Relational Algebra:
Basic Operator for Renaming Schema

Computing on Data

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Learning Objectives

By the end of this video, you will be able to:

- Identify the basic operator that renames tables and attributes.

- Use it and other basic operators to write RA expressions.

Renaming

- Notation: $\rho_{S(B_1,\dots,B_n)}(R)$
- Input: $R(A_1,\dots,A_n)$
- Output:
  - The same relation instance
  - Schema $S(B_1,\dots,B_n)$
- Why?
  - So that names are more meaningful.
    - $\rho_{(\text{student, advisor})}(\pi_{\text{name, advisor}}\text{Students})$
    - or: $\rho_{\text{name}\rightarrow\text{student}}(\pi_{\text{name, advisor}}\text{Students})$
  - So that names do not clash.
    - $\rho_{\text{id}\rightarrow\text{student}}(\text{Students}) \times \rho_{\text{id}\rightarrow\text{professor}}(\text{Professors})$

Cartesian-Product Examples

- *Q1: Rename Drinkers(name, addr, hobby, frequent) to Drinkers(drinker, dAddr, hobby, frequent).*

- *Q2: Rename Bars(name, addr, owner) to Bars(bar, bAddr, owner).*

- *Q3: Find drinkers who have a bar on the same street they live (addr equal). Rename these drinkers to "happyDrinker".*

Can you imagine a "question" that cannot be expressed using the basic operators in relational algebra?