

SQL exercise with solutions (to be run on MySQL)

欄位		ships (國家,戰艦)	battle (戰役,戰艦,狀態)
國家:	O,W,X,Y,Z	create table ships(country char(1), ship char(5));	create table battle (battle char(2), ship char(5), status char(7));
戰艦:	shipA,shipB,...		
戰役:	B1,B2,B3,B4		
狀態:	良好 OK		
	損毀 Damaged		
	沉沒 Sunk		

Write SQL statements for the following queries: 寫 SQL 語句，執行以下查詢

insert into ships values

```
("W","shipJ"), ("W","shipK"), ("W","shipM"), ("W","shipN"), ("X","shipA"),
("X","shipB"), ("X","shipC"), ("X","shipD"), ("Y","shipP"), ("Y","shipQ"),
("Y","shipR"), ("Y","shipS"), ("Y","shipT"), ("Z","shipE"), ("Z","shipF"),
("Z","shipG"), ("Z","shipH"), ("O","shipO");
```

insert into battle values

```
("B1","shipA","s"), ("B1","shipB","d"), ("B1","shipC","ok"), ("B1","shipD","d"),
("B1","shipP","s"), ("B1","shipQ","d"), ("B1","shipS","s"), ("B1","shipT","d"),
("B2","shipP","d"), ("B2","shipQ","s"), ("B2","shipR","ok"), ("B2","shipS","d"),
("B2","shipT","s"), ("B2","shipF","s"), ("B2","shipG","s"), ("B2","shipH","d"),
("B3","shipA","d"), ("B3","shipB","s"), ("B3","shipC","d"), ("B3","shipD","s"),
("B3","shipQ","s"), ("B3","shipR","s"), ("B3","shipS","s"), ("B3","shipT","s"),
("B3","shipE","ok"), ("B3","shipF","d"), ("B3","shipG","s"), ("B3","shipH","ok"),
("B4","shipA","ok"), ("B4","shipB","s"), ("B4","shipC","s"), ("B4","shipD","d"),
("B4","shipE","s"), ("B4","shipF","d"), ("B4","shipG","ok"), ("B4","shipH","ok");
```

```
update battle set status="OK" where status="ok";
```

```
update battle set status="Damaged" where status="d";
```

```
update battle set status="Sunk" where status="s";
```

(1) total number of ships involved in each battle 每場戰役中，參與戰艦數目

battle	count(*)
B1	8
B2	8
B3	12
B4	8

(2) number of ships involved in each battle for each country

每場戰役中，每個參與國家名稱，及戰艦數目

battle	country	nShips
B1	X	4
B1	Y	4
B2	Y	5
B2	Z	3

B3	X	4
B3	Y	4
B3	Z	4
B4	X	4
B4	Z	4

(3) number of countries involved in each battle 每場戰役中，參與國家數目

battle	nCountry
B1	2
B2	2
B3	3
B4	2

(4) count the no.of sunk, damaged & survived ships for each country in different battles 每場戰役中，參與國家的每艘戰艦 狀況及數目

battle	country	status	count(*)	battle	country	status	count(*)
B1	X	Damaged	2	B3	X	Sunk	2
B1	X	OK	1	B3	Y	Sunk	4
B1	X	Sunk	1	B3	Z	Damaged	1
B1	Y	Damaged	2	B3	Z	OK	2
B1	Y	Sunk	2	B3	Z	Sunk	1
B2	Y	Damaged	2	B4	X	Damaged	1
B2	Y	OK	1	B4	X	OK	1
B2	Y	Sunk	2	B4	X	Sunk	2
B2	Z	Damaged	1	B4	Z	Damaged	1
B2	Z	Sunk	2	B4	Z	OK	2
B3	X	Damaged	2	B4	Z	Sunk	1

(5) which country has not involved in any battle 沒有參與任何戰役的國家 (W,O)

(6) total number of ships sunk (not sunk) in each battle

每個戰役，沉沒船隻的總數

battle	nSunk
B1	3
B2	4
B3	7
B4	3

(7) number of battles involved for each country 每個國家參與戰役的數目

country	nBattles
X	3
Y	3
Z	3
O	0
W	0

(8) total number of ships sunk (not sunk) for each country in each battle

每個戰役，每個國家，沉沒船隻的總數

battle	country	nSunk
B1	X	1
B1	Y	2
B2	Y	2
B2	Z	2
B3	X	2
B3	Y	4
B3	Z	1
B4	X	2
B4	Z	1

(9) name of ships which have never sunk in any battle

從未在任何戰役中，沉沒船隻的名稱 (shipH)

(10) the countries of which some ships have not sunk in battle "B3"

哪些國家，在戰役 B3 中，有至少一艘船隻，沒有沉沒? (X,Z)

(11) name of ships which sank in each battle 每個戰役，沉沒船隻的名稱

battle	country	ship
B1	X	shipA
B3	X	shipB
B4	X	shipC
B3	X	shipD
B1	Y	shipP
B2	Y	shipQ
B3	Y	shipR
B1	Y	shipS
B2	Y	shipT
B4	Z	shipE
B2	Z	shipF
B2	Z	shipG

(12) the country of which all ships have sunk in battle "B3"

哪些國家，在戰役 B3 中，全部船隻沉沒? (Y)

~~(13) find the total (average) score of each country in each battle 計算總分~~

~~* according to the following rules: 遊戲規則~~

~~* 2 points 良好 OK~~

~~* 1 point 損毀 Damaged~~

~~* 0 point 沉沒 Sunk~~

country	battle	total
X	B1	4
X	B3	2
X	B4	3
Y	B1	2
Y	B2	4
Y	B3	0
Z	B2	1
Z	B3	5
Z	B4	5