

1. ER diagram with entity sets and relationship sets, with or without attributes. Add constraints if needed. (30pts) (if it is hard to include your ER diagram in the .pdf file, you can submit the diagram separately)

1. Path: NYCU-DB-lab2/1.3 scheme/hw2ERdiagram.pdf in github

<Avoid redundancy>

Because "RegionName", "RegionCode" are NULL. And "Jurisdiction" are all Nat_total. So these three are removed.

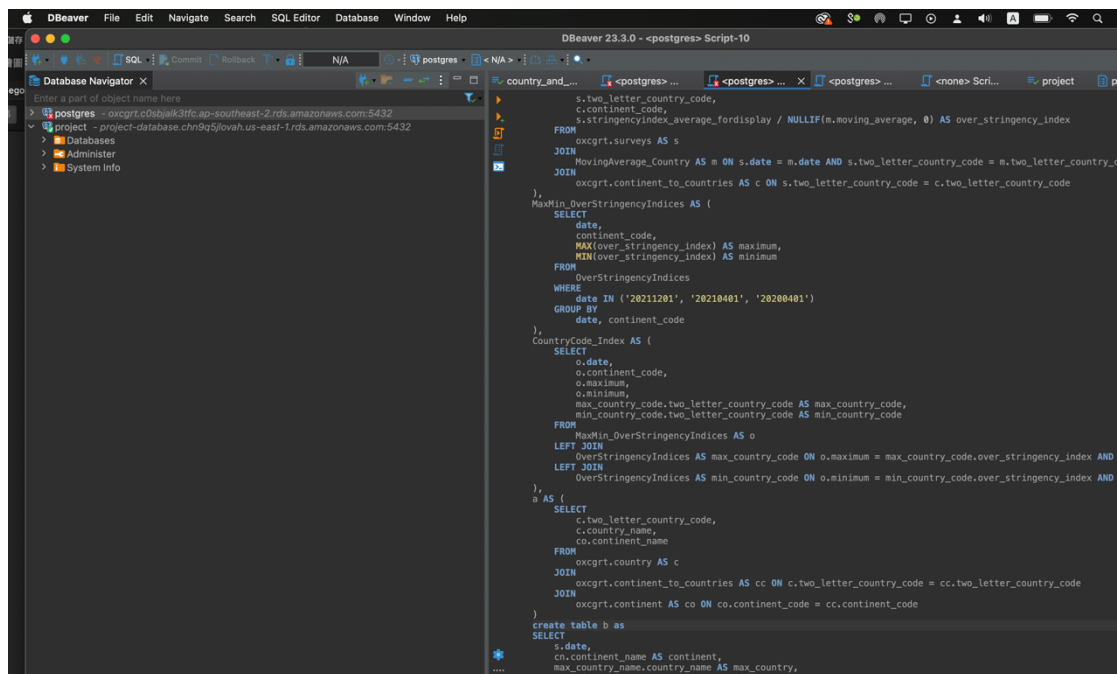
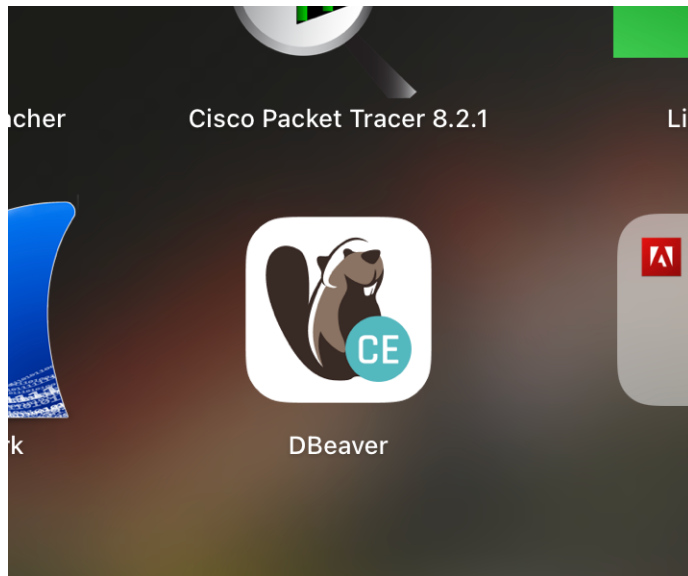
2. <Add Constraints>

We have to make the new constraints which connects "Country" and "Continent".

2. Provide print screens of the 1) AWS RDS launch page, and 2) the way you connect to the AWS RDS (PostgreSQL console tool, pgAdmin, or other IDE's connection page, with the same IP or URL with your AWS RDS) (10pts)

Somehow I couldn't go into AWS, so I used DBeaver built the pgAdmin4.

Path: NYCU-DB-lab2/2



3. Please provide the schema after decomposition, of each table, and a print screen to show that the tables have been created in your database on AWS RDS (on DBeaver). (10+10pts)

<schema>

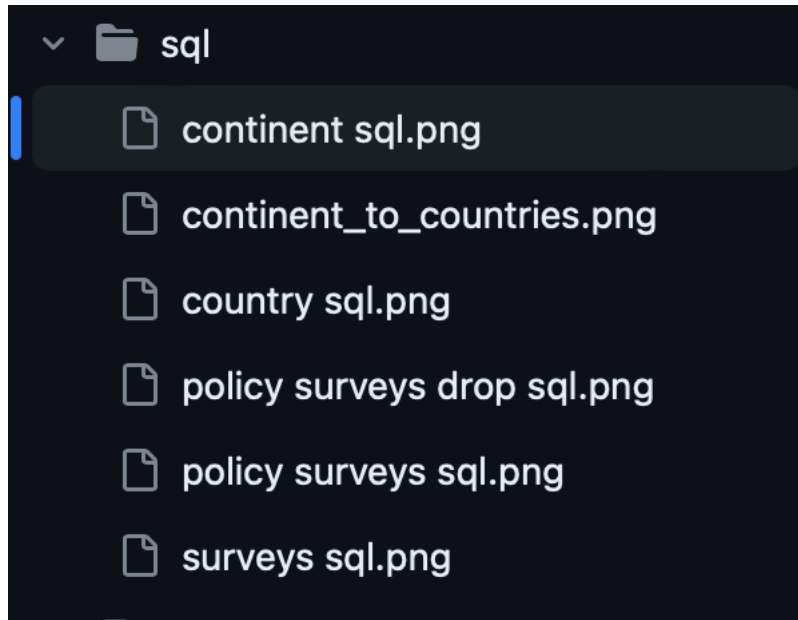
Path: NYCU-DB-lab2/1.3 scheme/scheme 3.png

<how to create the table>

Path: NYCU-DB-lab2/sql

<the result of creating tables>

Path: NYCU-DB-lab2/table csv.zip



4. Clearly indicate the level of normal form, test the level of normal form for each table (10pts)

Basically, all datas from original csv file have no repeat group and all attributes are single value and atomic. We can say the original table are already 1NF.

<test normal form >

table	cause	result
country	all non-trivial functional dependencies $\alpha \rightarrow \beta$ in F^+ , α are super key.	BCNF

continent	all non-trivial functional dependencies $\alpha \rightarrow \beta$ in F $^+$, α are super key.	BCNF
Contient_to_countries	all non-trivial functional dependencies $\alpha \rightarrow \beta$ in F $^+$, α are super key.	BCNF
Policy_surveys	all non-trivial functional dependencies $\alpha \rightarrow \beta$ in F $^+$, α are super key.	BCNF
statistic	all non-trivial functional dependencies $\alpha \rightarrow \beta$ in F $^+$, α are super key.	BCNF
surveys	all non-trivial functional dependencies $\alpha \rightarrow \beta$ in F $^+$, α are super key.	BCNF

5. List the functional dependency of each table. (10pts)

table	functional dependency
country	Two_Letter_Country_Code \rightarrow R

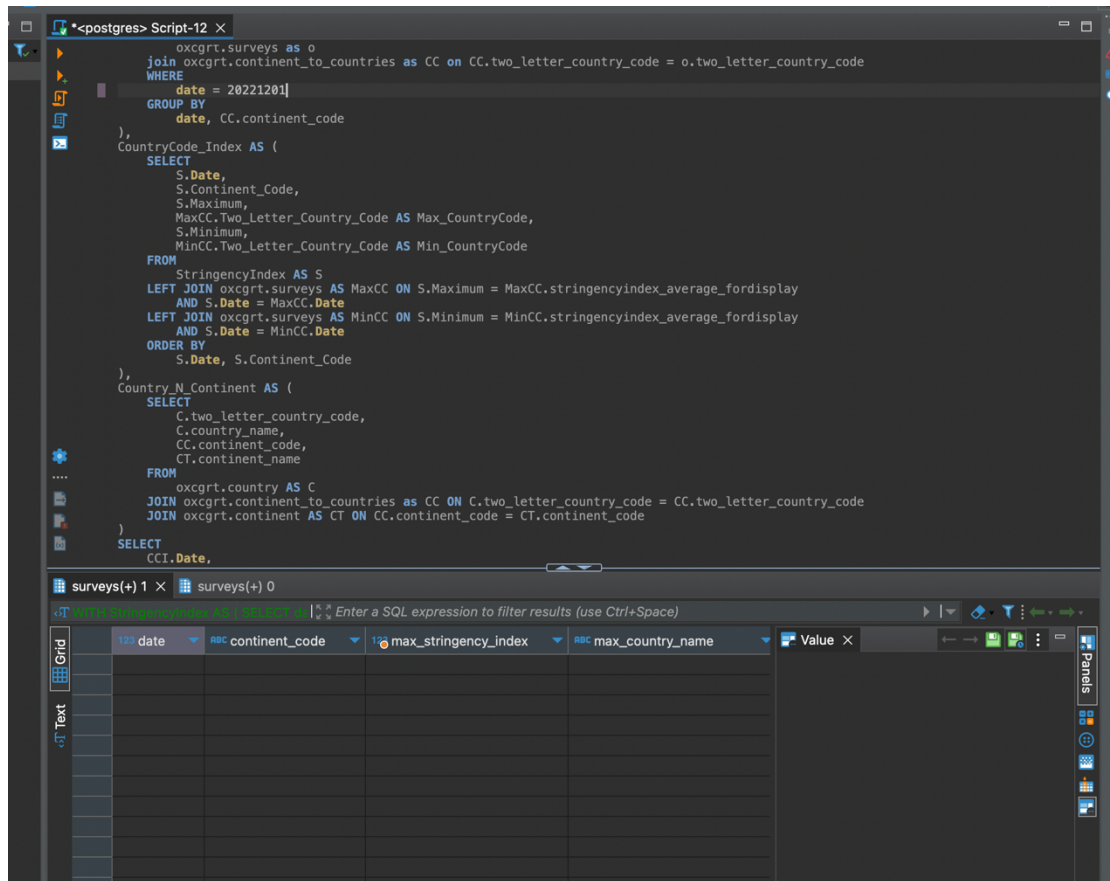
	Three_Letter_Country_Code -> R Country_Name -> R Country_Number -> R
continent	Continent_Code -> Continent_Name Continent_Name -> Continent_Code
Continen_to_countries	{Continent_Code, Two_Letter_Country_Code} -> R
Policy_surveys	{Two_Letter_Country_Code, Date} -> R
statistic	{Two_Letter_Country_Code, Date} -> R
surveys	{Two_Letter_Country_Code, Date} -> R

6.The SQL statements (in .sql file) and output results of 4a (10pts)

Path: NYCU-DB-lab2/資料庫 HW2

Path: NYCU-DB-lab2/資料庫 HW2

Repletion: 2021/12/01 is no data(below)



7. The SQL statements (in .sql file) and output results of 4b (10pts)

Path: NYCU-DB-lab2/資料庫 HW2

Path: NYCU-DB-lab2/資料庫 HW2

Repletion: 2021/12/01 is no data(below)

The screenshot shows a PostgreSQL SQL editor window titled "Script-13". The query is as follows:

```

WITH MovingAverage_Country AS (
    SELECT
        s.date,
        s.two_letter_country_code,
        s.confirmedcases,
        (s.confirmedcases - LAG(s.confirmedcases, 7) OVER (PARTITION BY s.two_letter_country_code ORDER BY s.date)) / 7.0 AS moving_average
    FROM
        oxcgrr.statistic AS s
    JOIN
        oxcgrr.country AS c ON s.two_letter_country_code = c.two_letter_country_code
    JOIN
        oxcgrr.continent_to_countries AS cc ON cc.two_letter_country_code = s.two_letter_country_code
    WHERE
        s.date = 20221201
),
OverStringencyIndices AS (
    SELECT
        s.date,
        s.two_letter_country_code,
        c.continent_code,
        s.stringencyindex_average_fordisplay / NULLIF(m.moving_average, 0) AS over_stringency_index
    FROM
        oxcgrr.surveys AS s
    JOIN
        MovingAverage_Country AS m ON s.date = m.date AND s.two_letter_country_code = m.two_letter_country_code
    JOIN
        oxcgrr.continent_to_countries AS c ON s.two_letter_country_code = c.two_letter_country_code
),
MaxMin_OverStringencyIndices AS (
    SELECT
        date,
        continent_code,
        MAX(over_stringency_index) AS maximum,
        MIN(over_stringency_index) AS minimum
    FROM
        OverStringencyIndices
    WHERE
        date = 20211201
    GROUP BY
        date, continent_code
),
CountryCode_Index AS (

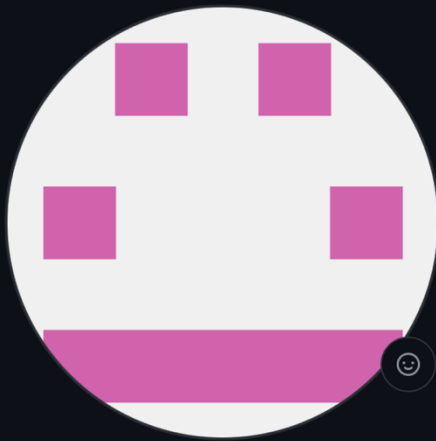
```

Below the query, the results are displayed in a grid view. The grid has columns: date, continent, max_country, max_over_stringency_index, and min_count. The first row shows data for date 20211201, continent RBC, max_country 1, max_over_stringency_index 1, and min_count 1. The rest of the grid is empty.

At the bottom right of the grid, there is a message: "Select a cell to view/edit value. Press F7 to hide this panel."

8.Database auto-update (from the data provider's GitHub repo) strategy and implementation (bonus 20pts)

I have uploaded here.



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Edit profile

Find a repository...

NYCU-DB-lab2 Private

Updated on Dec 14, 2023