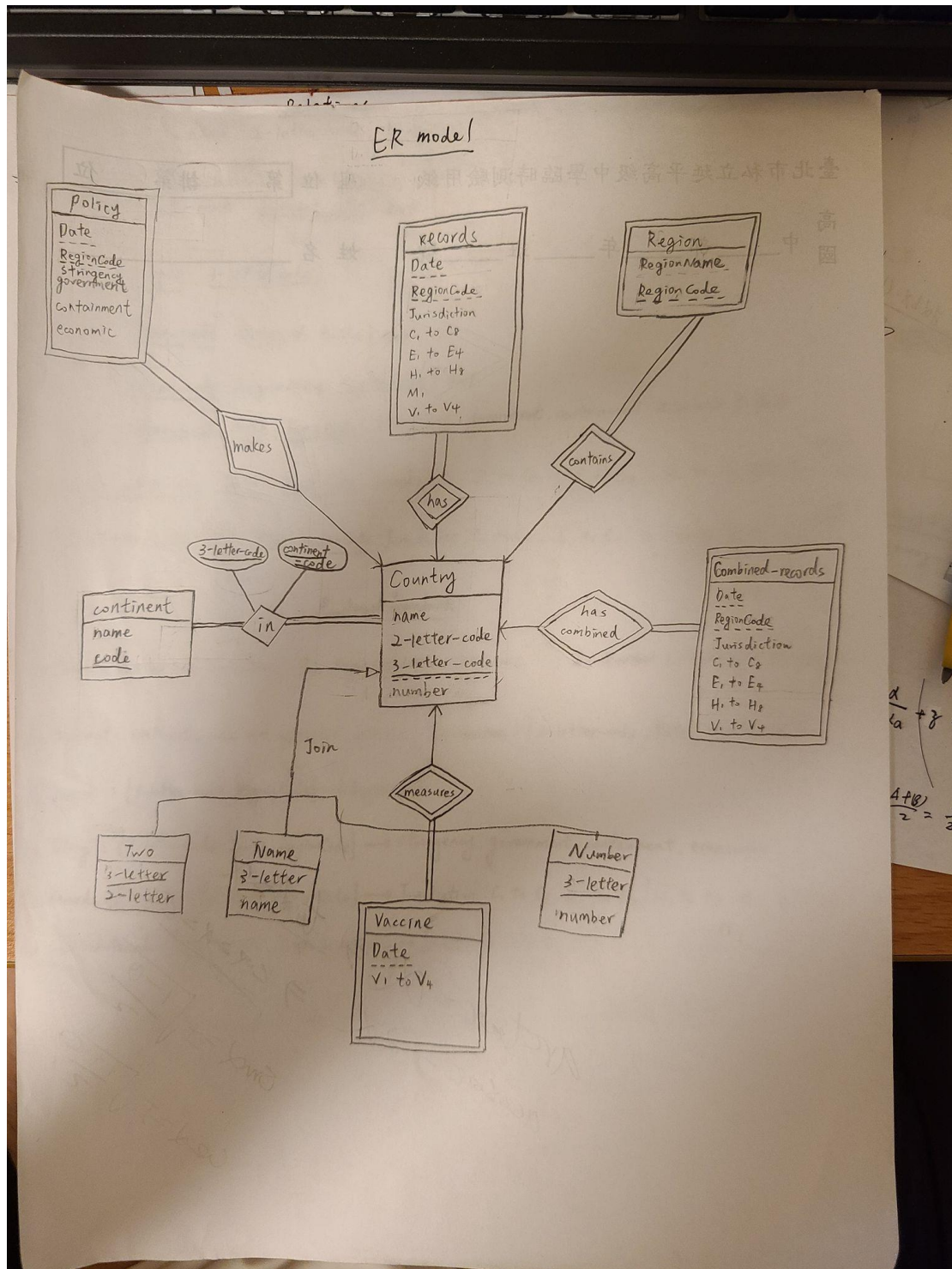


# Question 1



### Question3

Relations

Country (country-name, 2-letter-code, 3-letter-code, country-number)

⇒ Two (3-letter, 2-letter)<sup>3NF</sup>, Name (3-letter, name)<sup>3NF</sup>, Number (3-letter, number)<sup>3NF</sup>

Continent (continent-name, continent-code)<sup>3NF</sup>

In (continent-code, 3-letter-code)

Vaccine (3-letter-code, Date, V<sub>1</sub> to V<sub>4</sub>)<sup>3NF</sup>

Region (3-letter-code, RegionName, RegionCode)<sup>3NF</sup>

Policy (3-letter-code, Date, RegionCode, stringency, government, containment, economic)<sup>3NF</sup>

Records (3-letter-code, Date, RegionCode, Jurisdiction, C<sub>1</sub> to C<sub>8</sub>, E<sub>1</sub> to E<sub>4</sub>, H<sub>1</sub> to H<sub>8</sub>, M<sub>1</sub>, V<sub>1</sub> to V<sub>4</sub>)<sup>3NF</sup>

Combined-records (3-letter-code, Date, RegionCode, Jurisdiction, C<sub>1</sub> to C<sub>8</sub>, E<sub>1</sub> to E<sub>4</sub>, H<sub>1</sub> to H<sub>8</sub>, V<sub>1</sub> to V<sub>4</sub>)<sup>3NF</sup>

Functional dependencies

In Two: 3-letter → 2-letter    In Name: 3-letter → name    In Number: 3-letter → number

In Continent: continent-code → continent-name    In Vaccine: {3-letter-code, Date} → V<sub>1</sub> to V<sub>4</sub>

In Region: {3-letter-code, RegionCode} → RegionName

In Policy: {3-letter-code, Date, RegionCode} → stringency, government, containment, economic

In Records: {3-letter-code, Date, RegionCode} → Jurisdiction, C<sub>1</sub> to C<sub>8</sub>, E<sub>1</sub> to E<sub>4</sub>, H<sub>1</sub> to H<sub>8</sub>, M<sub>1</sub>, V<sub>1</sub> to V<sub>4</sub>

In Combined-records: {3-letter-code, Date, RegionCode} → Jurisdiction, C<sub>1</sub> to C<sub>8</sub>, E<sub>1</sub> to E<sub>4</sub>, H<sub>1</sub> to H<sub>8</sub>, V<sub>1</sub> to V<sub>4</sub>

As all above are superkeys of the relations, they all meet the rule of 3NF #

#### Question 4

About importing the csv data into database then for modifying, I use pgfutter to include the header, below is the command.

```
Microsoft Windows [版本 10.0.19044.1706]
(c) Microsoft Corporation. 著作權所有，並保留一切權利。

C:\Users\borac\Desktop\school\selective_course\Database_Systems\labs\lab 2>pgfutter --host "database-1.c
ast-1.rds.amazonaws.com" --db "oxcgrt" --schema "public" --table "Temporary" --username "postgres" --pw
sv country-and-continent-codes-list-csv.csv
5 columns
]Continent_Name Continent_Code Country_Name Two_Letter_Country_Code Three_Letter_Country_Code Country_Nu
8.87 KiB / 8.87 KiB [=====
258 rows imported into public.temporary

C:\Users\borac\Desktop\school\selective_course\Database_Systems\labs\lab 2>
```

After importing the file, all of the type is considered text, as a result, I use two query to convert it to varchar and float respectively.

P.s. Files of creating tables and the converter are attached in the submitted file.