end dates and a short description.

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What is the best way to store those infos?

- files?, many problems... dificult to find and modify information
- Excel? better, but has limited options and storage

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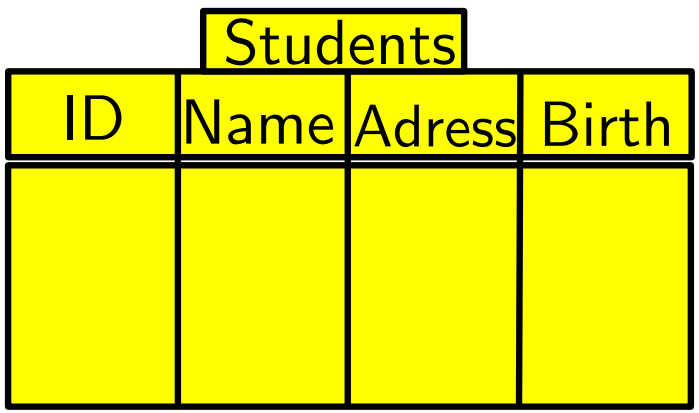

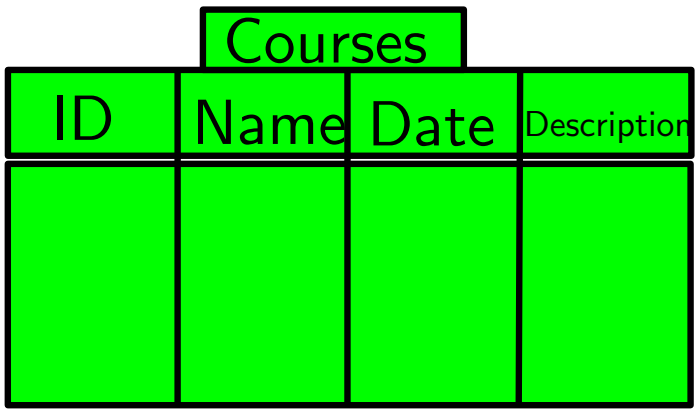

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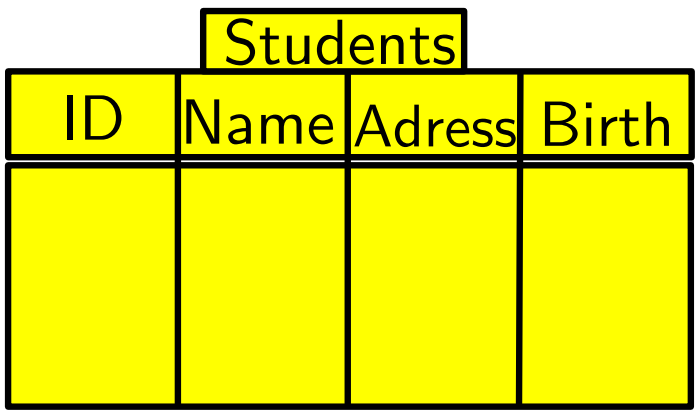

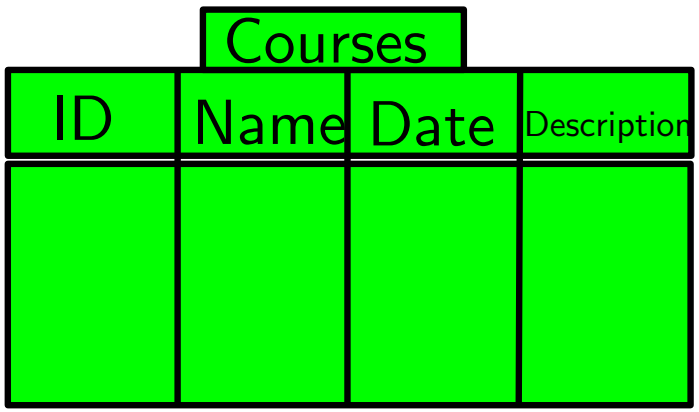

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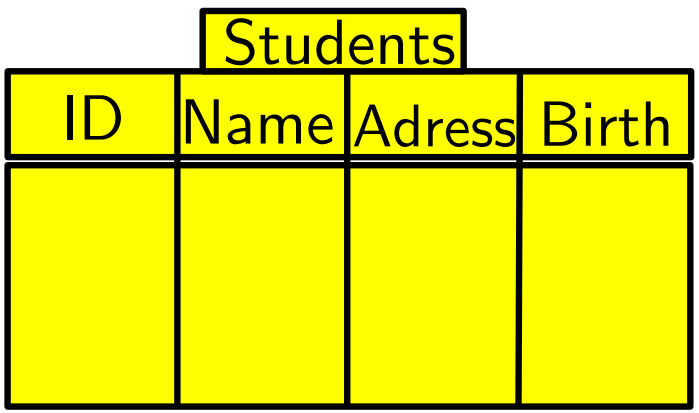
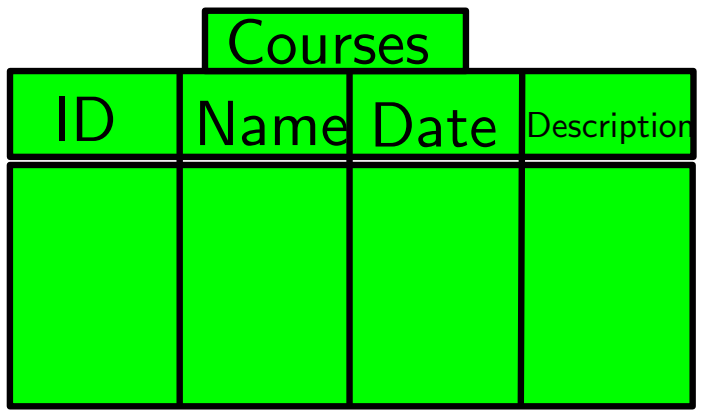


Student S

takes course C



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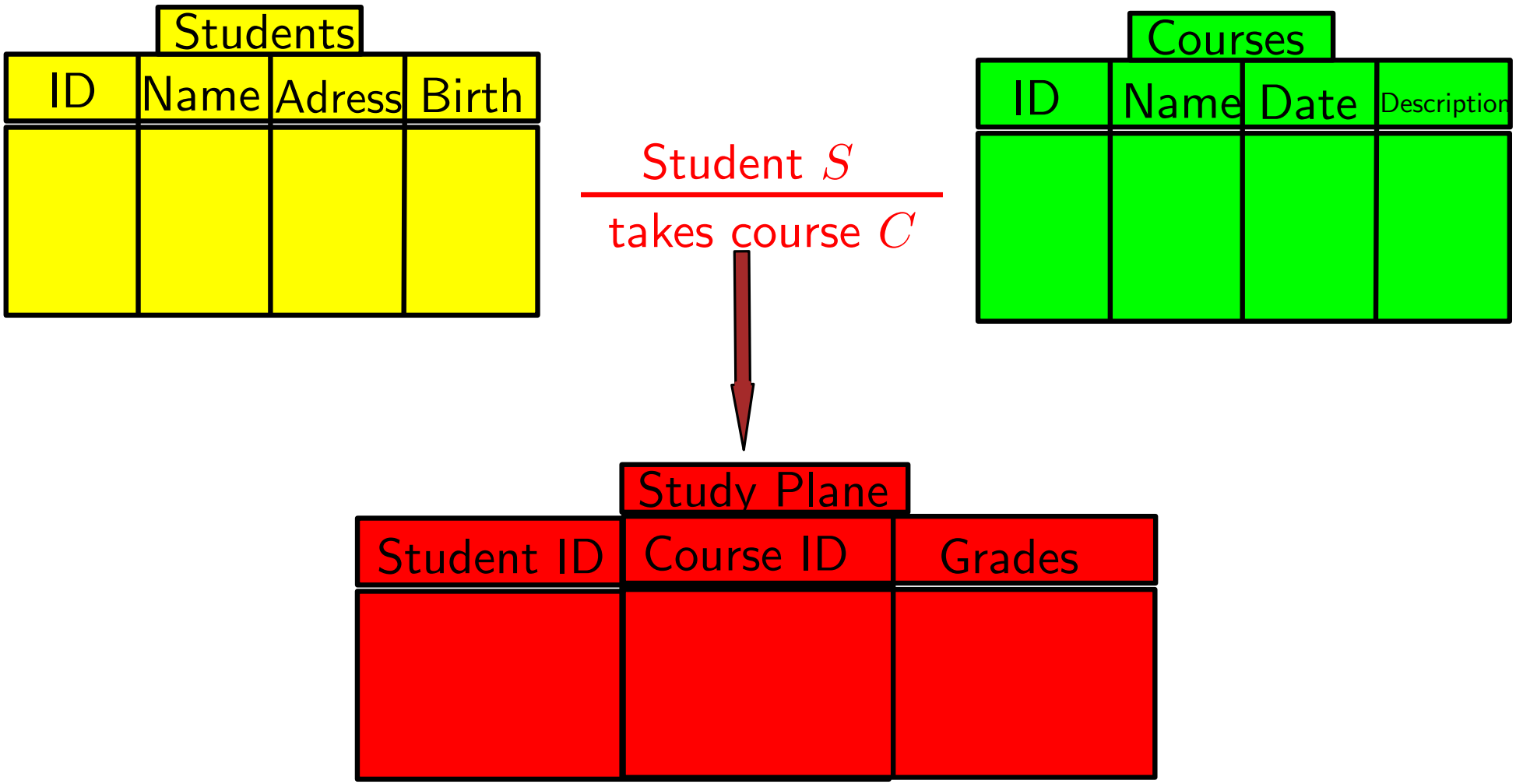

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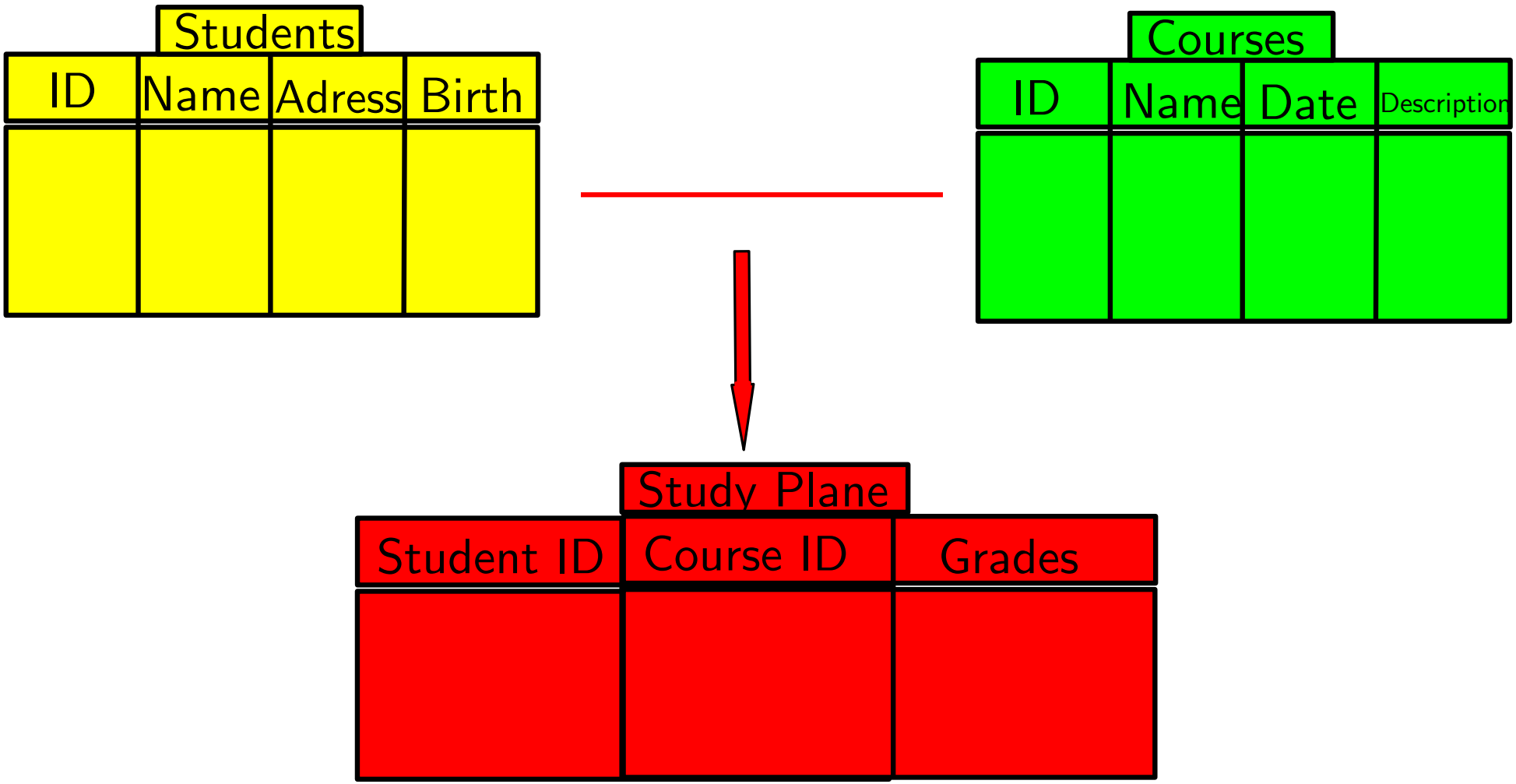

What will we learn here:

- Dealing with Rational Database:
  - Creating
  - Querying
  - Updating
  - Deleting
- Designing Databases (creating efficient DB)
- Rational Algebra (for querying even complex)

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SQL

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- Designing Databases (creating efficient DB)
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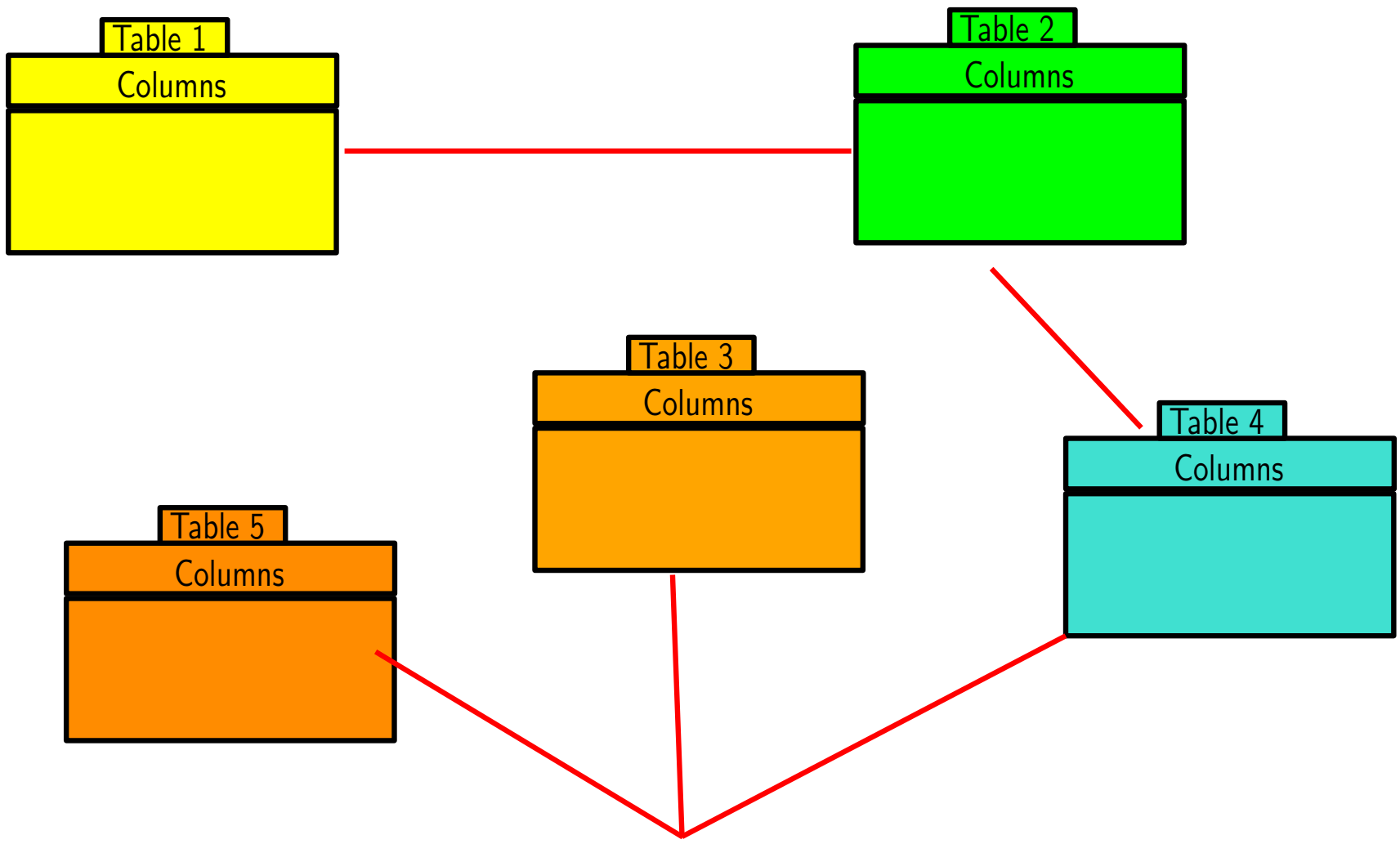
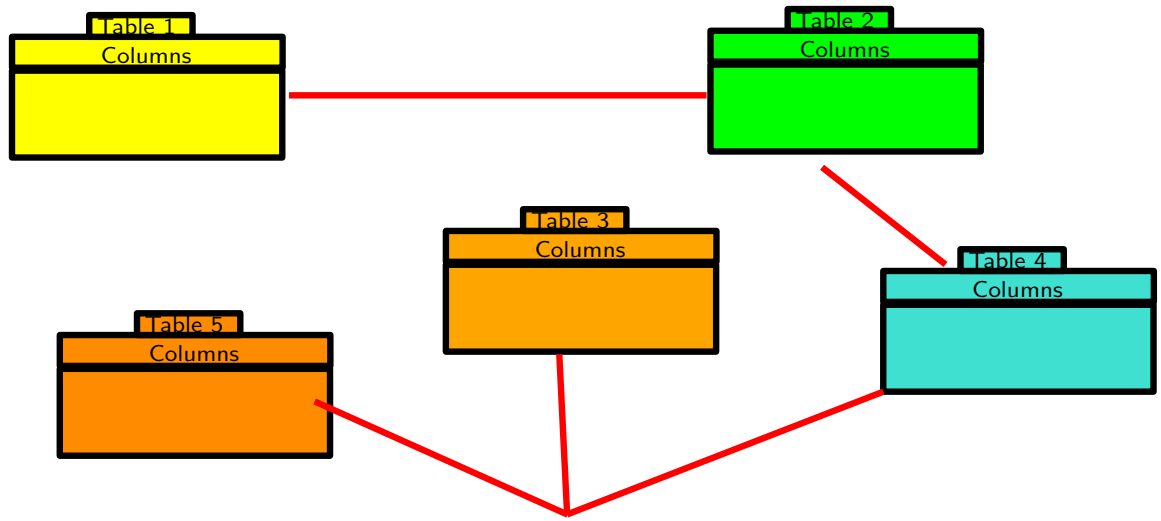
MySql Workbench

More general: Relational model



More general: Relational model of Database



Rational model: This model organizes data into one or more tables (or "relations") of columns and rows, with a unique key identifying each row.

Notiation