Selection operations

1. List information for countries with IDs less than 100

select * from country where id<100

2. List countries that are not sovereign, i.e. those whose geographical name (geoName) is different from that of their sovereign.

select * from country where geoname <> sovereign

3. List the CO2 emission values of countries for the year 1990

select * from eco2 where year = 1990

4. List information corresponding to 'Mangroves' type forests

select * from forest where type = 'Mangroves'

5. List countries whose geoName contains the word Republic.

select * from country
where geoname like '%Republic%'

Projection operations (and calculation)

1. List all regions.

select distinct region from subRegion

2. What are the iso3 codes of countries with forests?

3. Display country names and population density

select name, pop/area as density from country

Selection + projection operations

1. Which subregions make up the 'Asia + Pacific' region?

```
select name from subRegion where region = 'Asia + Pacific'
```

2. In which region does the 'Arctic' subregion belong?

```
select region   from subRegion where name = 'Arctic'
```

Join operations

1. What are the names (name) and geoName of countries in the ‘West Asia’ region ?

```
select country.name, country.geoName
from country, subRegion
where country.subRegion = subRegion.name
and subRegion.region = 'West Asia'
```

2.Find Country Names that Own Mangroves Forests.

```
select country.name
from country, location, forest
where country.iso3 = location.iso3
  and location.forestId = forest.id
  and forest.type = 'Mangroves'
```

3.Find all forest types of the country whose geoName is Australia.

```
select distinct type
from country, location, forest
where country.iso3 = location.iso3
  and location.forestId = forest.id
  and geoName = 'Australia'
```

4.Display for each country the number of tonnes of CO2 emitted per capita for the year 2007.

```
select country.geoname, 1000*co2/pop
from eco2, country
where eco2.geoName = country.geoName
  and year=2007
```

Auto joins

1. For each country calculate the difference between CO2 emissions in 1989 and 2007.

```
select e1.geoName , e2.co2 - e1.co2
from eco2 e1, eco2 e2
where e1.geoName = e2.geoName
  and e1.year = 1989
  and e2.year = 2007
```

2. Same question but we want the results in ascending order of difference.

```
select e1.geoName , e2.co2 - e1.co2 as diff
from eco2 e1, eco2 e2
where e1.geoName = e2.geoName
  and e1.year = 1989
  and e2.year = 2007
order by diff
```

Aggregation operations

1. Calculate the number of subregions in the 'Asia + Pacific' region.

```
select count(name)
from subRegion
where region = 'Asia + Pacific'
```

2. Calculate the average value of CO2 emissions in Brazil for the years listed in the database.

```
select avg(co2)
from eco2
where geoName='Brazil'
```

3. Find the average, minimum and maximum CO2 emissions per capita in 2007.

```
SELECT min(co2/pop), avg(co2/pop), max(co2/pop)
from eco2, country
where eco2.geoname = country.geoname
    and year = 2007
```

Queries with grouping

1. List each year the cumulative CO2 emission values of all countries

```
select year, sum(co2)
from eco2
group by year
```

2. List cumulative CO2 emission values by country for the years 2000 to 2007.

```
select geoName, sum(co2)
from eco2
where year between 2000 and 2007
group by geoName
```

Nested queries

2. List the countries (with year and CO2 emission value / inhabitant) exceeding the average CO2 emission per capita.

```
select eco2.geoname, year, co2/pop
from eco2, country
where eco2.geoname = country.geoname
   and co2/pop > (select avg(co2/pop)
                  from eco2, country
                  where  eco2.geoname = country.geoname)
```