

Relational Data Model

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People to know

EF Codd (Codd 1970)

CJ Date (Date 2011)

Overarching Rule

You can do what you like, so long as you know what you're doing.

Type

Set of all possible values

- ▶ integer
- ▶ character
- ▶ boolean

Attributes

Value of a particular type

- ▶ 3
- ▶ 'a'
- ▶ True

Tuples

Set of Type:Attribute pairs

(int:3, char:'a', bool: 1)

Relations

Set of Tuples (

(int:3, char:'a', bool: 1),

(int:1, char:'b', bool: 0),

(int:5, char:'c', bool: 1),

(int:4, char:'f', bool: 0),

(int:8, char:'z', bool: 1))

Schema = ('attribute2':int, 'attribute3':char, 'attribute3':bool)

Algebra

a collection of operators that can be applied to relations

- ▶ Restrict
- ▶ Project
- ▶ Product
- ▶ Union
- ▶ Intersect
- ▶ Difference
- ▶ (natural) Join

project tuples of the form (ingredient, quantity)

restrict to bacon or eggs

Calculus

what is to be retrieved rather than how to retrieve it

“Give me all the bacon and eggs you have”

Codd, Edgar F. 1970. “A Relational Model of Data for Large Shared Data Banks.” *Communications of the ACM* 13 (6). ACM: 377–87.

Date, Christopher John. 2011. *SQL and Relational Theory: How to Write Accurate Sql Code*. “ O'Reilly Media, Inc.”