

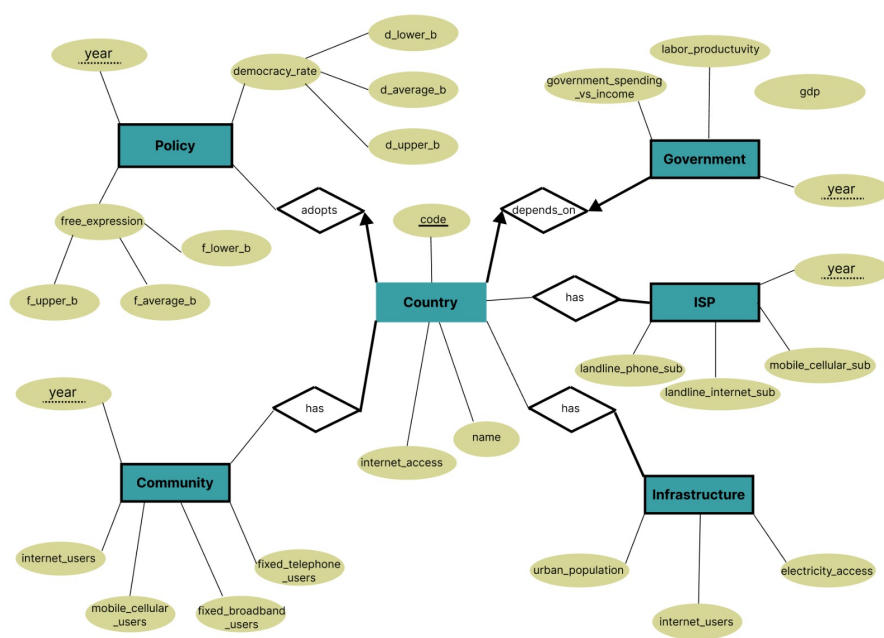
CS 306

PROJECT STEP 2 by GROUP HAVUCLAR

<https://github.com/tansylu/Havuclar-CS306>

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Updated ER Model: The Er model is updated in order to avoid the duplication of country and code duplications, this way the other entities are all weak entities of the 'Country'.



Files and Explanations:

-CommunityTypes.csv: number of fixed telephone, fixed broadband, mobile telephone subscriptions and number of internet users of each country in the year 2020

-Government.csv: GDP PPP per capita, labor productivity per hour worked, government spending over income of each country between the years 1990 and 2011

-Infrastructure Merged.csv: percentage of individuals using the Internet, percentage of urban population, percentage of access to Internet in urban areas, percentage of access to Internet in rural areas of each country between the years 1990 and 2020

-isp.csv: Mobile cellular subscriptions, landline phone subscriptions, landline internet subscriptions of each country between the years 1998 and 2020

-Policy.csv: Higher and lower bounds of electoral democracy rate and higher and lower bounds of freedom of expression rate of each country between the years 1990 and 2022

All the excel files are also updated according to the ER table's changes and also they are cleared again so that there are no empty values or values for places other than countries with codes. All the empty occurrences are changed with 'NULL' so, while importing to MySQL the loss of rows is prevented in newly formed SQL tables. This way the final SQL tables are representing data without errors occurring from that.

SQL Statements:

```
CREATE TABLE `countries` (  
  `Code` varchar(10) NOT NULL,  
  `Country_name` varchar(50) NOT NULL,  
  `Internet_arrival_year` year NOT NULL,  
  PRIMARY KEY (`Code`)  
)
```

This table is the Countries entity set and all the other tables are connected to this with relations.

```
CREATE TABLE `community` (  
  `Code` varchar(10) NOT NULL,  
  `Country_name` varchar(50) DEFAULT NULL,  
  `Year` year NOT NULL,  
  `Fixed_telephone_subscriptions` float DEFAULT NULL,  
  `Fixed_broadband_subscriptions` float DEFAULT NULL,  
  `Mobile_cellular_subscriptions` float DEFAULT NULL,  
  `Number_of_Internet_users` float DEFAULT NULL,  
  PRIMARY KEY (`Code`,`Year`),  
  CONSTRAINT `community_ibfk_1` FOREIGN KEY (`Code`) REFERENCES `countries`  
  (`Code`) ON DELETE CASCADE  
)
```

This table is the Community entity set

```
CREATE TABLE `government` (  
  `Code` varchar(10) NOT NULL,
```

```

`Country_name` varchar(50) DEFAULT NULL,
`Year` year NOT NULL,
`GDP` float DEFAULT NULL,
`Productivity` float DEFAULT NULL,
`Government_Expenditure` float DEFAULT NULL,
PRIMARY KEY (`Code`,`Year`),
CONSTRAINT `government_ibfk_1` FOREIGN KEY (`Code`) REFERENCES `countries`
(`Code`) ON DELETE CASCADE
)

```

This table is the Government entity set

```

CREATE TABLE `infrastructure` (
  `Code` varchar(10) NOT NULL,
  `Country_name` varchar(50) DEFAULT NULL,
  `Year` year NOT NULL,
  `Internet_users` float DEFAULT NULL,
  `Urban_population` float DEFAULT NULL,
  `Electricity_access_urban` float DEFAULT NULL,
  `Electricity_access_rural` float DEFAULT NULL,
  PRIMARY KEY (`Code`,`Year`),
  CONSTRAINT `infrastructure_ibfk_1` FOREIGN KEY (`Code`) REFERENCES
`countries` (`Code`) ON DELETE CASCADE
)

```

This table is the Infrastructure entity set

```

CREATE TABLE `isp` (
  `Code` varchar(10) NOT NULL,
  `Country_name` varchar(50) DEFAULT NULL,
  `Year` year NOT NULL,
  `Mobile_cellular_subscriptions` float DEFAULT NULL,
  `Landline_phone_subscriptions` float DEFAULT NULL,
  `Landline_internet_subscriptions` float DEFAULT NULL,
  PRIMARY KEY (`Code`,`Year`),
  CONSTRAINT `isp_ibfk_1` FOREIGN KEY (`Code`) REFERENCES `countries` (`Code`)
ON DELETE CASCADE
)

```

This table is the ISP entity set

```

CREATE TABLE `policy` (
  `Code` varchar(10) NOT NULL,
  `Country_name` varchar(50) DEFAULT NULL,
  `Year` year NOT NULL,
  `Democracy_estimate` float DEFAULT NULL,
  `Democracy_upper` float DEFAULT NULL,
  `Democracy_lower` float DEFAULT NULL,
  `Freedom_estimate` float DEFAULT NULL,
  `Freedom_upper` float DEFAULT NULL,

```

```
`Freedom_lower` float DEFAULT NULL,  
PRIMARY KEY (`Code`,`Year`),  
CONSTRAINT `policy_ibfk_1` FOREIGN KEY (`Code`) REFERENCES `countries`  
(`Code`) ON DELETE CASCADE  
)
```

This table is the Policy entity set

The above are the SQL statements that are used to create the tables. Those are all the entities that can also be seen in the new ER diagram, all of the weak entities are connected to the Country entity with their own relations.