

Schema Design

Terms

- Unnormalized
 - Normalized
 - Denormalized

Normalization

Normalization is the process of organizing the columns and tables of a relational database.

***Normalization is used to
reduce data redundancy
and improve data
integrity.***

Normalization is decomposing a table into less redundant (and smaller) tables without losing information.

***The goal is to isolate data
so that additions,
deletions and
modifications of an
attribute can be made in
just one table.***

The changes will be propagated through the rest of the database.

Rules

→ No repeating rows

→ A primary key

→ Each field contains only one piece of information.

- All the non key columns are dependant on the primary key
 - Is this unique for this entity?

***Every non-key attribute
'must provide a fact
about the key, the whole
key, and nothing but the
key'.***

Why denormalize?

Examples

Order	
PK	id order_date payment_date delivery_date shipping_date payment_type_1 payment_amount_1 payment_type_2 payment_amount_2 salesperson_name item_name_1 item_price_1 item_name_2 item_price_2 item_name_3 item_price_3

Patient	
PK	id primary_care_physician_name primary_care_physician_phone primary_care_physician_email specialist_name specialist_phone specialist_email sex age weight last_weighed_date allergy_name_1 allergy_name_2 allergy_name_3 is_pregnant

User	
PK	id username avatar_url_small avatar_url_large is_toc_agreed is_subscriber_product_1 subscription_end_product_1 is_subscriber_product_2 subscription_end_product_2 is_subscriber_product_3 subscription_end_product_3