

Keys

- One of the most important types of constraints.
- A **primary key** is a set of attributes of a relation R s.t. two tuples in R cannot have the same values in these attributes.
- Allows to uniquely identify a tuple in a relation
- What is a good primary key for the Movies relation?
- Underscore the attr. in Schema:
 \Rightarrow part of the primary key
 Movies (title, year, genre)

Artificial Primary Keys

- Attributes created specifically for the purpose of uniquely identifying a tuple in a relation.

Data model

A **data model** is a notation for describing data information

3 parts:

- **Structure** of data
- **Operations** on the data.
- **Constraints** on the data
 - Limitations on what can be stored (e.g. datatypes).
 - Domain specific (e.g. student id)

Relational model

- **Structure.**

Based on relations / tables

title	year	genre
Terminator	1984	Action
Alien	1979	Horror

• Operations

- Based on Relational Algebra (implemented in SQL)

• Constraints

- Year between 1984 and 2015
- Genre in a given set

Much more later.

Basics of Relational Model (2.2)

- Data represented as a 2-dim. table called **relation**
- A relation represents a **set** of objects/entities/elements and their relations.

Movies:

Attributes		
title	year	genre
Terminator	1984	Action
Alien	1979	Horror

Tuples {

No order and No duplicates

Schema

- Represents the characteristics of a relation: **name** and **attributes**

Movies(title, year, genre)

DB Schema

- Set of schemas of all relations in the DB.

Some properties of relations

- every tuple is unique
- every attribute
 - must have a **domain**
 - must be **atomic** (no lists, sets, etc).

Domain

- Set of potential values an attribute can take.

Instance

The "current" set of "values" in the relation/db.