

A Crash Course on Relational Database Design



What is SQL?

- ✓ SQL is a standard programming language to interact with relational databases

CREATE Insert new records into the database tables

READ Retrieve data from one or more tables based on criteria

UPDATE Modify existing records in the database

DELETE Remove records from the database tables

Keys in Relational Databases

```
CREATE TABLE books (  
  book_id INT PRIMARY KEY,  
  title VARCHAR (100),  
  author VARCHAR (100),  
);
```

Primary Key

```
CREATE TABLE products (  
  product_code VARCHAR(20)  
  PRIMARY KEY,  
  product_name VARCHAR(100),  
  category VARCHAR (50),  
  price DECIMAL(10, 2)  
);
```

Natural Key

```
CREATE TABLE customers (  
  customer_id INT PRIMARY KEY,  
  first_name VARCHAR(50),  
  last_name VARCHAR(50),  
  email VARCHAR (100)  
);
```

```
CREATE TABLE orders (  
  order_id INT PRIMARY KEY,  
  customer_id INT,  
  order_date DATE,  
  total_amount DECIMAL(10, 2),  
  FOREIGN KEY (customer_id)  
  REFERENCES customers(customer_id)  
);
```

Foreign Key

Join Types

Inner Join

Left Table

Right Table

Right Join

Left Table

Right Table

Left Join

Left Table

Right Table

What is SQL?

Types of Keys

Join Types

Fundamentals

Relationship Types

Relationship Types

User **has** User Profile

One-to-One

Customer **has** Order

One-to-Many

Product **has** Category

Many-to-Many

Fundamental Concepts

Table

Row 1		
Row 2		
Row 3		

Rows

Column	Column	Column

Columns

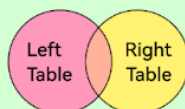
Primary Key		
EmpID	Name	Age

Primary Key

Id	Name	DId

DId	Name

Foreign Key



Joins

Index	Table

Index

C1	C2	C3

C1	C2

Table

View

Views

Data Pegawai

nid	nama_d	tempat_lhr	tgl_lahir	jkelamin	alamat	kota	kodepos	gajipokok
95001	Bambang Sutedjo,Ir,MMSi	Jakarta	2/23/58	Pria	Jl. Mawar 6 No.2	Jakarta Selatan	23234	1300000
95002	Asri Kasetyaningsih,M.Kom	Semarang	12/25/62	Wanita	Jl. Perjuangan 3 No.11	Bekasi Timur	54567	1200000
96001	Triyatno,Ir,MM,M.Kom	Bekasi	5/14/67	Pria	Jl. Mawar Indah 1 No.1	Bekasi Barat	54356	1100000
96002	Diastruti Pujiningsih,MM,MT	Surabaya	12/24/70	Wanita	Jl. Janur Kuning 2 No.56	Cibitung	54566	1000000
97001	Endang Junianti,Ir,MMSi	Bandung	5/20/67	Wanita	Jl. Kemukus 2 No.56	Cikarang	56555	1150000
97002	Djoko Pamungkas,M.Kom	Bogor	5/28/71	Pria	Jl. Anggrek 7 No.1	Bekasi Timur	45666	1100000
98001	Didik Atmadja,Ir,MMSi	Bandung	4/20/70	Pria	Jl. Cipete Raya No.6	Jakarta Selatan	24123	1250000
98002	Bagus Windarjo,M.Kom.	Tangerang	12/13/71	Pria	Jl. H. Ali No.21	Cibitung	54523	1150000
99001	Dewi Anjani,Ir,MM	Bekasi	12/14/75	Wanita	Jl.Kemang Raya 2 No.1	Bekasi Barat	54567	1200000