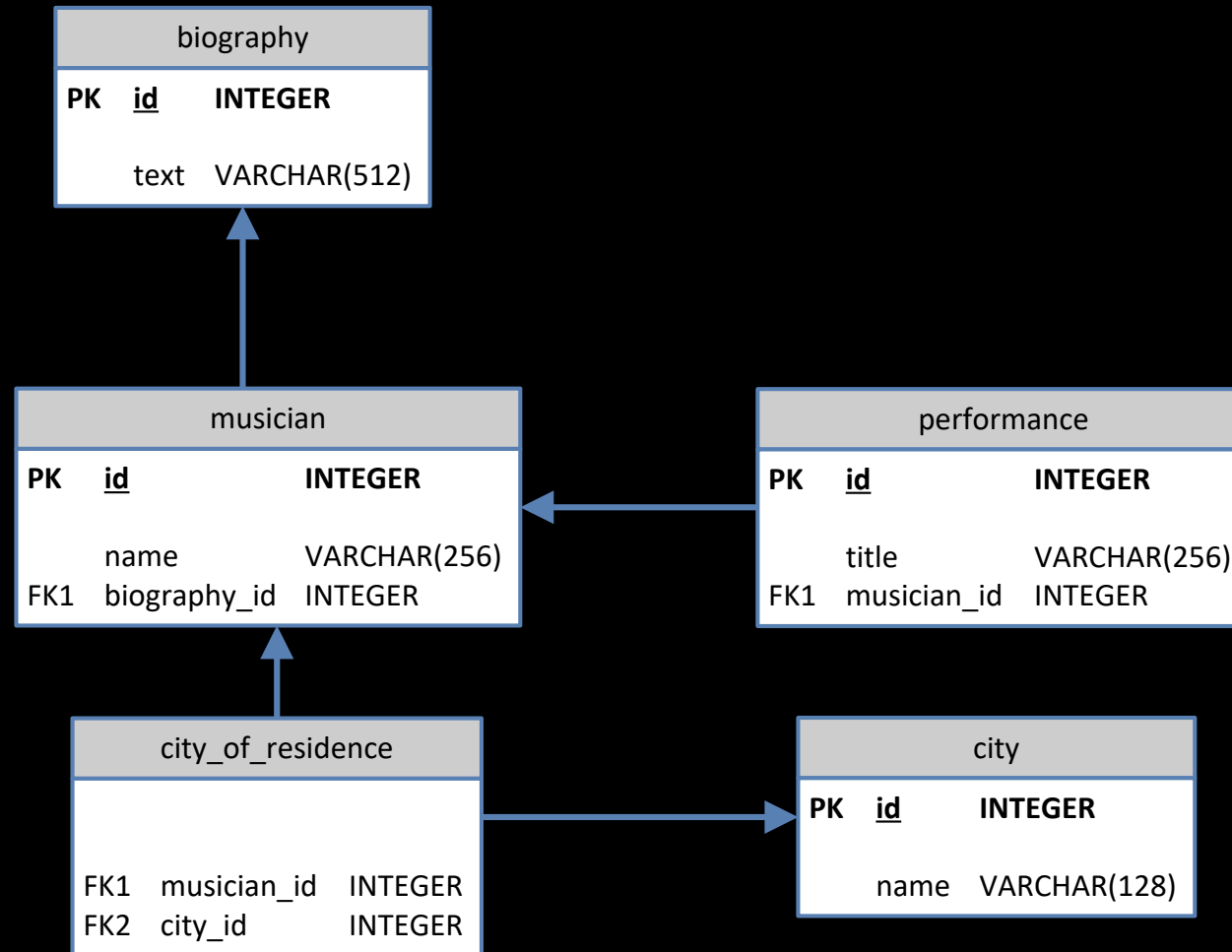


Description of a sample database

Physical database model

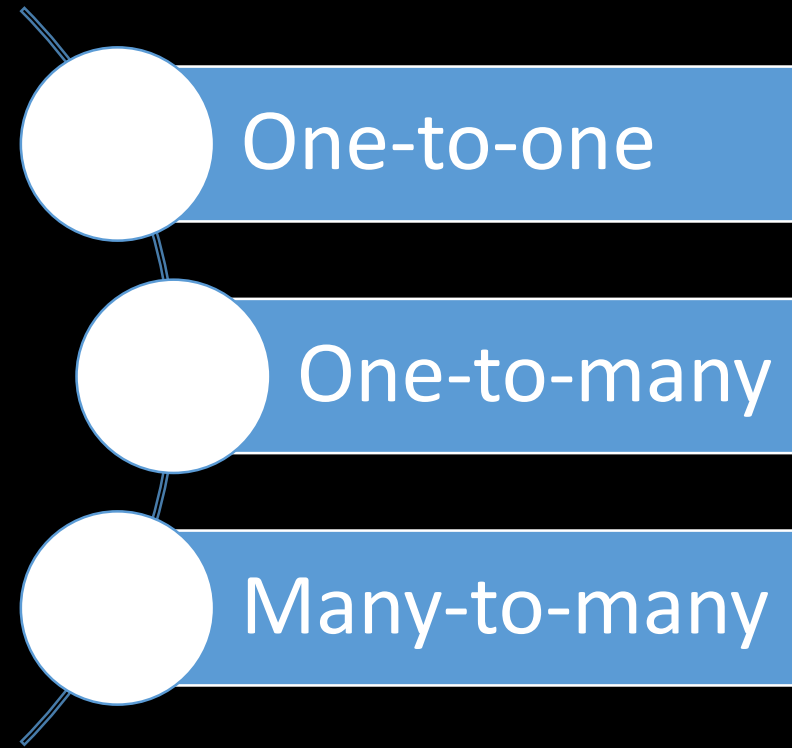


Database table relationships

In a relational database, a relationship is formed by correlating rows belonging to different tables.

A table relationship is established when a child table defines a Foreign Key column that references the Primary Key column of its parent table.

Table relationship types

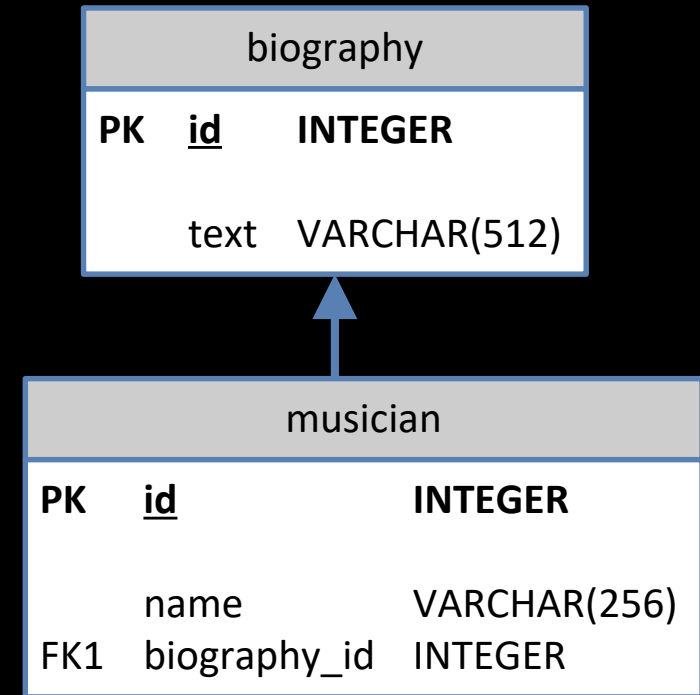


One-to-one relationship

Both tables can have only one record on either side of the relationship.

A one-to-one table relationship links two tables based on a Primary Key column in the child which is also a Foreign Key referencing the Primary Key of the parent table row.

In the table diagram, the *biography_id* column in the *musician* table has a Foreign Key relationship with the *biography* table *id* Primary Key column

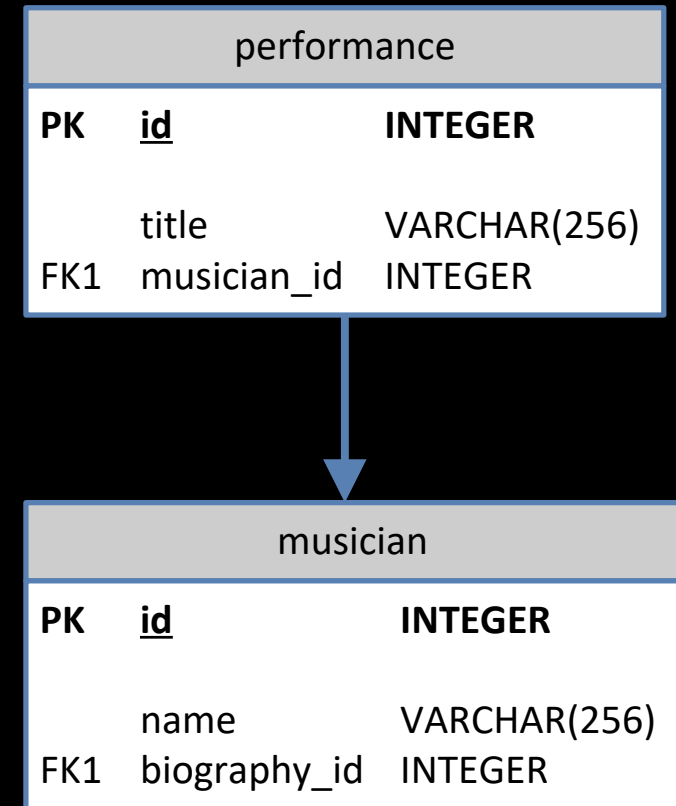


One-to-many relationship

The primary key table contains only one record that relates to none, one, or many records in the related table.

A one-to-many table relationship links two tables based on a Foreign Key column in the child which references the Primary Key of the parent table row.

In the table diagram, the *musician_id* column in the *performance* table has a Foreign Key relationship with the *musician* table *id* Primary Key column



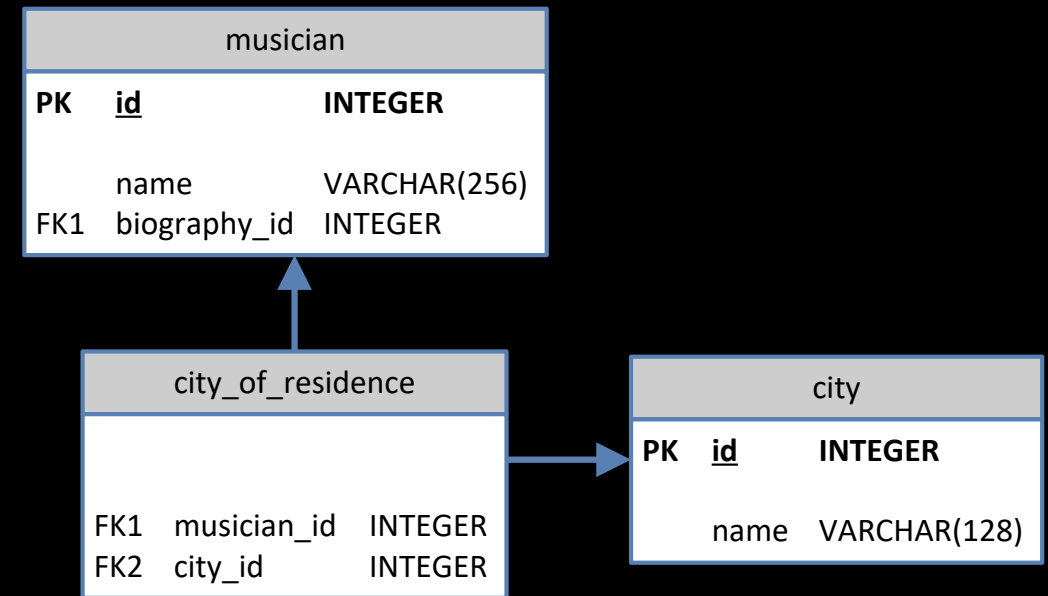
Many-to-many relationship

Each record in both tables can relate to any number of records (or no records) in the other table.

A many-to-many table relationship links two parent tables via a child table which contains two Foreign Key columns referencing the Primary Key columns of the two parent tables.

In the table diagram, the *musician_id* column in the *city_of_residence* table has also a Foreign Key relationship with the *musician* table *id* Primary Key column.

And, the *city_id* column in the *city_of_residence* table has a Foreign Key relationship with the *city* table *id* Primary Key column



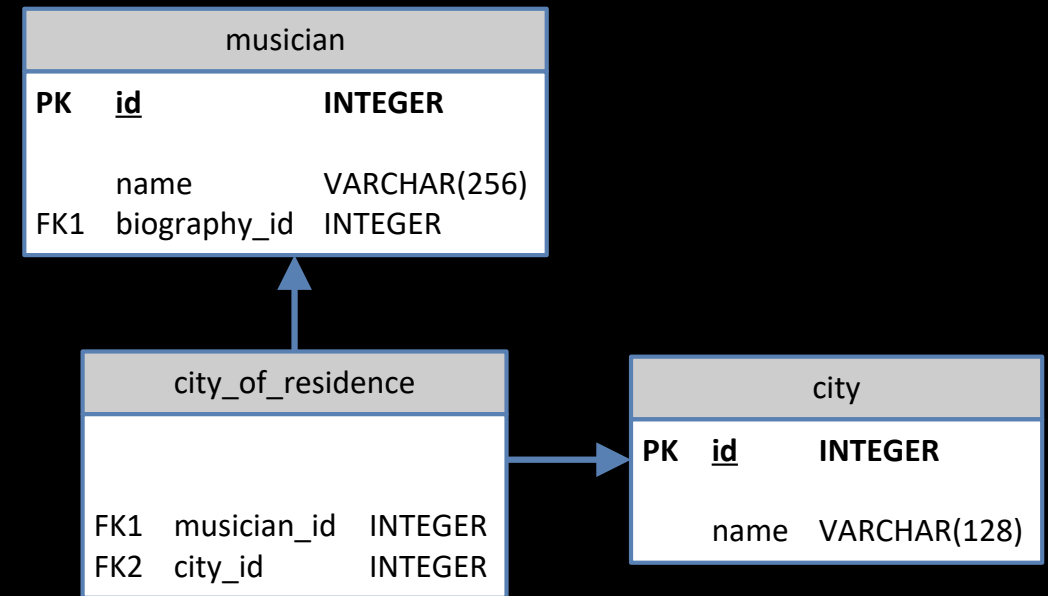
Many-to-many relationship

Each record in both tables can relate to any number of records (or no records) in the other table.

A many-to-many table relationship links two parent tables via a child table which contains two Foreign Key columns referencing the Primary Key columns of the two parent tables.

In the table diagram, the *musician_id* column in the *city_of_residence* table has also a Foreign Key relationship with the *musician* table *id* Primary Key column.

And, the *city_id* column in the *city_of_residence* table has a Foreign Key relationship with the *city* table *id* Primary Key column



Database script

```
-- DROP DATABASE music;
CREATE DATABASE music;

CREATE TABLE biography (
    id INTEGER ,
    text VARCHAR(512),

    CONSTRAINT pk_biography PRIMARY KEY (id)
);

CREATE TABLE musician (
    id INTEGER ,
    name VARCHAR(256) NOT NULL,
    biography_id INTEGER,

    CONSTRAINT pk_musician PRIMARY KEY (id),
    CONSTRAINT fk_musician_biography FOREIGN KEY (biography_id)
        REFERENCES biography (id)
        ON UPDATE NO ACTION ON DELETE CASCADE
);

CREATE TABLE city (
    id INTEGER ,
    name VARCHAR(128),

    CONSTRAINT pk_city PRIMARY KEY (id)
);

CREATE TABLE performance (
    id INTEGER ,
    title VARCHAR(256),
    musician_id INTEGER,

    CONSTRAINT pk_performance PRIMARY KEY (id),
    CONSTRAINT fk_performance_musician FOREIGN KEY (musician_id)
        REFERENCES musician (id)
        ON UPDATE NO ACTION ON DELETE CASCADE
);

CREATE TABLE city_of_residence (
    musician_id INTEGER,
    city_id INTEGER,

    CONSTRAINT fk_city_of_residence_musician FOREIGN KEY (musician_id)
        REFERENCES musician (id)
        ON UPDATE NO ACTION ON DELETE CASCADE,
    CONSTRAINT fk_city_of_residence_city FOREIGN KEY (city_id)
        REFERENCES city (id)
        ON UPDATE NO ACTION ON DELETE CASCADE
);
```