

SQL exercises: Instructions

These exercises will give you practice using a MySQL database management system via phpMyAdmin (a graphical user interface client for using MySQL). It will involve writing queries to interrogate a small database called 'Shop'.

These exercises will not be marked. It is recommended you complete these exercises within one week of the first lecture. Solutions to these exercises will be posted to Moodle at the end of the second week of class.

Getting started:

1. Select 'Shop Database' from the current Moodle page. (Ignore the warnings about the page being unsafe.)
2. You will be asked for a user name ('student') and password ('db1coursework').
3. In the left-hand pane, select the Shop database (by a single click). You will see a list of the tables contained in the Shop database. Now select the SQL tab. You can query the shop database by writing SQL queries in the pane and submitting them with the go button.
4. Try these retrievals from the database: who ordered an S7? Select the SQL tab and in the blank pane paste the following SQL statement. Then execute it by pressing the 'go' button:

```
SELECT orders.orderID, customers.custID, firstname, familyname
FROM orders, lineitems, customers
WHERE lineitems.itemID = 'S7'
AND orders.orderID = lineitems.orderID
AND orders.custID = customers.custID
LIMIT 0 , 30
```

5. Now find out how many customers live in each state. This query involves the use of an aggregate and group by clause.

```
SELECT state, COUNT( custID )
FROM customers
GROUP BY state
LIMIT 0 , 30
```

Query exercises

For the following questions, create your own SQL query to answer the assignment question, and include the set of results you get from running that query.

1. List the names of all customers who live in Arizona.
2. Find the total value of all orders recorded in the database.

3. How many customers bought more than 2 of the same item (i.e., where quantity >2) in a single order (use a subquery with the EXISTS operator).
4. How many customers are there in each state (list descending by number of customers)?
5. List the names of customers who ordered two or more different kinds of item and how many of each kind of item they bought.
6. Which states had customers who ordered an umbrella and how many were there in those states?
7. Which item was ordered in the greatest quantity on any single order (i.e., the highest quantity in lineitems – nb., there may be three items with equal highest quantity). Give the itemID, description and quantity.