X. Tannier

Mémo Cours de SQL

1. Création de tables

```
CREATE TABLE country (
  Code CHAR(3) NOT NULL,
  Name CHAR(52) NOT NULL,
  Continent VARCHAR(15) NOT NULL,
  Region CHAR(26) NOT NULL,
  SurfaceArea FLOAT(10,2) NOT NULL DEFAULT '0.00',
  IndepYear SMALLINT(6) DEFAULT NULL,
  Population INT(11) NOT NULL,
  LifeExpectancy FLOAT(3,1) DEFAULT NULL,
  GNP FLOAT(10,2) DEFAULT NULL,
  GNPOld FLOAT(10,2) DEFAULT NULL,
  LocalName CHAR(45) NOT NULL DEFAULT '',
  GovernmentForm CHAR(45) NOT NULL DEFAULT '',
  HeadOfState CHAR(60) DEFAULT NULL,
  Capital INT(11) DEFAULT NULL,
  Code2 CHAR(2) NOT NULL DEFAULT '',
  PRIMARY KEY (Code)
);

CREATE TABLE city (
  ID INT(11) NOT NULL AUTO_INCREMENT,
  Name CHAR(35) NOT NULL DEFAULT '',
  CountryCode CHAR(3) NOT NULL DEFAULT '',
  District CHAR(20) NOT NULL DEFAULT '',
  Population INT(11) NOT NULL DEFAULT '0',
  PRIMARY KEY (ID),
  CONSTRAINT city_ibfk_1 FOREIGN KEY (CountryCode) REFERENCES
country (Code)
);


CREATE TABLE countrylanguage (
  CountryCode CHAR(3) NOT NULL DEFAULT '',
  Language CHAR(30) NOT NULL DEFAULT '',
  IsOfficial enum('T','F') NOT NULL DEFAULT 'F',
  Percentage FLOAT(4,1) NOT NULL DEFAULT '0.0',
  PRIMARY KEY (CountryCode,Language),
  CONSTRAINT countryLanguage_ibfk_1 FOREIGN KEY (CountryCode)
REFERENCES country (Code)
);
```

2. SELECT (sur la table world déjà remplie)

Informations sur les pays : surface, population, Capital, HeadOfState

```
SELECT Name, SurfaceArea, Population, Capital, HeadOfState FROM
country;
```

ou toutes les informations disponibles :

```
SELECT * FROM country;
```

3. DISTINCT

Avoir la liste de tous les langages (sans doublon)

```
SELECT DISTINCT Language FROM countrylanguage;
```

4. WHERE

Des infos sur la France

```
SELECT Name, SurfaceArea, Population, Capital, HeadOfState FROM
country WHERE Name = "France";
```

Les pays où on parle français

```
SELECT CountryCode, Percentage FROM countrylanguage WHERE
Language="French";
```

5. JOIN

Les pays où on parle français (avec le nom du pays)

```
SELECT country.Name, countrylanguage.CountryCode,
countrylanguage.Percentage FROM countrylanguage JOIN country ON
countrylanguage.CountryCode = country.Code WHERE Language="French";
```

En utilisant le renommage

```
SELECT C.Name, L.CountryCode, L.Percentage FROM countrylanguage L
JOIN country C ON L.CountryCode = C.Code WHERE L.Language="French";
```

Les villes de France (dans la base)

```
SELECT CI.Name FROM country CO JOIN city CI ON CI.CountryCode =
CO.Code WHERE CO.Name="France";
```

6. ORDER BY

Les pays où on parle « le plus » le français

```
SELECT C.Name, L.CountryCode, L.Percentage
FROM countrylanguage L
JOIN country C ON L.CountryCode = C.Code
WHERE L.Language = "French"
ORDER BY L.Percentage DESC;
```

7. LIKE

Les pays d'Amérique (du Sud ou du Nord)

Trois façons de faire :
 - **OR**

```
SELECT Name, Continent FROM country WHERE Continent = "North
America" OR Continent = "South America"
```

 - **UNION**

```
SELECT Name, Continent FROM country WHERE Continent = "North
America"
UNION
SELECT Name, Continent FROM country WHERE Continent = "South
America"
```

 - **LIKE** (très particulier à cette requête : les pays dont le continent finit par « America »

```
SELECT Name, Continent FROM country WHERE Continent LIKE "%America"
```

8. AGREGATION

Le nombre de pays de la base

```
SELECT COUNT(*) FROM country;
```

Le nombre de pays où l'on parle français

```
SELECT COUNT(*) FROM countrylanguage JOIN country ON
countrylanguage.CountryCode = country.Code WHERE Language="French";
```

La plus grande population

```
SELECT MAX(Population) FROM country;
```

Le nombre de langage dans la base

```
SELECT COUNT(DISTINCT Language) FROM countrylanguage;
```

9. GROUP BY

La population mondiale par continent

```
SELECT Continent, SUM(Population) AS Population_Totale FROM country
GROUP BY Continent ORDER BY Population_Totale DESC;
```

La population mondiale par mode de gouvernement

```
SELECT GovernmentForm, SUM(Population) AS Population_Totale FROM
country GROUP BY GovernmentForm ORDER BY Population_Totale DESC;
```

Le produit national brut moyen par continent

```
SELECT Continent, AVG(GNP) AS PNB_moyen FROM country GROUP BY
Continent ORDER BY PNB_moyen;
```

Le produit national brut moyen par continent, parmi ceux ayant un PNB > 100000
```
SELECT Continent, AVG(GNP) AS PNB_moyen FROM country GROUP BY
Continent HAVING PNB_Moyen > 100000 ORDER BY PNB_moyen;
```

10. SOUS-REQUÊTES

Le pays le plus grand (en population)

```
SELECT Name FROM country where Population = (SELECT MAX(Population)
FROM country);
```

Les code pays où l'on parle un langage parlé en France

```
SELECT DISTINCT L.countrycode FROM countrylanguage L WHERE
L.language IN ( SELECT Language FROM countrylanguage WHERE
countrycode = "FRA" )
```

(+ jointure pour avoir les noms des pays eux-mêmes:)
```
SELECT DISTINCT C.Name, L.countrycode FROM country C JOIN
countrylanguage L ON C.Code = L.countrycode WHERE L.language IN
( SELECT Language FROM countrylanguage WHERE countrycode = "FRA" )
```