

SQL coursework answers

1. List the names of all customers who live in Arizona.

```
SELECT * FROM customers WHERE state = "Arizona" LIMIT 0, 30;
```

custID	firstname	familyname	town	state
10298	Leroy	Brown	Pinetop	Arizona
10339	Anthony	Sanchez	Winslow	Arizona
10408	Elroy	Cleaver	Globe	Arizona
10413	Donald	Davids	Gila Bend	Arizona
10419	Linda	Sakahara	Nogales	Arizona
10449	Isabela	Moore	Yuma	Arizona

2. Find the total value of all orders recorded in the database.

```
SELECT SUM( lineitems.quantity * items.unitcost ) AS Allorderstotalvalue  
FROM orders, lineitems, items WHERE orders.orderID = lineitems.orderID AND  
lineitems.itemID = items.itemID LIMIT 0 , 30 ;
```

Allorderstotalvalue
5358.53

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).

```
SELECT COUNT( * ) AS bulkbuyers FROM customers c  
WHERE EXISTS (SELECT * FROM orders o, lineitems l WHERE c.custID = o.custID  
AND o.orderID = l.orderID AND quantity >2);
```

bulkbuyers
3

4. How many customers are there in each state (list descending by number of customers)?

```
SELECT state, COUNT( custID ) AS numberOfCustomers FROM customers  
GROUP BY state ORDER BY numberOfCustomers DESC LIMIT 0 , 30;
```

(results on next page)

state	numberOfCustomers
Arizona	6
Colorado	2
Washington	2
Oregon	2
South Carolina	1
Wisconsin	1
North Carolina	1
Idaho	1
Hawaii	1

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.

SQL query:

```
SELECT c.custID, c.firstname, c.familyname, i.description, SUM (l.quantity)
FROM customers c, orders o, lineitems l, items i
WHERE c.custID IN (
    SELECT custID FROM lineitems l, orders o, items i
    WHERE o.orderID = l.orderID AND l.itemID = i.itemID
    GROUP BY o.custID HAVING COUNT( i.description ) >=2 )
AND c.custID = o.custID AND o.orderID = l.orderID AND l.itemID = i.itemID
GROUP BY c.custID, i.description
ORDER BY c.custID LIMIT 0, 50;
```

(Note: It is also possible to interpret “two or more different kinds of item” as checking for distinct itemIDs rather than descriptions here. In this case, the subquery does not need to use the items table, and the outer query should use l.itemID instead of i.description too. In any case, the result table is more or less the same.)

Rows: 37

custID	firstname	familyname	description	SUM(l.quantity)
10101	John	Gray	Hoola Hoop	3
10101	John	Gray	Lantern	1
10101	John	Gray	Life Vest	4
10101	John	Gray	Raft	1
10101	John	Gray	Rain Coat	1
10101	John	Gray	Skateboard	1
10101	John	Gray	Sleeping Bag	3
10298	Leroy	Brown	Bicycle	1
10298	Leroy	Brown	Ear Muffs	1
10298	Leroy	Brown	Helmet	1
10298	Leroy	Brown	Lantern	2
10298	Leroy	Brown	Pocket Knife	1
10298	Leroy	Brown	Skateboard	1
10298	Leroy	Brown	Unicycle	1

10299	Elroy	Keller	Inflatable Mattress	1
10299	Elroy	Keller	Parachute	1
10299	Elroy	Keller	Sleeping Bag	1
10299	Elroy	Keller	Tent	2
10330	Shawn	Dalton	Flashlight	4
10330	Shawn	Dalton	Pogo stick	1
10330	Shawn	Dalton	Shovel	1
10339	Anthony	Sanchez	Ear Muffs	1
10339	Anthony	Sanchez	Rain Coat	1
10339	Anthony	Sanchez	Umbrella	1
10410	Mary Ann	Howell	Sleeping Bag	1
10410	Mary Ann	Howell	Unicycle	1
10438	Kevin	Smith	Pillow	1
10438	Kevin	Smith	Tent	1
10438	Kevin	Smith	Umbrella	1
10439	Conrad	Giles	Ski Poles	2
10439	Conrad	Giles	Tent	1
10449	Isabela	Moore	Bicycle	1
10449	Isabela	Moore	Canoe	3
10449	Isabela	Moore	Canoe paddle	2
10449	Isabela	Moore	Flashlight	1
10449	Isabela	Moore	Snow Shoes	2
10449	Isabela	Moore	Unicycle	1

6. Which states had customers who ordered an umbrella and how many were there in those states?

```
SELECT state, COUNT( custID ) AS TotalWhoBoughtUmbrellas FROM customers WHERE custID IN ( SELECT custID FROM orders o, lineitems l, items i WHERE o.orderID = l.orderID AND l.itemID = i.itemID AND description = "Umbrella") GROUP BY state LIMIT 0, 30 ;
```

state	TotalWhoBoughtUmbrellas
Arizona	1
Colorado	1

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.

```
SELECT l.itemID, i.description, l.quantity FROM orders o, lineitems l, items i WHERE l.quantity = ( SELECT MAX( l.quantity ) FROM lineitems l ) AND o.orderID = l.orderID AND l.itemID = i.itemID;
```

itemID	description	quantity
V1	Life Vest	4
F6	Flashlight	4
L5	Lawnchair	4