**Nanyang Technological University  
Nanyang Business School**

**BC2402 – Designing and Developing Databases**Semester 1, 2021

**Individual Assignment**

**COVID’19 Global Vaccinations**

**1. INTRODUCTION**

**Case Background**

To bring this pandemic to an end, a large share of the world needs to be immune to the virus. The safest way to achieve this is with a vaccine. Vaccines are a technology that humanity has often relied on in the past to bring down the death toll of infectious diseases.

Within less than 12 months after the beginning of the COVID-19 pandemic, several research teams rose to the challenge and developed vaccines that protect from SARS-CoV-2, the virus that causes COVID-19.

In this individual assignment, we will draw on a public dataset on COVID vaccinations (see COVID-19 World Vaccinations Progress <https://www.kaggle.com/gpreda/covid-world-vaccination-progress?select=country_vaccinations_by_manufacturer.csv>)

To reduce your workload (and to be fair to those with less powerful computers), I have prepared a mySQL implementation of a version of the dataset. Specifically, our mySQL implementation consists of two tables:

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| --- |
| Table 1 - country\_vaccinations |
| * Country- this is the country for which the vaccination information is provided; * Country ISO Code - ISO code for the country; * Date - date for the data entry; for some of the dates we have only the daily vaccinations, for others, only the (cumulative) total; * Total number of vaccinations - this is the absolute number of total immunizations in the country; * Total number of people vaccinated - a person, depending on the immunization scheme, will receive one or more (typically 2) vaccines; at a certain moment, the number of vaccination might be larger than the number of people; * Total number of people fully vaccinated - this is the number of people that received the entire set of immunization according to the immunization scheme (typically 2); at a certain moment in time, there might be a certain number of people that received one vaccine and another number (smaller) of people that received all vaccines in the scheme; * Daily vaccinations (raw) - for a certain data entry, the number of vaccination for that date/country; * Daily vaccinations - for a certain data entry, the number of vaccination for that date/country; * Total vaccinations per hundred - ratio (in percent) between vaccination number and total population up to the date in the country; * Total number of people vaccinated per hundred - ratio (in percent) between population immunized and total population up to the date in the country; * Total number of people fully vaccinated per hundred - ratio (in percent) between population fully immunized and total population up to the date in the country; * Number of vaccinations per day - number of daily vaccination for that day and country; * Daily vaccinations per million - ratio (in ppm) between vaccination number and total population for the current date in the country; * Vaccines used in the country - total number of vaccines used in the country (up to date); * Source name - source of the information (national authority, international organization, local organization etc.); * Source website - website of the source of information; |

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| --- |
| Table 2 – country\_vaccinations\_by\_manufacturer |
| * Location - country; * Date - date; * Vaccine - vaccine type; * Total number of vaccinations - total number of vaccinations / current time and vaccine type. |

**2. PROJECT DELIVERABLES**

***The due date for the assignment is 1 October 2021 (23:59 hrs NTULearn server time)***

You are not expected to modify the provided mySQL database implementation. You are only expected to submit one file, as follows:

1. 1 x SQL script file

**A. SQL script file**

You are tasked to develop some SQL scripts to query the data, as follows:

1. Display a list of total vaccinations per day in Singapore.

[source table: country\_vaccinations]

Graphical user interface, text

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[169 rows returned]

1. Display the sum of daily vaccinations among ASEAN countries.

[source table: country\_vaccinations]

Graphical user interface, table

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1. Identify the maximum daily vaccinations per million on each country. Sort the list based on daily vaccinations per million in a descending order.

[source table: country\_vaccinations]

Table

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[217 rows returned]

1. Which is the most administrated vaccine? Display a list of total administration (i.e., sum of total vaccinations) per vaccine.

[source table: country\_vaccinations\_by\_manufacturer]

Graphical user interface, application

Description automatically generated

1. Italy has commenced administrating various vaccines to its populations as a vaccine becomes available. Identify the first dates of each vaccine being administrated, then compute the difference in days between the earliest date and the 4th date.

[source table: country\_vaccinations\_by\_manufacturer]

Graphical user interface, text, application

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[Hint: based on the result presented above, use LIMIT and DATEDIFF. The expected output is presented below]

**Text

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1. What is the country with the most types of administrated vaccine?

[source table: country\_vaccinations\_by\_manufacturer]

Text

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1. What are the countries that have fully vaccinated more than 60% of its people? For each country, display the vaccines administrated.

[source table: country\_vaccinations]

Text

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1. Monthly vaccination insight – display the monthly total vaccination amount of each vaccine per month in the United States.

[source table: country\_vaccinations\_by\_manufacturer]

Table

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1. Days to 50 percent. Compute the number of days (i.e., using the first available date on records of a country) that each country takes to go above the 50% threshold of vaccination administration (i.e., total\_vaccinations\_per\_hundred > 50)

[source table: country\_vaccinations]

Table

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[85 rows returned]

1. Compute the global total of vaccinations per vaccine.

[source table: country\_vaccinations\_by\_manufacturer]

Graphical user interface, application

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**3. SUBMISSION**

A submission folder will be made available on NTULearn. You can make as many submissions as you deem necessary, but only the latest submission will be evaluated.

The submission must be made by 1 October 2021, 23:59.