Covid – 19 Health & Vaccination Insights

➢ Loading the Data Set into SQL

- LOAD DATA local INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Data/portfolioprojects/CovidDeaths.csv'
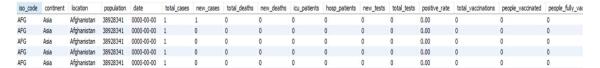
  INTO TABLE CovidDeaths

  FIELDS TERMINATED BY ','

  LINES TERMINATED BY '\n'

  IGNORE 1 ROWS;

- select * from CovidDeaths;

iso_code	continent	location	population	date	total_cases	new_cases	total_deaths	new_deaths	icu_patients	hosp_patients	new_tests	total_tests	positive_rate	total_vaccinations	people_vaccinated	people_fully_vac
AFG	Asia	Afghanistan	38928341	0000-00-00	1	1	0	0	0	0	0	0	0.00	0	0	0
AFG	Asia	Afghanistan	38928341	0000-00-00	1	0	0	0	0	0	0	0	0.00	0	0	0
AFG	Asia	Afghanistan	38928341	0000-00-00	1	0	0	0	0	0	0	0	0.00	0	0	0
AFG	Asia	Afghanistan	38928341	0000-00-00	1	0	0	0	0	0	0	0	0.00	0	0	0
AFG	Asia	Afghanistan	38928341	0000-00-00	1	0	0	0	0	0	0	0	0.00	0	0	0

- LOAD DATA local INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Data/portfolioprojects/CovidVaccinations.csv'

  INTO TABLE CovidVaccinations

  FIELDS TERMINATED BY ','

  LINES TERMINATED BY '\n'

  IGNORE 1 ROWS;

- select * from CovidVaccinations;

iso_code	continent	location	population	date	new_tests	total_tests	positive_rate	total_vaccinations	people_vaccinated	people_fully_vaccinated	new_vaccinations
ALB	Europe	Albania	2877800	0000-00-00	875	67686	0.18	0	0	0	0
ALB	Europe	Albania	2877800	0000-00-00	872	68558	0.18	0	0	0	0
ALB	Europe	Albania	2877800	0000-00-00	877	69435	0.18	0	0	0	0
ALB	Europe	Albania	2877800	0000-00-00	862	70297	0.18	0	0	0	0
ALB	Europe	Albania	2877800	0000-00-00	810	71107	0.19	0	0	0	0

➢ Selecting the Data that we are going to be starting with

SELECT

Location, total_cases, new_cases, total_deaths, population

FROM

CovidDeaths

WHERE

   continent IS NOT NULL

ORDER BY 1 , 2;

Location	total_cases	new_cases	total_deaths	population
Africa	1158267	10609	26977	1340598...
Africa	1158267	10609	26977	1340598...
Africa	1168539	10272	27329	1340598...
Africa	1168539	10272	27329	1340598...
Africa	1178972	10433	27603	1340598...

➢ Total Cases vs Total Deaths

SELECT

   Location,

   total_cases,

   total_deaths,

   (total_deaths / total_cases) * 100 AS DeathPercentage

FROM

   CovidDeaths

WHERE

   continent IS NOT NULL

ORDER BY 1 , 2;

Location	total_cases	total_deaths	DeathPercentage
Albania	4570	128	2.8009
Albania	4570	128	2.8009
Albania	4637	134	2.8898
Albania	4637	134	2.8898
Albania	4763	138	2.8973

➢ Total Cases vs Population

SELECT

   Location,

   Population,

   total_cases,

   (total_cases / population) * 100 AS PercentPopulationInfected

FROM

   CovidDeaths

ORDER BY 1 , 2;

Location	Population	total_cases	PercentPopulationInfected
Andorra	77265	10889	14.0931
Andorra	77265	10866	14.0633
Andorra	77265	10849	14.0413
Andorra	77265	10822	14.0063
Andorra	77265	10799	13.9766

➢ Countries with Highest Infection Rate compared to Population

SELECT

   Location,

   Population,

   MAX(total_cases) AS HighestInfectionCount,

   MAX((total_cases / population)) * 100 AS PercentPopulationInfected

FROM

   CovidDeaths

GROUP BY Location , Population

ORDER BY PercentPopulationInfected DESC;

Location	Population	HighestInfectionCount	PercentPopulationInfected
Andorra	77265	13232	17.1300
Montenegro	628062	97389	15.5100
Czechia	10708982	1630758	15.2300
San Marino	33938	5066	14.9300
Slovenia	2078932	240292	11.5600

➢ Countries with Highest Death Count per Population

SELECT

   Location, MAX(Total_deaths) AS TotalDeathCount

FROM

   CovidDeaths

WHERE

   continent IS NOT NULL

     AND location != 'World'

GROUP BY Location

ORDER BY TotalDeathCount DESC;

Location	TotalDeathCount
Europe	1016750
North America	847942
European Union	688896
South America	672415
United States	576232

➢ Showing continents with the highest death count per population

SELECT

   continent, MAX(Total_deaths) AS TotalDeathCount

FROM

   CovidDeaths

WHERE

   continent IS NOT NULL

GROUP BY continent

ORDER BY TotalDeathCount DESC;

continent	TotalDeathCount
	3180238
North America	576232
South America	403781
Asia	211853
Europe	127775
Africa	54350

➢ GLOBAL NUMBERS

SELECT

   SUM(new_cases) AS total_cases,

   SUM(new_deaths) AS total_deaths,

   SUM(new_deaths) / SUM(New_Cases) * 100 AS DeathPercentage

FROM

   CovidDeaths

WHERE

   continent IS NOT NULL

ORDER BY 1 , 2;

total_cases	total_deaths	DeathPercentage
964995174	20459088	2.1201

➢ Global Cumulative Cases, Deaths

SELECT

   MAX(date) AS as_of,

   SUM(total_cases) AS global_cases,

   SUM(total_deaths) AS global_deaths

FROM

   coviddeaths

WHERE

   continent IS NOT NULL;

as_of	global_cases	global_deaths
2021-04-30	137070175838	3377368322

➢ Countries with highest peak daily new cases (absolute)

SELECT

location, MAX(new_cases) AS peak_new_cases

FROM

coviddeaths

WHERE

continent IS NOT NULL

AND location != 'World'

GROUP BY location

ORDER BY peak_new_cases DESC

LIMIT 10;

location	peak_new_cases
Asia	518375
India	401993
Europe	346447
North America	327335
United States	300310

➢ Countries with the lowest CFR

SELECT

location,

SUM(total_cases) AS total_cases,

SUM(total_deaths) AS total_deaths

FROM

coviddeaths

WHERE

continent IS NOT NULL

GROUP BY location

HAVING SUM(total_cases) >= 100000

LIMIT 10;

location	total_cases	total_deaths
Afghanistan	30354182	1179104
Africa	1511228852	38129848
Albania	31888674	611178
Algeria	48103186	1473700
Andorra	3976936	56838

➢ Which countries hit 70% fully vaccinated & when

SELECT

   location, MIN(date) AS date_reached_70pct

FROM

   covidvaccinations

WHERE

   continent IS NOT NULL

     AND people_fully_vaccinated >= 0.70 * population

GROUP BY location

ORDER BY date_reached_70pct;

➢ Total population, Total Cases, Total Deaths by location

SELECT

   location,

   MAX(population) AS total_population,

   MAX(total_cases) AS total_cases,

   MAX(total_deaths) AS total_deaths

FROM

   CovidDeaths

WHERE

   total_cases IS NOT NULL

     AND location != 'World'

GROUP BY location

ORDER BY total_cases DESC;

location	total_population	total_cases	total_deaths
Europe	748680069	44863478	1016750
Asia	2147483647	39526308	520286
North America	592072204	37529488	847942
United States	331002647	32346971	576232
European Union	444919060	30771214	688896

➢ Top 10 countries with highest Covid cases

SELECT

   location, MAX(total_cases) AS total_cases

FROM

   CovidDeaths

WHERE

   total_cases IS NOT NULL

     AND location != 'World'

GROUP BY location

ORDER BY total_cases DESC

LIMIT 10;

location	total_population	total_cases	total_deaths
Europe	748680069	44863478	1016750
Asia	2147483647	39526308	520286
North America	592072204	37529488	847942
United States	331002647	32346971	576232
European Union	444919060	30771214	688896

➢ Top 10 Countries with highest Deaths

SELECT

   location, MAX(total_deaths) AS total_deaths

FROM

   CovidDeaths

WHERE

   total_deaths IS NOT NULL

     AND location != 'World'

GROUP BY location

ORDER BY total_deaths DESC

LIMIT 10;

location	total_deaths
Europe	1016750
North America	847942
European Union	688896
South America	672415
United States	576232
Asia	520286

➢ Top 10 countries with highest positive rate

SELECT

   location,

   MAX(total_cases) AS total_cases,

   MAX(total_tests) AS total_tests,

   ROUND((MAX(total_cases) * 1.0 / NULLIF(MAX(total_tests), 0)) * 100,

     2) AS positive_rate_percentage

FROM

   CovidDeaths

WHERE

   total_tests IS NOT NULL

     AND total_cases IS NOT NULL

     AND location != 'World'

GROUP BY location

HAVING MAX(total_tests) > 0

ORDER BY positive_rate_percentage DESC

LIMIT 10;

location	total_cases	total_tests	positive_rate_percentage
Brazil	14659011	6421441	228.28
Peru	1799445	3195388	56.31
Mexico	2344755	6178248	37.95
Argentina	2977363	8563665	34.77
Costa Rica	250991	798469	31.43

➤ Top 10 countries with lowest cases

SELECT

    location, MAX(total_cases) AS total_cases

FROM

    CovidDeaths

WHERE

    total_cases IS NOT NULL

       AND total_cases > 0

       AND location != 'World'

       AND continent IS NOT NULL

GROUP BY location

ORDER BY total_cases ASC

LIMIT 10;

location	total_cases
Micronesia (country)	1
Samoa	3
Marshall Islands	4
Vanuatu	4
Solomon Islands	20
Vatican	27
Saint Kitts and Nevis	44

➤ Top 10 countries with lowest deaths

SELECT

    location, MAX(total_deaths) AS total_deaths

```sql
FROM
    CovidDeaths
WHERE
    total_deaths IS NOT NULL
        AND total_deaths > 0
        AND location != 'World'
        AND continent IS NOT NULL
GROUP BY location
ORDER BY total_deaths ASC
LIMIT 10;
```

location	total_deaths
Vanuatu	1
Grenada	1
Bhutan	1
Fiji	2
Timor	3
Brunei	3
Burundi	6
Eritrea	10

➢ Top 10 Countries by Fully Vaccinated People

```sql
SELECT
    location, MAX(people_fully_vaccinated) AS fully_vaccinated
FROM
    CovidVaccinations
WHERE
    people_fully_vaccinated IS NOT NULL
        AND location != 'World'
        AND continent IS NOT NULL
GROUP BY location
ORDER BY fully_vaccinated DESC
```

LIMIT 10;

location	fully_vaccinated
North America	111054793
United States	101407318
Europe	64402785
Asia	63142140
European Union	39276085
India	26621155

➢ Case Fatality Rate (CFR) by Country

SELECT

   location,

   MAX(total_cases) AS total_cases,

   MAX(total_deaths) AS total_deaths,

   ROUND(MAX(total_deaths) * 100.0 / MAX(total_cases),

      2) AS case_fatality_rate

FROM

   CovidDeaths

WHERE

   continent IS NOT NULL

GROUP BY location

ORDER BY case_fatality_rate DESC;

location	total_cases	total_deaths	case_fatality_rate
Vanuatu	4	1	25.00
Yemen	6317	1226	19.41
Mexico	2344755	216907	9.25
Syria	22733	1592	7.00
Sudan	33944	2349	6.92

➢ Vaccination Coverage (Fully Vaccinated %)

SELECT

   location,

   MAX(people_fully_vaccinated) AS fully_vaccinated,

```
    MAX(population) AS population,

    ROUND(MAX(people_fully_vaccinated) * 100.0 / MAX(population),

        2) AS fully_vaccinated_percentage

FROM

    CovidVaccinations

WHERE

    continent IS NOT NULL

GROUP BY location

ORDER BY fully_vaccinated_percentage DESC

LIMIT 10;
```

location	fully_vaccinated	population	fully_vaccinated_percentage
Gibraltar	32838	33691	97.47
Seychelles	59160	98340	60.16
Israel	5092858	8655541	58.84
Falkland Islands	1775	3483	50.96
Cayman Islands	29920	65720	45.53

➢ Countries with Zero Deaths but Cases

```
SELECT

    location, MAX(total_cases) AS total_cases

FROM

    CovidDeaths

WHERE

    continent IS NOT NULL

GROUP BY location

HAVING MAX(total_deaths) = 0

ORDER BY total_cases;
```

location	total_cases
Samoa	3
Marshall Islands	4
Solomon Islands	20
Vatican	27
Saint Kitts and ...	44
Dominica	174
Laos	757

➤ Countries Where Vaccinations Surpassed Population

SELECT

    location,

    MAX(total_vaccinations) AS total_vaccinations,

    MAX(population) AS population

FROM

    CovidVaccinations

WHERE

    continent IS NOT NULL

GROUP BY location

HAVING MAX(total_vaccinations) > MAX(population);

location	total_vaccinations	population
Falkland Islands	4407	3483
Gibraltar	70334	33691
Israel	10497355	8655541
Northern Cyprus	109490	0
Seychelles	126840	98340
United Arab Emirates	10547584	9890400

➤ Global Vaccination Rate

SELECT

    ROUND(SUM(people_fully_vaccinated) * 100.0 / SUM(population),

        2) * 100 AS global_fully_vaccinated_percentage

FROM

CovidVaccinations

WHERE

   continent IS NOT NULL;

global_fully_vaccinated_percentage
42.00

➢ Top 10 Countries with the Highest Population Unvaccinated

SELECT

   location,

   MAX(population) AS population,

   MAX(people_fully_vaccinated) AS fully_vaccinated,

   (MAX(population) - MAX(people_fully_vaccinated)) AS unvaccinated_population

FROM

   CovidVaccinations

WHERE

   continent IS NOT NULL

GROUP BY location

ORDER BY unvaccinated_population DESC

LIMIT 10;

location	population	fully_vaccinated	unvaccinated_population
Asia	2147483647	63142140	2084341507
World	2147483647	268002541	1879481106
China	1439323774	0	1439323774
India	1380004385	26621155	1353383230
Africa	1340598113	4876161	1335721952
Europe	748680069	64402785	684277284
North America	592072204	111054793	481017411