college CD

Database concepts (CBD)

Class 4

MySQL (suite)

Linking tables (suite)

Some tables are exclusively composed of IDs, in this way that they are only showing the values of other tables primary keys. This is the case with the *orders* table of our example database *learning_over_here.sql*.

	order_id	product_id	user_id	address_id
Edit Copy Delete	1	2	14	7
Edit Copy Delete	2	6	14	7
Edit Copy Delete	3	13	9	1
Edit Copy Delete	4	12	8	6

Check all *With selected:* Edit Copy Delete Export

Explanation
If you take a look at the example of the «orders» table above, you can see that each field is made of the primary key of all other tables except for the first one which is the *order_id*. We can see here that customer 14 bought two different products (2 and 6) sent to the same address and these were the 2 first orders.

```
SELECT orders.`order_id`, products.`product_name`, users.`first_name`, addresses.`city`
FROM orders
JOIN products ON orders.`product_id` = products.`product_id`
JOIN users ON orders.`user_id` = `user_id`
JOIN addresses ON orders.`address_id` = addresses.`address_id`
```

Note:
You may write the query on multiple lines, like above, to make it easier to read.

Using aliases

An alias is a shortcut that allows you to use an alias instead of the complete table's name which shortens the queries. To do so, it is needed to specify the alias that will replace the table's name using the command AS.

```
SELECT orders.`order_id`, products.`product_name` FROM orders JOIN products ON
orders.`product_id` = products.`product_id`

SELECT o.`order_id`, p.`product_name` FROM orders AS o JOIN products AS p ON
o.`product_id` = p.`product_id`
```

Explanation
In the example above, the command AS has been used to define «o» as the alias for orders and «p» as the alias for products so the aliases can be used instead of the full name everywhere else.

Declaring foreign key

We already have explained a foreign key is a field from an external table. For instance, the *addresses* table uses *user_id* from the *users* table to link addresses to users.

Declaring a foreign key makes the table's foreign key clickable so it is possible to show the linked table from PHPADMIN. There are many ways to do so.

Declaring a foreign key when creating a table

```
CREATE TABLES Orders (
        OrderID int NOT NULL,
        ProductID int,
        PRIMARY KEY (OrderID),
        FOREIGN KEY (ProductID) REFERENCES Products(ProductID)
);
```

Explanation
In the example above, the command FOREIGN KEY is used to create the foreign key followed, between parenthesis, by the field to declare a foreign key from. The command REFERENCES is used to refer the field to its table.

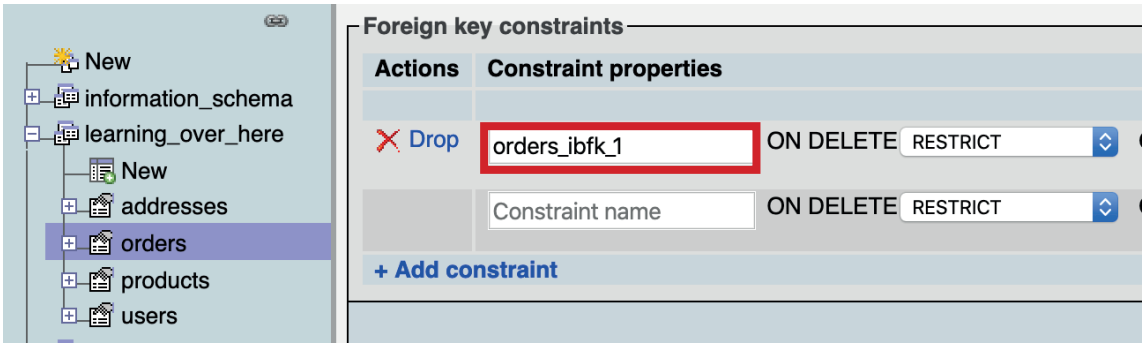
Declaring a foreign key by modifying a table

```
ALTER TABLE orders
ADD FOREIGN KEY(product_id) REFERENCES products(product_id)
```

Explanation
The command ALTER TABLE is here used to modify an existing table. The command AD FOREIGN KEY is used to create a foreign key from *product_id* and REFERENCES is used to link it to the proper table.

Deleting a foreign key

To delete correctly a foreign key, it won't be possible to simply use the field's name (this would cause an error. In the proper table, click the structure tab and select the relation view and use the name indicated in this panel.



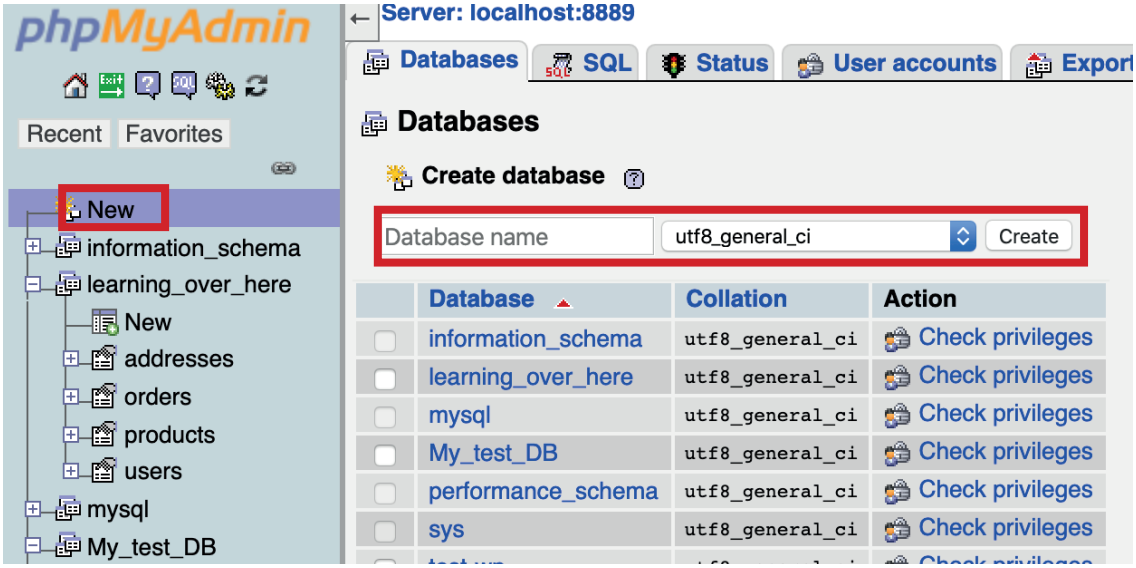
ALTER TABLE orders DROP FOREIGN KEY **orders_ibfk_1**

Creating a new database

Although a new database would normally be created within a cPanel, we will create one using MAMP so we don't have to work online.

Creating the new database

Laugh MAMP and, in phpMyAdmin, click on «New» from the left panel. In the right panel, the write the name of the new database and click on the «Create» button. The new database should now appear in the left panel.



Creating the first table

Once the database has been created, you are offered the possibility of creating its first table. All you've got to do is to write the name of the table and choose a number of columns for it.

Defining the table's fields

Define the parameters for each field, then click the save button. The newly created table should appear in the left panel. In order to modify the table, check the proper checkbox and click «Change»