# Introduction to Relational Databases in SQL

## **Query information schema tables**: information about all tables in your current database

SELECT table\_name

FROM information\_schema.tables

WHERE table\_schema = 'public';

## **Query information schema columns**: information about all columns in all of the tables in your current database

SELECT column\_name, data\_type

FROM information\_schema.columns

WHERE table\_name = 'table\_name'

AND table\_schema = 'public';

## Creating simple tables:

CREATE TABLE table\_name (

column\_a data\_type,

column\_b data\_type,

column\_c data\_type

);

## Adding column names:

ALTER TABLE table\_nameADD COLUMN column\_name data\_type;

## Insert distinct records from a table to a table:

INSERT INTO target\_table

SELECT DISTINCT column\_a, column\_b

FROM source\_table

## Insert distinct records into a table:

INSERT INTO table\_name (column\_a, column\_b)

VALUES (“value\_a”, “value\_b”)

## Rename a column:

ALTER TABLE table\_name

RENAME COLUMN old\_name, new\_name

## Drop a column:

ALTER TABLE table\_name

DROP COLUMN column\_name

## Drop Table

DROP TABLE table\_name

## Constraints

**Attribute Constraints – e.g. data types on columns.**

**Key Constraints – e.g. primary keys.**

**Referential integrity Constraints – enforced through foreign keys.**

## Type Cast

CREATE TABLE weather (

temperature integer, wind\_speed text);

SELECT temperature \* CAST(wind\_speed AS integer) AS wind\_chill

## Common Data Types

text

varchar [ (x) ] – max x characters

char [ (x) ] – fixed length string of x characters

boolean – TRUE, FALSE, NULL (unknown)

date, time, timestamp

numeric [ (x, y) ] - precision of x and scale of y (total x digits and y digits after .)

integer – whole numbers

## Alter data type

ALTER TABLE table\_name

ALTER COLUMN column\_name

TYPE new\_dtype

## Truncate or transform values before altering

ALTER TABLE table\_name

ALTER COLUMN column\_name

TYPE new\_dtype

USING some\_function (column\_name)

## Example – Convert types using a function

ALTER TABLE table\_name

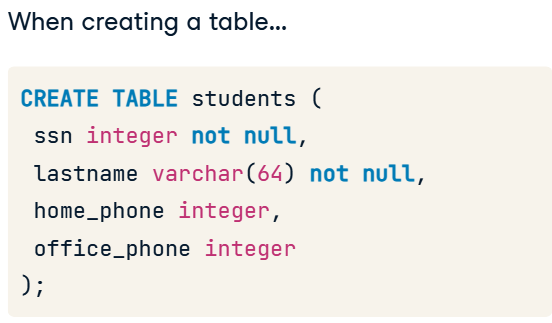
ALTER COLUMN column\_name

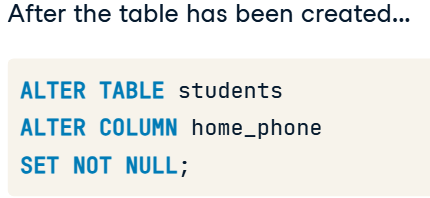
TYPE varchar(x)

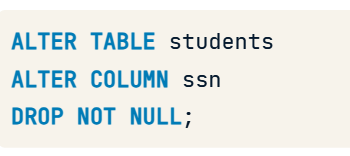
USING SUBSTRING(column\_name FROM 1 FOR x)

*Because you want to reserve only x characters for column\_name, you have to retain a SUBSTRING of every value, i.e. the first x characters of it, and throw away the rest. This way, the values will fit the varchar(x) requirement.*

## Add or Remove Not-Null constraint







## Adding Unique constraint

