

# ΒΑΣΕΙΣ ΔΕΔΟΜΕΝΩΝ – ΕΡΓΑΣΤΗΡΙΟ 9

*Ερωτήματα διαίρεσης και σύνθετων συναθροίσεων*

**A1. Το πλήθος των ανθρώπων που μιλούν ισπανικά ανά ήπειρο (να εμφανίζονται όλες οι ήπειροι)**

```
select continent, sum((percentage*population)/100)
from country join countrylanguage on code=countrycode
where language='Spanish'
group by continent
union
select continent, 0
from country
where continent not in (select continent
                        from countrylanguage join country on countrycode=code
                        where language='Spanish');
```

**A2. Οι γλώσσες που ομιλούνται σε όλες τις ηπείρους. Υπόδειξη: Εξαιρέστε την Ανταρκτική.**

```
-- με μέτρημα
select language
from Country C join CountryLanguage L on C.code=L.countrycode
group by language
having count(distinct continent) =
(select count(distinct continent)
from Country
where continent <> 'Antarctica')

-- με σύνολα
select distinct language
from CountryLanguage L1
where not exists (
(select continent
from Country
where continent <> 'Antarctica')
except
(select continent
from Country C join CountryLanguage L2 on C.code=L2.countrycode
where L2.language = L1.language))

-- με διπλή άρνηση
select distinct language
from CountryLanguage L1
where not exists
(select *
from Country C1
where continent <> 'Antarctica' and not exists
(select *
from Country C2 join CountryLanguage L2 on C2.code=L2.countrycode
where L2.language=L1.language and C1.continent=C2.continent))
```

### A3. Η χώρα με τις περισσότερες πόλεις

```
select c.name  
from country c join city ci on code=countrycode  
group by c.code, c.name  
having count(*)>=all(select count(*) from city group by countrycode);
```