

# Column Types

Columns have types in these broad categories:

Numeric	INTEGER, REAL, ...
Time related	TIME, DATE, ...
Characters and Text	CHAR, TEXT, VARCHAR, ...
Other	Arrays, JSON, Geometric, Inet, ...

# Numeric types

Type	Bytes	Description
SMALLINT	2	Small integer
INTEGER	4	Typical integer
BIGINT	8	Large integer
REAL	4	Like C/C++ <code>float</code> , inexact
DOUBLE PRECISION	8	Like C/C++ <code>double</code> , inexact
DECIMAL	<i>var</i>	user-specified precision, exact
NUMERIC	<i>var</i>	Same as <code>DECIMAL</code>
SMALLSERIAL	2	Small auto-incremented integer
SERIAL	4	Medium auto-incremented integer
BIGSERIAL	8	Large auto-incremented integer

## Text-related types

Type	Bytes	Description
CHAR	1	One character
CHAR( <i>N</i> )	<i>N</i>	Fixed size string of length <i>N</i> (padding)
TEXT	<i>var</i>	Variable-size string (no limit)
VARCHAR	<i>var</i>	Same as TEXT
VARCHAR( <i>N</i> )	$\leq N$	VARCHAR with a <b>limit</b> of <i>N</i> (no padding)

## Time-related types

Type	Size	Description
TIME	8	Time of day (no date)
DATE	4	Date (no time of day)
TIMESTAMP	8	Date + time of day
INTERVAL	16	Time interval

# CREATE TABLE

The CREATE TABLE command creates a new table with the specified columns and types:

```
CREATE TABLE users (  
  id SERIAL,  
  first_name VARCHAR(100),  
  last_name VARCHAR(100),  
  email VARCHAR(255),  
  birthday DATE,  
  age SMALLINT,  
  bio TEXT  
);
```

*If the table exists, the command will fail.*

# DROP TABLE

The DROP TABLE command removes an existing table:

```
DROP TABLE users;
```

*If the table does not exist, the command will fail.*

## IF EXISTS, IF NOT EXISTS

Adding IF NOT EXISTS makes the CREATE TABLE succeed even if the table exists:

```
CREATE TABLE IF NOT EXISTS users ( /* ... */ );
```

Adding IF EXISTS to DROP TABLE makes it succeed even if the table does not exist:

```
DROP TABLE IF EXISTS users;
```

# Constraints

Constraints make sure we never store incorrect data.

**NOT NULL**    Never empty

**UNIQUE**        No repeated values

**CHECK**        Has to satisfy a certain condition

*Keys will also add constraints*

```
CREATE TABLE products (  
  id INTEGER UNIQUE NOT NULL,  
  name TEXT NOT NULL,  
  price NUMERIC NOT NULL CHECK (price > 0)  
);
```