

## 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.

**employee\_names**

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

**employee\_pay**

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

**employee\_age**

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

This defines the relationship between the tables.