

Querying an Airline Database

As a simple example of querying database tables, in this exercise you will run queries on some small tables from an 'airline' database. The tables describe aircraft, cities, countries and specific flights. To do this exercise you will need to know your password for accessing your personal database on the MySQL server via the *phpMyAdmin* interface at the following address.

<http://131.181.70.168/phpmyadmin>

A. Importing the airline tables

Accompanying these instructions you will find an SQL script `airline.sql`. Connect to your personal SQL database using the *phpMyAdmin* interface and run this script via the **Import** tab. This script will create four tables called `aircraft`, `cities`, `countries` and `flights` in your database. When you import the script make sure that you have highlighted your database in the left-hand column so that the system knows which database to put the table in. (Depending on the privileges you have been granted on the MySQL server, you may only be able to see one database schema anyway.)

B. Browsing the airline tables

If you have successfully imported the database you will be able to browse the individual tables simply by clicking on them in *phpMyAdmin*'s left-hand column. This will open the **Browser** tab to display the contents of the table. Do this for each of the tables to familiarise yourself with their contents.

The airline's tables as provided contain only the data shown below. (Compared to an actual airline, these tables are a much-simplified version of reality, but that does not affect the exercises in this workshop.)

Cities:

CityCode	CityName	CountryCode
ADL	Adelaide	AUS
AKL	Auckland	NZL
BNE	Brisbane	AUS
CBR	Canberra	AUS
CGK	Jakarta	IND
HNL	Honolulu	USA
LAX	Los Angeles	USA
MEL	Melbourne	AUS
SFO	San Francisco	USA
SYD	Sydney	AUS
BRI	Brisbane	USA

Countries:

CountryCode	CountryName
AUS	Australia
IND	Indonesia
MLY	Malaysia
NZL	New Zealand
USA	United States of America

Aircraft:

AircraftType	AircraftDescription	SeatingCapacity
AB3	Airbus A300	250
D10	McDonnell Douglas DC10	150
727	Boeing 727	150
737	Boeing 737	120
74L	Boeing 747SP	260
743	Boeing 747-338	420
744	Boeing 747-438	420
757	Boeing 757	150
767	Boeing 767	260

Flights:

FlightNum	FromCityCode	ToCityCode	SeatsRemaining	AircraftType
1	BNE	SYD	10	AB3
2	SYD	CBR	20	727
3	SYD	MEL	30	757
4	SYD	AKL	40	D10
5	BNE	CGK	50	757
6	BNE	LAX	60	74L
7	SYD	HNL	70	767
8	HNL	SFO	80	767
9	SYD	LAX	90	744
10	SYD	BNE	100	AB3

C. Querying the airline tables

Notice that when the *phpMyAdmin* interface displays the contents of the table it also shows you the **select** query sent to the database server to retrieve the data. You can now choose to ‘edit’ this statement to create new queries, which you can execute by pressing the ‘Go’ button. Answer the following questions by writing queries in the *phpMyAdmin* interface to display the required information.

Question 1: How many rows does the following query return?

```
SELECT * FROM cities
```

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Question 2: How many rows does the following query return?

```
SELECT * FROM cities
WHERE CountryCode = 'Aus'
```

 5

Question 3: Write a query that displays the name of all Australian cities in the `cities` table as shown below:

CityName
Adelaide
Brisbane
Canberra
Melbourne
Sydney

Question 4: Write a query that displays the seating capacity for all aircraft with at least 150 seats, but not more than 250 seats. Your query should produce the following output:

SeatingCapacity
150
150
250
150

Question 5: Write a query that displays just the aircraft description and aircraft type columns for all aircraft. Your query should produce the following output:

AircraftDescription	Aircraft Type
Boeing 727	727
Boeing 737	737
Boeing 747-338	743
Boeing 747-438	744
Boeing 747SP	74L
Boeing 757	757
Boeing 767	767
Airbus A300	AB3
McDonnell Douglas ...	D10
NULL	NULL

Question 6: Write a query that displays the flight number, destination city, and the number of remaining seats of all the flights that depart from Brisbane and have more than 20 seats left. Your query should produce the following output:

	FlightNum	ToCityCode	SeatsRemaining
►	5	CGK	50
	6	LAX	60
*	NULL	NULL	NULL

D. Updating the airline tables manually

The *phpMyAdmin* interface also gives you the ability to directly edit the tables. Existing cells can be edited by selecting the ‘Edit’ option for the relevant row and new rows can be created by choosing the **Insert** tab. Use these features to make the following changes to the airline tables. As you do so, pay attention to the SQL statements automatically generated to enact the changes.

7. Reduce the number of seats remaining on Flight 10 from Sydney to Brisbane to 25.
8. Change Flight 3’s destination from Melbourne to Adelaide.
9. Add the following information to the `countries` table: the country code for Canada is ‘CA’ and the code for Spain is ‘ES’.
10. None of our airline’s flights involve a Boeing 747-338. Assuming the airline no longer uses this type of aircraft, delete it from the `aircraft` table entirely.

E. Exporting the airline tables

Finally, having modified your database, you can use the *phpMyAdmin* interface to export the results into a text file. This will produce an SQL script, like the one you imported to start this exercise, that you can use to recreate the tables later. (Obviously your tables will persist in the database itself, but this allows you to make a backup of your tables or to copy them to a different database server.) You can do this for either your whole database of tables or one table at a time. Select whichever you want to save and select *phpMyAdmin*’s **Export** tab.