Screencast 4-7

Correlated subqueries in SELECT

Use database DBWORLD

```
select a, b, c, (select d from t2 where t1.a = t2.a)
from t1
```

t1.a = t2.a is a connecting condition.

Task 1

Find the difference between each city's population and values of the most populated city in its country

Version 1:

```
select population
	from city
	where countrycode = 'RUS'
	order by population desc limit 1
```

```
The previous query was added as a subquery:
select
	c."name" as country_name,
	ct.name as city_name,
	ct.population - (select population from city where countrycode = c.code order by
population desc limit 1) as difference
from country as c join city as ct on c.code=ct.countrycode
order by 1, 3 desc
```

Version 2:

Here the max function is used instead of order&first row:

```
select
	c."name" as country_name,
	ct.name as city_name,
	ct.population - (select max(population) from city where countrycode = c.code) as
difference
from country as c join city as ct on c.code=ct.countrycode
order by 1, 3 desc
```

Version 3:

Finally, the subquery was injected into the *from* clause:

```
select
	c."name" as country_name,
```

```
       ct.name as city_name,
       ct.population - m as difference
from country as c
       join city as ct on c.code=ct.countrycode
       join (select max(population) as m,
              countrycode
              from city
              group by countrycode) as max_population
       on max_population.countrycode = ct.countrycode
order by 1, 3 desc
```

Task 2

Calculate the gap between country's GNP (gross national product) and its average value in the respective region

```
select code,
       name,
       gnp - (select avg(gnp)
                     from country
                     where region=c.region)
from country as c
order by 3 desc
```