

Day 1: Understanding Relational Database Normalizing Data, Relationships, Normalizing Data and Identifying Relationships

A database is a collection of data organized in a structured format defined by metadata describing that structure. Metadata defines how the data is stored within the database. SQL is a relational database. A relation is a set of columns (fields) and rows (records) collected in a table-like structure that represents a single entity (person, place, thing or event) made up of related data. Data normalization is the organization of data in a database to avoid anomalies that can lead to loss of data as the database is maintained.

In a relational database, there are three (3) types of relationship;

1. One-to-one: This is when a row in the first table is related to a row in the second table.
2. One-to-many: This is when a row in the first table is related to zero, one, or more rows in the second table, but a row in the second table is related to at least one row in the first table.
3. Many-to-many: This is when a row in the first table is related to zero, one, or more rows in the second table and a row in the second table is related to zero, one, or more rows in the first table.

id	first_name	last_name
1	Jane	Amadi
2	Nnaji	Chukwu
3	Nwanu	Nma
4	Chihonso	Chiro
5	Nwachu	Ndudi
6	Udenma	Ogadinma
7	Nzunma	Udagu
8	John	Felix
9	Glory	Asuzu
10	Ndu	Mmuo
11	Uwadi	Alanso
12	Victor	Clement
13	Janet	Jonathan
14	Otudi	Uwamu
15	Chidinma	Eleuwa

id	hours_worked	hourly_wage	weekly_pay
1	35	1000	35000
2	42	500	42000
3	45	300	13500
4	41	450	18450
5	55	250	13750
6	45	100	4500
7	40	1500	60000
8	50	400	20000
9	48	2000	96000
10	40	900	36000
11	20	850	17000
12	52	700	36400
13	50	600	30000
14	49	1500	73500
15	30	1000	30000

employee_id	age
1	35
2	25
3	28
4	26
5	25
6	25
7	43
8	27
9	45
10	35
11	32
12	30
13	29
14	40
15	38

This defines the relationship between the tables.