Data – information

Database to store Data

DBMS – MySQL

**Relational DBMS**

Non-relational DBMS – Mongo DB

Table (Relation) – **columns**, **row** (**record**, **entry**)

**Field** (**Cell**) – is one value in a column

Membership

|  |  |  |  |
| --- | --- | --- | --- |
| Id | Title | Price | Description |
| 1 | Silver | 30 | Decent |
| 2 | Gold | 40 | Good |
| 3 | Platinum | 100 | null |

Database design makes us ask questions like:

* What tables do I need?
* What columns do I put in that table?
* Do I allow them to be null, or do I force them all to have a value?
* How do these tables connect to one and another?
* How I enforce the way they are connected?

This is called as **data integrity**

**Entity**: the thing we store the data about

**Attribute**: is within the entity describes entity

Data integrity means the data we are storing about the entity are

* accurate as up-to-date as possible,
* not redundant (meaning no duplicates),
* There is no conflicting information.

What If there are two entities with exactly same attributes?

* That implies the data are duplicates.
* The solution is to introduce a **primary key**

Primary key

* Whats special?
  + Not null
  + Unique
* Two types
  + **Natural key** (existed in real life like email, we can make each user’s email **UNIQUE** and not same users can access the data base )
  + **Surrogate key** (id generated by the database)
* What do you do if you want to reference this key in a different table or column?
  + Introduce a **comment table(foreign key)** that can reference to for example Users

**Foreign key:** a column that references another column in another table

Must reference to a

* Primary key
* Or Entity labeled UNIQUE