SQL FOREIGN KEY Constraint

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The `FOREIGN KEY` constraint is used to prevent actions that would destroy links between tables.

A `FOREIGN KEY` is a field (or collection of fields) in one table, that refers to the `PRIMARY KEY` in another table.

The table with the foreign key is called the child table, and the table with the primary key is called the referenced or parent table.

Persons Table

PersonID	LastName	FirstName	Age
1	Hansen	Ola	30
2	Svendson	Tove	23
3	Pettersen	Kari	20

Orders Table

OrderID	OrderNumber	PersonID
1	77895	3
2	44678	3
3	22456	2

SQL Server / Oracle / MS Access:

```
CREATE TABLE Orders (
    OrderID int NOT NULL PRIMARY KEY,
    OrderNumber int NOT NULL,
    PersonID int FOREIGN KEY REFERENCES Persons(PersonID)
);
```

To allow naming of a `FOREIGN KEY` constraint, and for defining a `FOREIGN KEY` constraint on multiple columns, use the following SQL syntax:

SQL FOREIGN KEY on ALTER TABLE

To create a `FOREIGN KEY` constraint on the "PersonID" column when the "Orders" table is already created, use the following SQL:

MySQL / SQL Server / Oracle / MS Access:

```
ALTER TABLE Orders
ADD FOREIGN KEY (PersonID) REFERENCES Persons(PersonID);
```

To allow naming of a `FOREIGN KEY` constraint, and for defining a `FOREIGN KEY` constraint on multiple columns, use the following SQL syntax:

DROP a FOREIGN KEY Constraint

To drop a `FOREIGN KEY` constraint, use the following SQL:

MySQL:

```
ALTER TABLE Orders
DROP FOREIGN KEY FK_PersonOrder;
```

SQL Server / Oracle / MS Access:

```
ALTER TABLE Orders
DROP CONSTRAINT FK_PersonOrder;
```

Notice that the "PersonID" column in the "Orders" table points to the "PersonID" column in the "Persons" table.

The "PersonID" column in the "Persons" table is the `PRIMARY KEY` in the "Persons" table.

The "PersonID" column in the "Orders" table is a `FOREIGN KEY` in the "Orders" table.

The `FOREIGN KEY` constraint prevents invalid data from being inserted into the foreign key column, because it has to be one of the values contained in the parent table.

SQL FOREIGN KEY on CREATE TABLE

The following SQL creates a `FOREIGN KEY` on the "PersonID" column when the "Orders" table is created: