The Relational Schema of the Mondial Database

This is a slightly modified version of the Mondial database schema, version Mondial-III, 2015. **Relations** are written in bold face and primary keys are underlined.

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

city: information about cities.
   – Name: the name of the city
   – Country: the code of the country where it belongs to
   – Province: the name of the province where it belongs to
   – Population: population of the city
   – Latitude: geographic latitude
   – Longitude: geographic longitude

continent: Information about continents.
   – Name: name of the continent
   – Area: total area of the continent

country: the countries (and similar areas) of the world with some data.
   – Code: the car code
   – Name: the country name
   – Capital: the name of the capital
   – Province: the province where the capital belongs to
   – Area: the total area
   – Population: the population number

desert: information about deserts.
   – Name: the name of the desert
   – Area: the total area of the desert
   – Coordinates: its geographical coordinates as (latitude, longitude)

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)

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

ethnicGroup: information about the ethnic groups in a country
  – <u>Country</u>: the country code
  – <u>Name</u>: name of the religion
  – Percentage: percentage of the language in this country

geoDesert: geographical information about deserts.
  – <u>Desert</u>: the name of the desert
  – <u>Country</u>: the country code where it is located
  – <u>Province</u>: the province of this country

geoEstuary: geographical information about the estuary of rivers.
  – <u>River</u>: the name of the river
  – <u>Country</u>: the country code where it is located
  – <u>Province</u>: the province of this country

geoIsland: geographical information about islands.
  – <u>Island</u>: the name of the island
  – <u>Country</u>: the country code where it is located
  – <u>Province</u>: the province of this country

geoLake: geographical information about lakes.
  – <u>Lake</u>: the name of the lake
  – <u>Country</u>: the country code where it is located
  – <u>Province</u>: the province of this country

geoMountain: geographical information about mountains.
  – <u>Mountain</u>: the name of the mountain
  – <u>Country</u>: the country code where it is located
  – <u>Province</u>: the province of this country

geoRiver: geographical information about rivers.
  – <u>River</u>: the name of the river
  – <u>Country</u>: the country code where it is located
  – <u>Province</u>: the province of this country

geoSea: geographical information about seas.
  – <u>Sea</u>: the name of the sea
  – <u>Country</u>: the code of the country to which the sea is adjacent
  – <u>Province</u>: the province of this country

geoSource: geographical information about sources of rivers.
  – <u>River</u>: the name of the river
  – <u>Country</u>: the country code where it is located
  – <u>Province</u>: the province of this country

island: information about islands
  – <u>Name</u>: the name of the island
  – Islands: the group of islands where it belongs to
  – Area: the area of the island
  – Height: the maximal elevation of the island
  – Type: the type of the island, e.g. volcanic, coral, atoll, ...
  – Coordinates: its geographical coordinates as (latitude, longitude)

islandIn: information the waters where the islands are located in. Note that an island can have coasts to several seas.
– Island: the name of the island
– Sea: the sea where the island is located in
– Lake: the lake where the island is located in
– River: the river where the island is located in

isMember: memberships in political and economical organizations.
– Country: the code of the member country
– Organization: the abbreviation of the organization
– 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
– Altitude: the elevation (above sea level) of the lake
– Type: the type of the lake, e.g., salt, caldera, ...
– River: the river that flows out of the lake (may be null)
– Coordinates: its geographical coordinates as (latitude, longitude)

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

located: information about cities located at rivers, lakes, and seas. Note that for a given city, there can be several lakes/seas/rivers where it is located at.
– City: the name of the city
– Province: the province where the city belongs to
– Country: the country code 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

locatedOn: information about cities located in islands. Note that for a given city, there can be several islands where it is located on.
– City: the name of the city
– Province: the province where the city belongs to
– Country: the country code where the city belongs to
– Island: the island it is (maybe only partially) located on

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

mountain: information about mountains
– Name: the name of the mountain
– Mountains: the mountains where the it belongs to
– Height: 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 (latitude, longitude)

mountainOnIsland: information which mountains are located on islands.
– <u>Mountain</u>: the name of the mountain
– <u>Island</u>: the name of the island

organization: information about political and economical organizations.
– <u>Abbreviation</u>: The organization's abbreviation
– Name: the full name of the organization
– City: the city where the headquarter is located
– Country: the code of the country where the headquarter is located
– Province: the name of the province where the headquarter is located
– Established: date of establishment

politics: political information about the countries.
– <u>Country</u>: the country code
– Independence: date of independence (if independent)
– Dependent: the country code where the area belongs to
– Government: type of government

population: information about the population of the countries.
– <u>Country</u>: the country code
– PopulationGrowth: population growth rate (per annum)
– InfantMortality: infant mortality (per thousand)

province: information about administrative divisions.
– <u>Name</u>: the name of the administrative division
– <u>Country</u>: the country code where it belongs to
– Population: the population of the province
– Area: the total area 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 Cundinamarca.

religion: information about the religions in a country
– <u>Country</u>: the country code
– <u>Name</u>: name of the religion
– Percentage: percentage of the religion in this country

river: information about rivers. Note that at most one out of attributes {River, Lake, Sea} can be non-null.
– <u>Name</u>: the name 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
– Length: the length of the river
– Source: the coordinates of its source
– Mountains: the mountains where its source is located
– SourceAltitude: the elevation (above sea level) of its source
– Estuary: the coordinates of its estuary

sea: information about seas.
– <u>Name</u>: the name of the sea
– Depth: the maximal depth of the sea