

# Praktikum zur Vorlesung Datenbanken Handreichung

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Wintersemester 2015/2016

<b>Datum</b>	
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[http://www.is.inf.uni-due.de/courses/db\\_ws15/](http://www.is.inf.uni-due.de/courses/db_ws15/)

# 1 Beschreibung der Geodatenbank

Für die SQL-Aufgaben ist eine Beispieldatenbank mit geographischen Daten vorgegeben. Diese Datenbank `mondial` solltet Ihr in der ersten Woche unter einem lokalen Alias katalogisiert haben.

Der relevante Ausschnitt des Schemas der Datenbank ist im Anschluss beschrieben. Ihr könnt den Aufbau der Tabellen auch direkt von der Datenbank erfragen. Die Daten der Tabellen geben teilweise kein vollständiges Bild der Welt wieder, sollen aber für unsere Zwecke genügen.

## 1.1 Auflistung sämtlicher Tabellen

## The relational schema of the Mondial database

**Country:** the countries (and similar areas) of the world with some data.

name: the country name

code: the car code

capital: the name of the capital

province: the province where the capital belongs to

area: the total area

population: the population number

**Economy:** economical information about the countries.

country: the country code

GDP: gross domestic product (in million \$)

agriculture: percentage of agriculture of the GDP

service: percentage of services of the GDP

industry: percentage of industry of the GDP

inflation: inflation rate (per annum)

**Population:** information about the population of the countries.

country: the country code

population\_growth: population growth rate (per annum)

infant\_mortality: infant mortality (per thousand)

**Politics:** political information about the countries.

country: the country code

independence: date of independence (if independent)

wasdependent: the political body where the area was dependent of; usually a country (but not always).

dependent: the country code where the area belongs to

government: type of government

**Language:** information about the languages spoken in a country

country: the country code

name: name of the language

percentage: percentage of the language in this country

**Religion:** information about the religions in a country

country: the country code

name: name of the religion

percentage: percentage of the language in this country

**EthnicGroup:** information about the ethnic groups in a country

country: the country code

name: name of the religion

percentage: percentage of the language in this country

**borders:** informations about neighboring countries. Note that in this relation, for every pair of neighboring countries (A,B), only one tuple is given – thus, the relation is *not* symmetric.

country1: a country code

country2: a country code

length: length of the border between country1 and country2

**Continent:** Information about continents.

name: name of the continent

area: total area of the continent

**encompasses:** information to which continents a country belongs.

country: the country code  
continent: the continent name  
percentage: percentage, how much of the area of a country belongs to the continent

**City:** information about cities.

name: the name of the city  
country: the country code where it belongs to  
province: the name of the province where it belongs to  
population: population of the city  
elevation: the elevation (above sea level) of the city  
longitude: geographic longitude  
latitude: geographic latitude

**Province:** information about administrative divisions.

name: the name of the administrative division  
country: the country code where it belongs to  
area: the total area of the province  
population: the population of the province  
capital: the name of the capital  
capprov: the name of the province where the capital belongs to  
note that *capprov* is not necessarily equal to *name*. E.g., the municipality of *Bogota (Columbia)* is a province of its own, and *Bogota* is the capital of the surrounding province *Cudinamarca*.

**Organization:** information about political and economical organizations.

name: the full name of the organization  
abbreviation: its abbreviation  
city: the city where the headquarter is located  
country: the country code where the headquarter is located  
province: the province where the headquarter is located  
established: date of establishment

**isMember:** memberships in political and economical organizations.

organization: the abbreviation of the organization  
country: the code of the member country  
type: the type of membership

**Lake:** information about lakes.

name: the name of the lake  
area: the total area of the lake  
depth: the depth of the lake  
elevation: the elevation (above sea level) of the lake  
river: the river that flows out of the lake (may be null)  
type: the type of the lake, e.g., salt, caldera, ...  
coordinates: its geographical coordinates as (longitude, latitude)

**Sea:** information about seas.

name: the name of the sea  
depth: the maximal depth of the sea

**River:** information about rivers.

name: the name of the river  
length: the length of the river  
river: the river where it finally flows to  
lake: the lake where it finally flows to

sea: the sea where it finally flows to;  
(note that at most one out of {river,lake,sea} can be non-null)  
source: the coordinates of its source  
sourceElevation: the elevation (above sea level) of its source  
mountains: the montains where its source is located  
estuary: the coordinates of its estuary

**RiverThrough:** information about rivers flowing through lakes.

river: the name of the river  
lake: the lake where it flows through

**Mountain:** information about mountains

name: the name of the mountain  
mountains: the montains where the it belongs to  
elevation: the maximal elevation of the summit of the mountain  
type: the type of the mountain, e.g. volcanic, (active) volcano, ...  
coordinates: its geographical coordinates as (longitude, latitude)

**Island:** information about islands

name: the name of the island  
islands: the group of islands where it belongs to  
area: the area of the island  
elevation: the maximal elevation of the island  
type: the type of the island, e.g. volcanic, coral, atoll, ...  
coordinates: its geographical coordinates as (longitude, latitude)

**Desert:** information about deserts.

name: the name of the desert  
area: the total area of the desert  
coordinates: its geographical coordinates as (longitude, latitude)

**geo\_Mountain:** geographical information about mountains

mountain: the name of the mountain  
country: the country code where it is located  
province: the province of this country

Note that for a country there can be several provinces where the mountain is located in.  
analogous for *geo\_island*, *geo\_desert*, *geo\_river*, *geo\_lake*, *geo\_sea*. Analogously, there are also  
*geo\_source* and *geo\_estuary*.

**mergesWith:** information about neighboring seas. Note that in this relation, for every pair of  
neighboring seas (A,B), only one tuple is given – thus, the relation is *not* symmetric.

sea1: a sea  
sea2: a sea

**located:** information about cities located at rivers, lakes, and seas.

city: the name of the city  
country: the country code where the city belongs to  
province: the province where the city belongs to  
river: the river where it is located at  
lake: the lake where it is located at  
sea: the sea where it is located at

Note that for a given city, there can be several lakes/seas/rivers where it is located at.

**locatedOn:** information about cities located in islands.

city: the name of the city

country: the country code where the city belongs to  
province: the province where the city belongs to  
island: the island it is (maybe only partially) located on  
Note that for a given city, there can be several islands where it is located on.

**islandIn:** information the waters where the islands are located in.

island: the name of the island  
sea: the sea where the island is located in  
lake: the sea where the island is located in  
river: the sea where the island is located in  
Note that an island can have coasts to several seas.

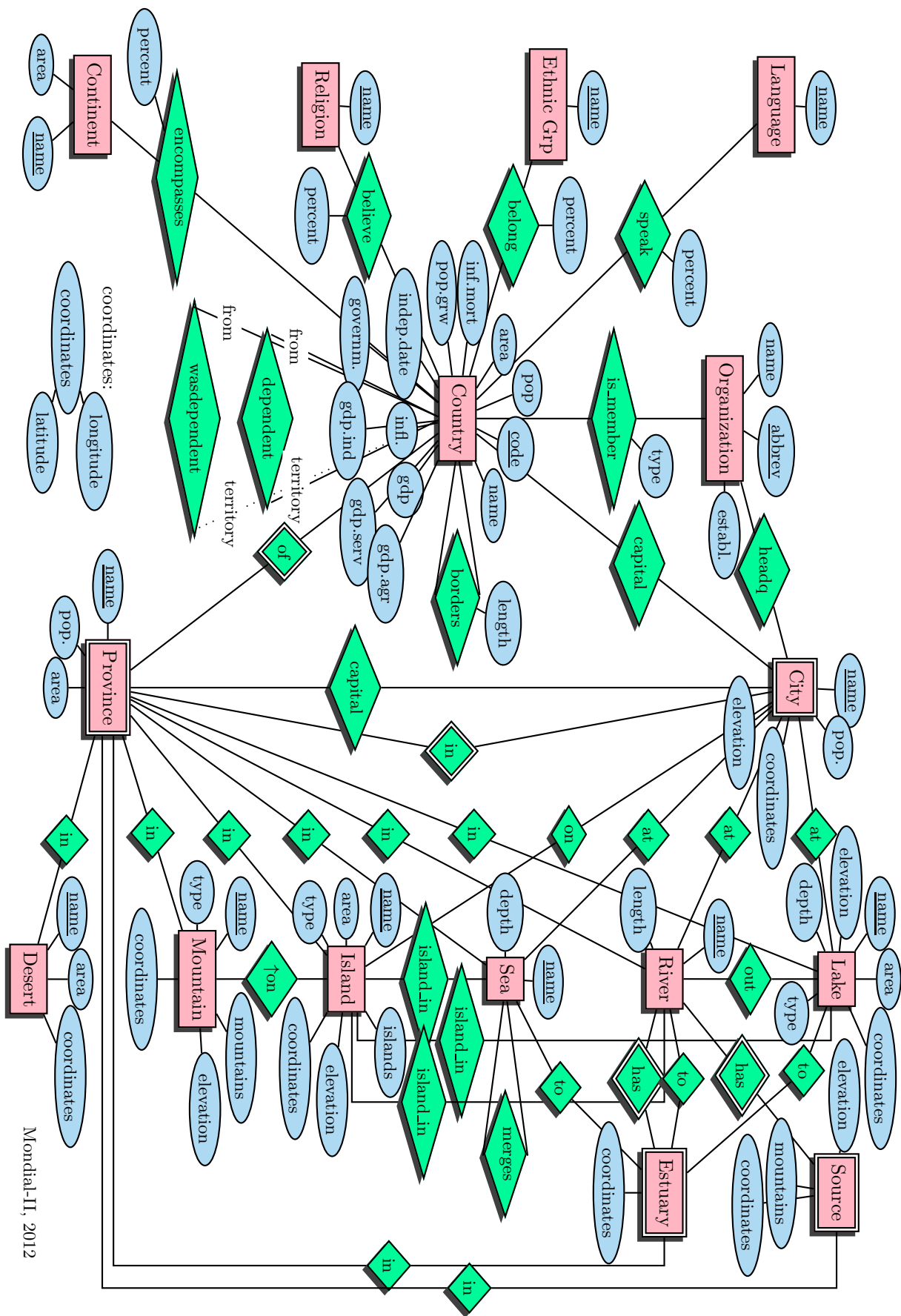
**MountainOnIsland:** information which mountains are located in islands.

mountain: the name of the mountain  
island: the name of the island

Incrementally extended version: Mondial-II, 2012

## 1.2 Relationales Schema der Datenbank

# ER-Diagram of the Mondial Database





### 1.3 Darstellung von Verknüpfungen zwischen einzelnen Tabellen

# Referential Dependencies of the Mondial Database

