DATABASE CONCEPTS
ASSIGNMENT-3

Name: [redacted]

StudentID: [redacted]

Part D: Data Retrieval and Visualisation

Task D.1:

Query:

```
WITH Month1 AS (
   SELECT v.iso_code,
        l.location AS [Country Name (CN)],
        SUM(v.daily_vaccinations) AS [Administered Vaccine on OM1 (VOM1)]
    FROM vaccinations v
        JOIN
        location l ON v.iso_code = l.iso_code
    WHERE v.date LIKE '%04-2022'
    GROUP BY v.iso_code,
          l.location
),
Month2 AS (
   SELECT v.iso_code,
        l.location AS [Country Name (CN)],
        SUM(v.daily_vaccinations) AS [Administered Vaccine on OM2 (VOM2)]
    FROM vaccinations v
        JOIN
        location l ON v.iso_code = l.iso_code
    WHERE v.date LIKE '%05-2022'
    GROUP BY v.iso_code,
          l.location
)
SELECT 'April 2022' AS [Observation Months 1 (OM1)],
      m1.[Country Name (CN)],
      m1.[Administered Vaccine on OM1 (VOM1)],
      'May 2022' AS [Observation Months 2 (OM2)],
```

```
    COALESCE(m2.[Administered Vaccine on OM2 (VOM2)], 0) AS [Administered Vaccine on OM2
(VOM2)],

    (m1.[Administered Vaccine on OM1 (VOM1)] - COALESCE(m2.[Administered Vaccine on OM2
(VOM2)], 0) ) AS [Difference of totals (VOM1 - VOM2)]

 FROM Month1 m1

    LEFT JOIN

    Month2 m2 ON m1.iso_code = m2.iso_code;
```

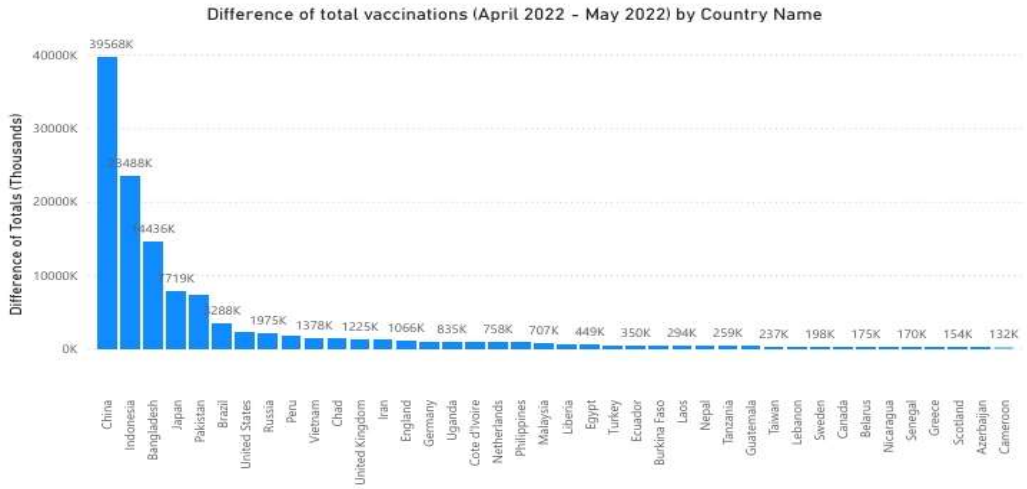
Output:

Grid view | Form view

Total rows loaded: 215

	Observatio	Country Name (CN)	Administered Va	Observatic	Administered Vacc	Difference
1	April 2022	Aruba	1106	May 2022	831	275
2	April 2022	Afghanistan	180616	May 2022	160268	20348
3	April 2022	Angola	351920	May 2022	960580	-608660
4	April 2022	Anguilla	456	May 2022	303	153
5	April 2022	Albania	55529	May 2022	56029	-500
6	April 2022	Andorra	374	May 2022	495	-121
7	April 2022	United Arab Emirates	208963	May 2022	193587	15376
8	April 2022	Argentina	2030892	May 2022	4026194	-1995302
9	April 2022	Armenia	22219	May 2022	966	21253
10	April 2022	Antigua and Barbuda	172	May 2022	156	16
11	April 2022	Australia	1328429	May 2022	1558952	-230523
12	April 2022	Austria	95515	May 2022	108943	-13428

Data visualisation:



Task D.2:

Query:

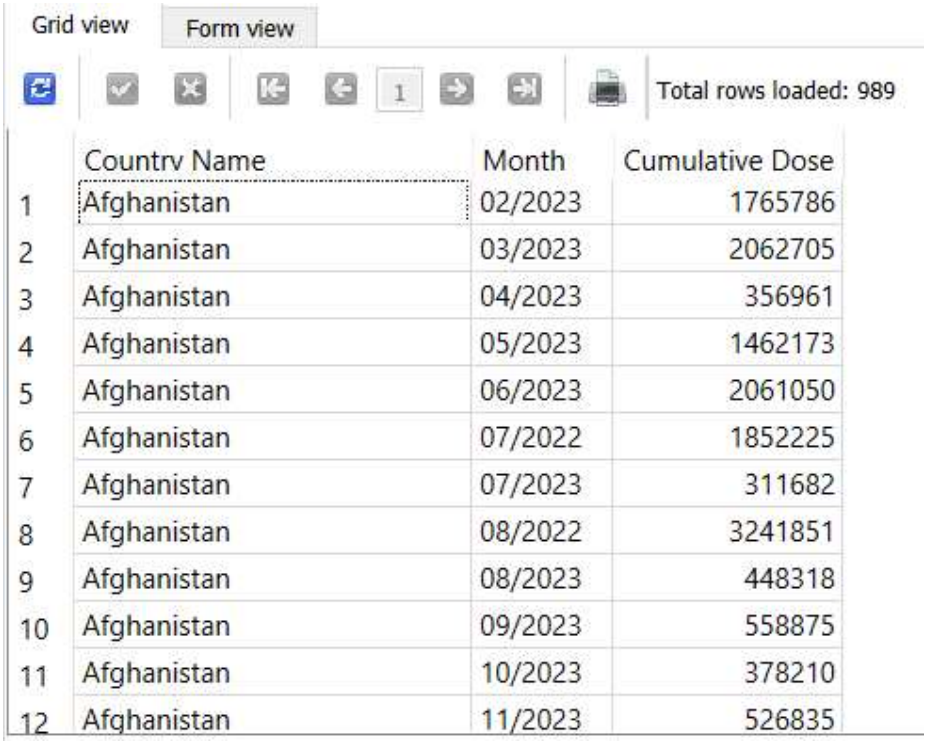
```
 WITH MonthlyCumulative AS (
   SELECT
      v.iso_code,
      l.location AS "Country Name",
      strftime('%m/%Y', substr(v.date, 7, 4) || '-' || substr(v.date, 4, 2) || '-' || substr(v.date, 1, 2)) AS "Month",
      SUM(v.daily_vaccinations) AS "Cumulative Doses"
   FROM
      vaccinations v
   JOIN
      location l ON v.iso_code = l.iso_code
   GROUP BY
      v.iso_code, l.location, strftime('%m/%Y', substr(v.date, 7, 4) || '-' || substr(v.date, 4, 2) || '-' || substr(v.date, 1, 2))
),

MonthlyAverage AS (
   SELECT
      "Month",
      AVG("Cumulative Doses") AS "Average Doses"
   FROM
      MonthlyCumulative
   GROUP BY
      "Month"
)

SELECT
   mc."Country Name",
   mc."Month",
   mc."Cumulative Doses"
```

```
FROM
   MonthlyCumulative mc
JOIN
   MonthlyAverage ma ON mc."Month" = ma."Month"
WHERE
   mc."Cumulative Doses" > ma."Average Doses"
ORDER BY
   mc."Country Name", mc."Month";
```

Output:

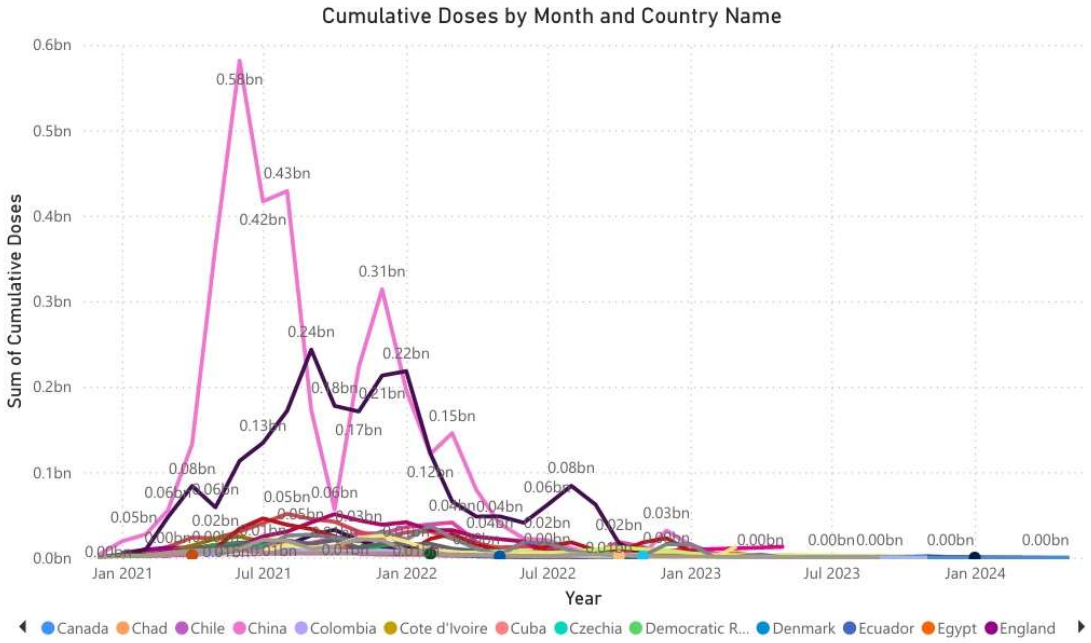


Grid view | Form view

Total rows loaded: 989

	Country Name	Month	Cumulative Dose
1	Afghanistan	02/2023	1765786
2	Afghanistan	03/2023	2062705
3	Afghanistan	04/2023	356961
4	Afghanistan	05/2023	1462173
5	Afghanistan	06/2023	2061050
6	Afghanistan	07/2022	1852225
7	Afghanistan	07/2023	311682
8	Afghanistan	08/2022	3241851
9	Afghanistan	08/2023	448318
10	Afghanistan	09/2023	558875
11	Afghanistan	10/2023	378210
12	Afghanistan	11/2023	526835

Data visualisation:



Task D.3:

Query:

```
SELECT v.vaccineName AS [Vaccine Type],
    l.location AS Country
 FROM location_vaccine lv
    JOIN
    vaccine v ON lv.vaccineID = v.vaccineID
    JOIN
    location l ON lv.iso_code = l.iso_code;
```

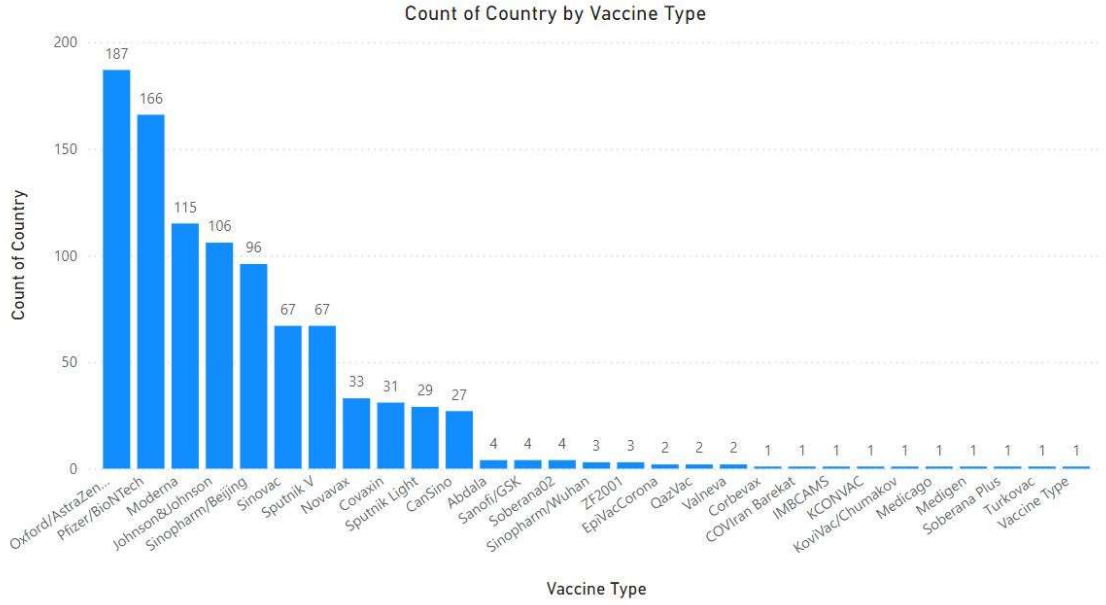
Output:

Grid view | Form view

Total rows loaded: 957

	Vaccine Type	Country
1	CanSino	Afghanistan
2	Covaxin	Afghanistan
3	Johnson&Johnson	Afghanistan
4	Moderna	Afghanistan
5	Oxford/AstraZeneca	Afghanistan
6	Pfizer/BioNTech	Afghanistan
7	Sinopharm/Beijing	Afghanistan
8	Sinovac	Afghanistan
9	Sputnik Light	Afghanistan
10	Sputnik V	Afghanistan
11	Oxford/AstraZeneca	Albania
12	Pfizer/BioNTech	Albania

Data visualisation:



Task D.4:

Query:

```
SELECT l.location AS [Country Name],
    s.source_website AS [Source Name (URL)],
    max(v.total_vaccinations) AS [Total Administered Vaccine]
 FROM location l
    INNER JOIN
    Vaccinations v ON l.iso_code = v.iso_code
     INNER JOIN
    Source s ON l.sourceID = s.sourceID
GROUP BY l.iso_code,s.source_website;
```

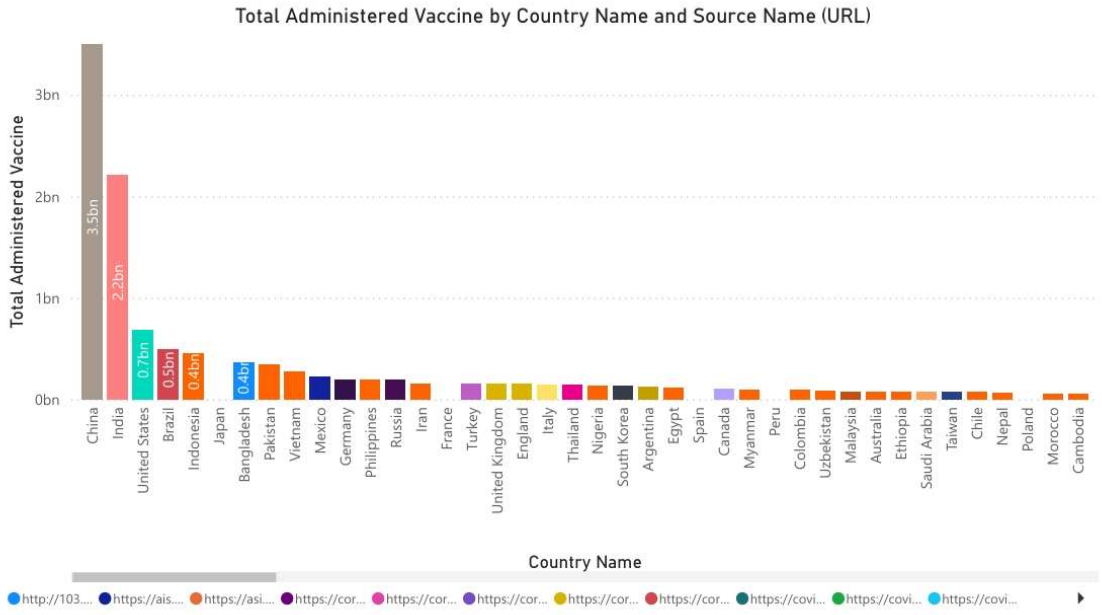
Output:

Grid view | Form view

Total rows loaded: 223

	Country Name	Source Name (URL)	Total Administered Vaccin
1	Aruba	https://www.government.aw	174914
2	Afghanistan	https://data.who.int/dashboards/covid19/	22964750
3	Angola	https://data.who.int/dashboards/covid19/	27819132
4	Anguilla	https://ais.paho.org/imm/IM_DosisAdmin-Vacunacion.asp	24604
5	Albania	https://data.who.int/dashboards/covid19/	3088966
6	Andorra	https://data.who.int/dashboards/covid19/	157072
7	United Arab Emirates	https://covid19.who.int/	24922054
8	Argentina	https://covidstats.com.ar/	116978521
9	Armenia	https://data.who.int/dashboards/covid19/	2256919
10	Antigua and Barbuda	https://covid19.who.int/	136512
11	Australia	https://data.who.int/dashboards/covid19/	69686752
12	Austria	https://www.ecdc.europa.eu/en/publications-data/data-covid-19-vaccination-eu-eea	20468731

Data visualisation:



Task D.5:

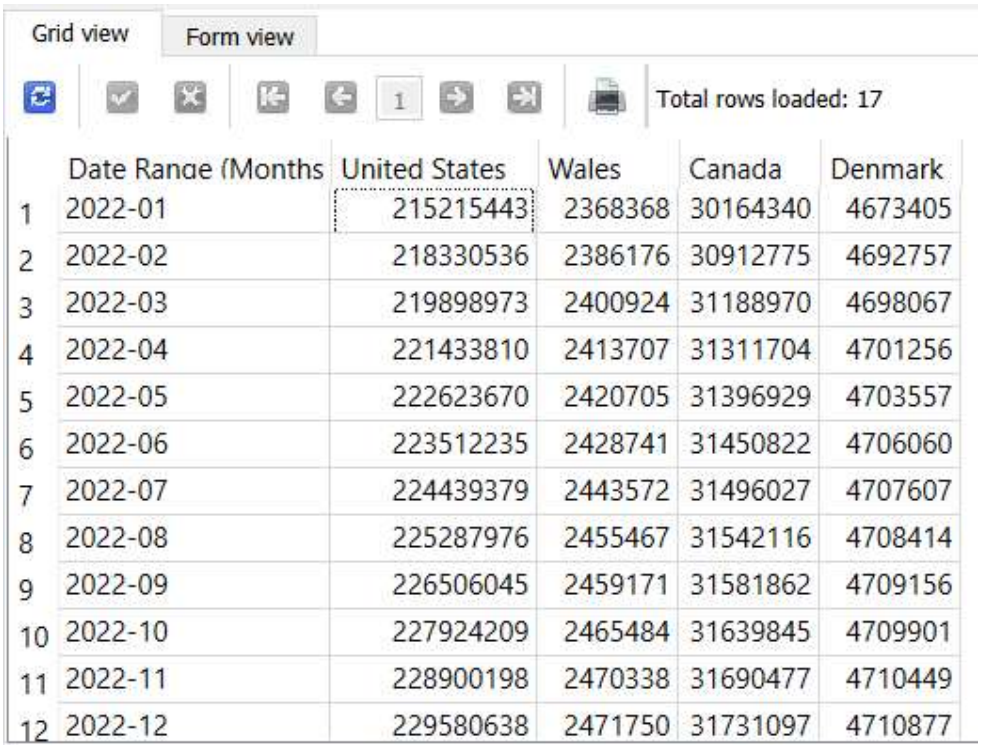
Query:

```
SELECT t1.[Date Range (Months)],
    COALESCE(t1.total_fully_vaccinated, 0) AS United States,
    COALESCE(t2.total_fully_vaccinated, 0) AS Wales,
    COALESCE(t3.total_fully_vaccinated, 0) AS Canada,
    COALESCE(t4.total_fully_vaccinated, 0) AS Denmark
FROM (
      SELECT SUBSTR(v.date, 7, 4) || '-' || SUBSTR(v.date, 4, 2) AS [Date Range (Months)],
          MAX(v.people_fully_vaccinated) AS total_fully_vaccinated
       FROM vaccinations v
          JOIN
          location l ON v.iso_code = l.iso_code
       WHERE SUBSTR(v.date, 7, 4) IN ('2022', '2023') AND
          l.location = 'United States'
```

```
    GROUP BY "Date Range (Months)"
)
t1
LEFT JOIN
(
   SELECT SUBSTR(v.date, 7, 4) || '-' || SUBSTR(v.date, 4, 2) AS [Date Range (Months)],
        MAX(v.people_fully_vaccinated) AS total_fully_vaccinated
     FROM vaccinations v
        JOIN
        location l ON v.iso_code = l.iso_code
    WHERE SUBSTR(v.date, 7, 4) IN ('2022', '2023') AND
        l.location = 'Wales'
    GROUP BY "Date Range (Months)"
)
t2 ON t1.[Date Range (Months)] = t2.[Date Range (Months)]
LEFT JOIN
(
   SELECT SUBSTR(v.date, 7, 4) || '-' || SUBSTR(v.date, 4, 2) AS [Date Range (Months)],
        MAX(v.people_fully_vaccinated) AS total_fully_vaccinated
     FROM vaccinations v
        JOIN
        location l ON v.iso_code = l.iso_code
    WHERE SUBSTR(v.date, 7, 4) IN ('2022', '2023') AND
        l.location = 'Canada'
    GROUP BY "Date Range (Months)"
)
t3 ON t1.[Date Range (Months)] = t3.[Date Range (Months)]
LEFT JOIN
(
   SELECT SUBSTR(v.date, 7, 4) || '-' || SUBSTR(v.date, 4, 2) AS [Date Range (Months)],
        MAX(v.people_fully_vaccinated) AS total_fully_vaccinated
```

```
        FROM vaccinations v
            JOIN
            location l ON v.iso_code = l.iso_code
        WHERE SUBSTR(v.date, 7, 4) IN ('2022', '2023') AND
            l.location = 'Denmark'
        GROUP BY "Date Range (Months)"
    )
    t4 ON t1.[Date Range (Months)] = t4.[Date Range (Months)]
ORDER BY t1.[Date Range (Months)];
```

Output:



	Date Range (Months	United States	Wales	Canada	Denmark
1	2022-01	215215443	2368368	30164340	4673405
2	2022-02	218330536	2386176	30912775	4692757
3	2022-03	219898973	2400924	31188970	4698067
4	2022-04	221433810	2413707	31311704	4701256
5	2022-05	222623670	2420705	31396929	4703557
6	2022-06	223512235	2428741	31450822	4706060
7	2022-07	224439379	2443572	31496027	4707607
8	2022-08	225287976	2455467	31542116	4708414
9	2022-09	226506045	2459171	31581862	4709156
10	2022-10	227924209	2465484	31639845	4709901
11	2022-11	228900198	2470338	31690477	4710449
12	2022-12	229580638	2471750	31731097	4710877

Data visualisation: