Pandemic Pulse: A Comprehensive COVID-19 Data Analysis USING SQL

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INTRODUCTION

The Pandemic Pulse: A Comprehensive COVID-19 Data Analysis**: A Relational Database Approach** project is designed to track and analyze key COVID-19 metrics such as cases, deaths, hospitalizations, testing, and vaccinations across multiple countries from 2020 to 2023. By utilizing a relational database model, this project ensures data integrity through foreign key relationships between tables representing countries, dates, and various pandemic metrics. This structure enables efficient querying and analysis, providing valuable insights into the global impact and progression of the pandemic.

PROJECT OBJECTIVE

The objective remains the same: to create a robust, relational database that tracks COVID-19 data across multiple tables while maintaining referential integrity using foreign keys. This updated design enforces the link between common entities like country, date, and COVID-19 case details across related tables.

Entities and Attribute

Entities

- Patients
- Covid Cases
- Covid Testing
- Covid Deaths
- Covid Hospitalization
- Covid Vaccinations

Attributes

- Each entity has specific attributes (columns), and each entity will be related to others through foreign key relationships.

Functionality:

1. Patient Management:

- **Store Patient Information:** Maintain records of patients including their personal details like name, age, gender, address, and contact number.
- **Track Patient Status:** Monitor the health status of patients, including their Covid-19 test results, hospitalizations, and vaccination status.

2. Covid-19 Case Tracking:

- **Record Covid-19 Cases:** Log details of Covid-19 cases reported, including the date reported, location, new cases, total cases, new tests, total tests, and current status (e.g., active, recovered, deceased).
- **Analyze Case Data:** Summarize and analyze the data to understand the spread and impact of Covid-19 in different locations.

Functionality:

3. Testing Management:

- **Log Test Results:** Record Covid-19 test results for patients, including the test date, test type (e.g., PCR, Antigen), and result (positive/negative).
- **Monitor Testing Trends:** Track the number of tests conducted and the outcomes to identify trends and patterns.

4. Hospitalization Records:

- **Track Hospitalizations:** Maintain records of patient hospitalizations, including admission and discharge dates, hospital name, and severity of the condition.
- **Analyze Hospital Data:** Use the data to analyze hospitalization trends and the severity of cases.

Functionality:

5. Vaccination Records:

- **Record Vaccinations:** Log vaccination details for patients, including the vaccination date, vaccine type (e.g., Covaxin, Covishield, Sputnik V), and dose number.
- **Monitor Vaccination Coverage:** Track the vaccination status of patients to ensure they receive the required doses.

6. Death Records:

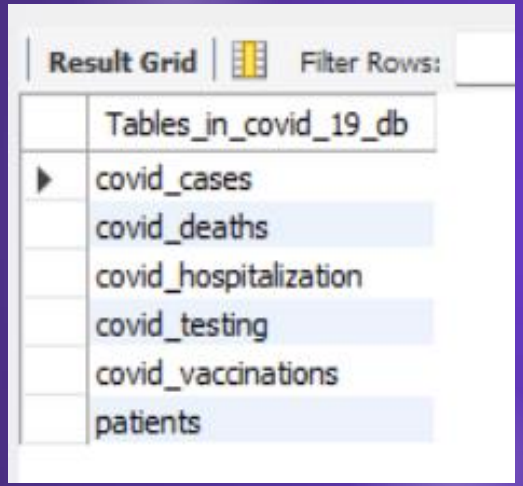
- **Log Deaths:** Record details of Covid-19 related deaths, including the date of death, cause of death, new deaths, and total deaths.
- **Analyze Mortality Data:** Use the data to analyze mortality trends and identify high-risk areas.

Database Name - Covid_19_DB

Table name corresponding to the schemas:

- Patients
- Covid_Cases
- Covid_Testing
- Covid_Deaths
- Covid_Hospitalization
- Covid_Vaccinations

Syntax : SHOW tables;



ER-Diagram for the Pandemic Pulse: A Comprehensive COVID-19 Data Analysis

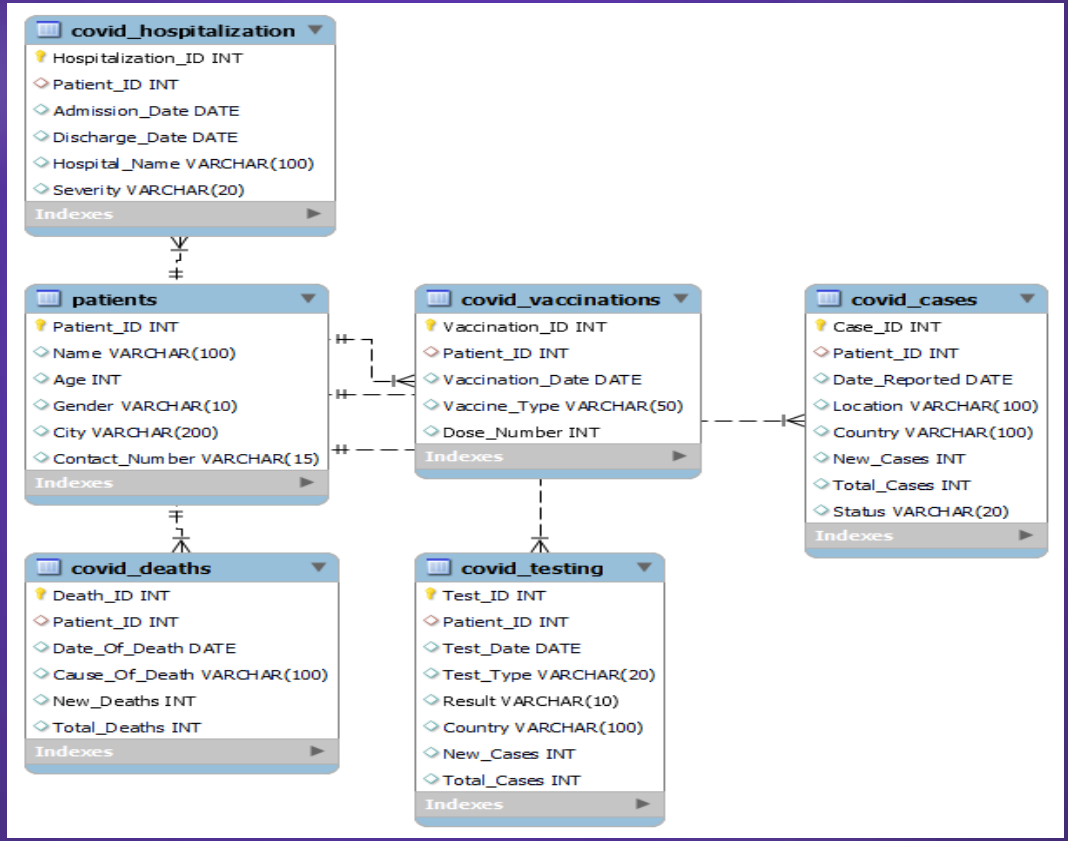


Table Description

1. Patients:

Result Grid | Filter Rows: | Export: | Wrap Cell C

Field	Type	Null	Key	Default	Extra
Patient_ID	int	NO	PRI	NULL	
Name	varchar(100)	YES		NULL	
Age	int	YES		NULL	
Gender	varchar(10)	YES		NULL	
City	varchar(200)	YES		NULL	
Contact_Number	varchar(15)	YES		NULL	

2. Covid_Cases:

Result Grid | Filter Rows: | Export: | Wrap Cell C

Field	Type	Null	Key	Default	Extra
Case_ID	int	NO	PRI	NULL	
Patient_ID	int	YES	MUL	NULL	
Date_Reported	date	YES		NULL	
Location	varchar(100)	YES		NULL	
Country	varchar(100)	YES		NULL	
New_Cases	int	YES		NULL	
Total_Cases	int	YES		NULL	
Status	varchar(20)	YES		NULL	

3. Covid_Testing:

Result Grid | Filter Rows: | Export: | Wrap C

Field	Type	Null	Key	Default	Extra
Test_ID	int	NO	PRI	NULL	
Patient_ID	int	YES	MUL	NULL	
Test_Date	date	YES		NULL	
Test_Type	varchar(20)	YES		NULL	
Result	varchar(10)	YES		NULL	
Country	varchar(100)	YES		NULL	
New_Cases	int	YES		NULL	
Total_Cases	int	YES		NULL	

4. Covid_Deaths:

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
Death_ID	int	NO	PRI	NULL	auto_increment
Patient_ID	int	YES	MUL	NULL	
Date_Of_Death	date	YES		NULL	
Cause_Of_Death	varchar(100)	YES		NULL	
New_Deaths	int	YES		NULL	
Total_Deaths	int	YES		NULL	

Table Description

5. Covid_Hospitalization:

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
Hospitalization_ID	int	NO	PRI	NULL	auto_increment
Patient_ID	int	YES	MUL	NULL	
Admission_Date	date	YES		NULL	
Discharge_Date	date	YES		NULL	
Hospital_Name	varchar(100)	YES		NULL	
Severity	varchar(20)	YES		NULL	

6. Covid_Vaccinations:

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
Vaccination_ID	int	NO	PRI	NULL	auto_increment
Patient_ID	int	YES	MUL	NULL	
Vaccination_Date	date	YES		NULL	
Vaccine_Type	varchar(50)	YES		NULL	
Dose_Number	int	YES		NULL	

Commands:

```
CREATE DATABASE Covid_19_DB;
USE COVID_19_DB;

DROP DATABASE IF EXISTS COVID_19_DB;
```

If we want to drop the tables then commands is :

```
DROP TABLE IF EXISTS patients;
DROP TABLE IF EXISTS covid_cases;
DROP TABLE IF EXISTS covid_deaths;
DROP TABLE IF EXISTS covid_hospitalization;
DROP TABLE IF EXISTS Covid_testing;
DROP TABLE IF EXISTS Covid_vaccinations;
```

Table for patients:

```
CREATE TABLE Patients (
Patient_ID INT PRIMARY KEY ,
Name VARCHAR(100),
Age INT,
Gender VARCHAR(10),
 City VARCHAR(200),    Contact_Number
VARCHAR(15)
);
```

Table for Covid_Cases:

```
CREATE TABLE Covid_Cases (
Case_ID INT PRIMARY KEY,
Patient_ID INT,
Date_Reported DATE,
Location VARCHAR(100),
Country VARCHAR(100),
New_Cases INT,
Total_Cases INT,
Status VARCHAR(20),
FOREIGN KEY (Patient_ID) REFERENCES Patients(Patient_ID)
);
```

Table for Covid_Testing:

```
CREATE TABLE Covid_Testing (
Test_ID INT PRIMARY KEY ,
Patient_ID INT,
Test_Date DATE,
Test_Type VARCHAR(20),
Result VARCHAR(10),    Country VARCHAR(100),
New_Cases INT,
Total_Cases INT,
FOREIGN KEY (Patient_ID) REFERENCES Patients(Patient_ID)
);
```

Table for Covid_Deaths:

```
CREATE TABLE Covid_Deaths (
Death_ID INT PRIMARY KEY AUTO_INCREMENT,
Patient_ID INT,
Date_Of_Death DATE,
Cause_Of_Death VARCHAR(100),
New_Deaths INT,
Total_Deaths INT,
FOREIGN KEY (Patient_ID) REFERENCES Patients(Patient_ID)
);
```

Table for Covid_Hospitalization:

```
CREATE TABLE Covid_Hospitalization (
Hospitalization_ID INT PRIMARY KEY AUTO_INCREMENT,
Patient_ID INT,
Admission_Date DATE,
Discharge_Date DATE,
Hospital_Name VARCHAR(100),
Severity VARCHAR(20),
FOREIGN KEY (Patient_ID) REFERENCES Patients(Patient_ID)
);
```

Table for Covid_Vaccinations:

```
CREATE TABLE Covid_Vaccinations (
Vaccination_ID INT PRIMARY KEY  AUTO_INCREMENT,
Patient_ID INT,
Vaccination_Date DATE,
Vaccine_Type VARCHAR(50),
Dose_Number INT,
FOREIGN KEY (Patient_ID) REFERENCES Patients(Patient_ID)
);
```

Insert value for patients:

```
INSERT INTO Patients (Patient_ID, Name, Age, Gender, City, Contact_Number) VALUES
(101, 'John Xavir', 45, 'Male', 'Mumbai', '1234567890'),
(102, 'Tanvi Thakur', 30, 'Female', 'Delhi', '0987654321'),
(103, 'Veda Krishnan', 28, 'Female', 'Bangalore', '1122334455'),
(104, 'Varun Mishra', 50, 'Male', 'Chennai', '2233445566'),
(105, 'Ashish Agarwal', 35, 'Male', 'Kolkata', '3344556677'),
(106, 'Anu Sharma', 40, 'Female', 'Pune', '4455667788'),
(107, 'Bhavya Reddy', 60, 'Male', 'Hyderabad', '5566778899'),
(108, 'Devika Nair', 25, 'Female', 'Ahmedabad', '6677889900'),
(109, 'Ishaan Gupta', 55, 'Male', 'Jaipur', '7788990011'),
(110, 'Aditi Singh', 32, 'Female', 'Lucknow', '8899001122'),
(111, 'Ian Moore', 48, 'Male', 'Surat', '9900112233'),
(112, 'Chitra Desai', 29, 'Female', 'Kanpur', '1011121314'),
(113, 'Dhruv Kapoor', 38, 'Male', 'Nagpur', '1213141516'),
(114, 'Pooja Sinha', 27, 'Female', 'Indore', '1314151617'),
```

Insert value for patients: (continued...)

```
INSERT INTO Patients (Patient_ID, Name, Age, Gender, City, Contact_Number) VALUES
(115, 'Nikhil Chandra', 42, 'Male', 'Thane', '1415161718'),
(116, 'Nisha Roy', 33, 'Female', 'Bhopal', '1516171819'),
(117, 'Vivek Kadam', 36, 'Male', 'Visakhapatnam', '1617181920'),
(118, 'Lakshmi Pillai', 31, 'Female', 'Patna', '1718192021'),
(119, 'Jatin Patel', 44, 'Male', 'Vadodara', '1819202122'),
(120, 'Riya Thakur', 26, 'Female', 'Ghaziabad', '1920212223'),
(121, 'Siddharth Rao', 39, 'Male', 'Ludhiana', '2021222324'),
(122, 'Tina Sharma', 34, 'Female', 'Agra', '2122232425'),
(123, 'Umar Patel', 41, 'Male', 'Nashik', '2223242526'),
(124, 'Vibhuti Das', 37, 'Female', 'Faridabad', '2324252627'),
(125, 'Raghav Bhat', 49, 'Male', 'Meerut', '2425262728'),
(126, 'Kavya Malhotra', 28, 'Female', 'Rajkot', '2526272829'),
(127, 'Asif Patel', 35, 'Male', 'Srinagar', '2627282930'),
```

Insert value for patients: (continued...)

```
INSERT INTO Patients (Patient_ID, Name, Age, Gender, City, Contact_Number) VALUES
(128, 'Zara Khan', 30, 'Female', 'Amritsar', '2728293031'),
(129, 'Kabir Jain', 45, 'Male', 'Ranchi', '2829303132'),
(130, 'Jaya Menon', 32, 'Female', 'Jabalpur', '2930313233'),
(131, 'Hardik Iyer', 38, 'Male', 'Gwalior', '3031323334'),
(132, 'Ananya Patel', 29, 'Female', 'Vijayawada', '3132333435'),
(133, 'Arjun Mehta', 40, 'Male', 'Jodhpur', '3233343536'),
(134, 'Isha Joshi', 27, 'Female', 'Madurai', '3334353637'),
(135, 'Gaurav Rao', 36, 'Male', 'Raipur', '3435363738');
```

Insert value for Covid_Cases :

```
INSERT INTO Covid_Cases (Case_ID, Patient_ID, Date_Reported, Location, Country,
New_Cases, Total_Cases, Status) VALUES
(1, 101, '2020-03-15', 'Mumbai', 'India', 50, 500,  'Recovered'),
(2, 102, '2020-04-20', 'Delhi', 'India', 100, 1000,  'Active'),
(3, 103, '2020-05-25', 'Bangalore', 'India', 75, 750, 'Recovered'),
(4, 104, '2020-06-30', 'Chennai', 'India', 60, 600,  'Deceased'),
(5, 105, '2020-07-05', 'Kolkata', 'India', 80, 800,  'Active'),
(6, 106, '2020-08-10', 'Pune', 'India', 90, 900,  'Recovered'),
(7, 107, '2020-09-15', 'Hyderabad', 'India', 70, 700,  'Deceased'),
(8, 108, '2020-10-20', 'Ahmedabad', 'India', 65, 650,  'Active'),
(9, 109, '2020-11-25', 'Jaipur', 'India', 55, 550,  'Recovered'),
(10, 110, '2020-12-30', 'Lucknow', 'India', 85, 850,  'Active'),
(11, 111, '2021-01-05', 'Surat', 'India', 95, 950, 'Recovered'),
```

Insert value for Covid_Cases : (continued...)

```
INSERT INTO Covid_Cases (Case_ID, Patient_ID, Date_Reported, Location, Country,
New_Cases, Total_Cases, Status) VALUES
(12, 112, '2021-02-10', 'Kanpur', 'India', 45, 450,  'Deceased'),
(13, 113, '2021-03-15', 'Nagpur', 'India', 100, 1000, 'Active'),
(14, 114, '2021-04-20', 'Indore', 'India', 110, 1100,  'Recovered'),
(15, 115, '2021-05-25', 'Thane', 'India', 120, 1200,  'Active'),
(16, 116, '2021-06-30', 'Bhopal', 'India', 130, 1300,  'Recovered'),
(17, 117, '2021-07-05', 'Visakhapatnam', 'India', 140,  14000, 'Deceased'),
(18, 118, '2021-08-10', 'Patna', 'India', 150, 1500,  'Active'),
(19, 119, '2021-09-15', 'Vadodara', 'India', 160, 1600,  'Recovered'),
(20, 120, '2021-10-20', 'Ghaziabad', 'India', 170, 1700,  'Active'),
(21, 121, '2021-11-25', 'Ludhiana', 'India', 180, 1800,  'Recovered'),
(22, 122, '2021-12-30', 'Agra', 'India', 190, 1900, 'Active'),
```

Insert value for Covid_Cases : (continued...)

```
INSERT INTO Covid_Cases (Case_ID, Patient_ID, Date_Reported, Location, Country,
New_Cases, Total_Cases, Status) VALUES
(23, 123, '2022-01-05', 'Nashik', 'India', 200, 2000, 'Recovered'),
(24, 124, '2022-02-10', 'Faridabad', 'India', 210, 2100, 'Deceased'),
(25, 125, '2022-03-15', 'Meerut', 'India', 220, 2200, 'Active'),
(26, 126, '2022-04-20', 'Rajkot', 'India', 230, 2300, 'Recovered'),
(27, 127, '2022-05-25', 'Srinagar', 'India', 240, 2400, 'Active'),
(28, 128, '2022-06-30', 'Amritsar', 'India', 250, 2500, 'Recovered'),
(29, 129, '2022-07-05', 'Ranchi', 'India', 260, 2600, 'Active'),
(30, 130, '2022-08-10', 'Jabalpur', 'India', 270, 2700, 'Recovered'),
(31, 131, '2022-09-15', 'Gwalior', 'India', 280, 2800, 'Active'),
(32, 132, '2022-10-20', 'Vijayawada', 'India', 290, 2900, 'Recovered'),
(33, 133, '2022-11-25', 'Jodhpur', 'India', 300, 3000, 'Active'),
(34, 134, '2022-12-30', 'Madurai', 'India', 310, 3100, 'Recovered'),
(35, 135, '2023-01-05', 'Raipur', 'India', 320, 3200, 'Active');
```

Insert value for Covid_Testing :

```
INSERT INTO Covid_Testing (Test_ID, Patient_ID, Test_Date, Test_Type, Result,
Country, New_Cases, Total_Cases) VALUES
(1, 101, '2020-03-14', 'PCR', 'Positive', 'India', 50, 500),
(2, 102, '2020-04-19', 'Antigen', 'Positive', 'India', 100, 1000),
(3, 103, '2020-05-24', 'PCR', 'Negative', 'India', 75, 750),
(4, 104, '2020-06-29', 'Antigen', 'Positive', 'India', 60, 600),
(5, 105, '2020-07-04', 'PCR', 'Negative', 'India', 80, 800),
(6, 106, '2020-08-09', 'Antigen', 'Positive', 'India', 90, 900),
(7, 107, '2020-09-14', 'PCR', 'Negative', 'India', 70, 700),
(8, 108, '2020-10-19', 'Antigen', 'Positive', 'India', 65, 650),
(9, 109, '2020-11-24', 'PCR', 'Negative', 'India', 55, 550),
(10, 110, '2020-12-29', 'Antigen', 'Positive', 'India', 85, 850),
(11, 111, '2021-01-04', 'PCR', 'Negative', 'India', 95, 950),
```

Insert value for Covid_Testing : (continued...)

```
INSERT INTO Covid_Testing (Test_ID, Patient_ID, Test_Date, Test_Type, Result,
Country, New_Cases, Total_Cases) VALUES
(12, 112, '2021-02-09', 'Antigen', 'Positive', 'India', 45, 450),
(13, 113, '2021-03-14', 'PCR', 'Negative', 'India', 100, 1000),
(14, 114, '2021-04-19', 'Antigen', 'Positive', 'India', 110, 1100),
(15, 115, '2021-05-24', 'PCR', 'Negative', 'India', 120, 1200),
(16, 116, '2021-06-29', 'Antigen', 'Positive', 'India', 130, 1300),
(17, 117, '2021-07-04', 'PCR', 'Negative', 'India', 140, 1400),
(18, 118, '2021-08-09', 'Antigen', 'Positive', 'India', 150, 1500),
(19, 119, '2021-09-14', 'PCR', 'Negative', 'India', 160, 1600),
(20, 120, '2021-10-19', 'Antigen', 'Positive', 'India', 170, 1700),
(21, 121, '2021-11-24', 'PCR', 'Negative', 'India', 180, 1800),
(22, 122, '2021-12-29', 'Antigen', 'Positive', 'India', 190, 1900),
(23, 123, '2022-01-04', 'PCR', 'Negative', 'India', 200, 2000),
(24, 124, '2022-02-09', 'Antigen', 'Positive', 'India', 210, 2100),
```

Insert value for Covid_Testing : (continued...)

```
INSERT INTO Covid_Testing (Test_ID, Patient_ID, Test_Date, Test_Type, Result,
Country, New_Cases, Total_Cases) VALUES
(25, 125, '2022-03-14', 'PCR', 'Negative', 'India', 220, 2200),
(26, 126, '2022-04-19', 'Antigen', 'Positive', 'India', 230, 2300),
(27, 127, '2022-05-24', 'PCR', 'Negative', 'India', 240, 2400),
(28, 128, '2022-06-29', 'Antigen', 'Positive', 'India', 250, 2500),
(29, 129, '2022-07-04', 'PCR', 'Negative', 'India', 260, 2600),
(30, 130, '2022-08-09', 'Antigen', 'Positive', 'India', 270, 2700),
(31, 131, '2022-09-14', 'PCR', 'Negative', 'India', 280, 2800),
(32, 132, '2022-10-19', 'Antigen', 'Positive', 'India', 290, 2900),
(33, 133, '2022-11-24', 'PCR', 'Negative', 'India', 300, 3000),
(34, 134, '2022-12-29', 'Antigen', 'Positive', 'India', 310, 3100),
(35, 135, '2023-01-04', 'PCR', 'Negative', 'India', 320, 3200);
```

Insert value for Covid_Deaths :

```
INSERT INTO Covid_Deaths (Patient_ID, Date_Of_Death, Cause_Of_Death, New_Deaths, Total_Deaths) VALUES
(101, '2020-03-20', 'COVID-19',  5, 5),
(102, '2020-04-25', 'COVID-19',  10, 15),
(103, '2020-05-30', 'COVID-19',  8, 23),
(104, '2020-06-15', 'COVID-19',  12, 35),
(105, '2020-07-10', 'COVID-19',  15, 50),
(106, '2020-08-05', 'COVID-19',  20, 70),
(107, '2020-09-01', 'COVID-19',  18, 88),
(108, '2020-10-10', 'COVID-19',  22, 110),
(109, '2020-11-15', 'COVID-19',  25, 135),
(110, '2020-12-20', 'COVID-19',  30, 165),
(111, '2021-01-25', 'COVID-19',  35, 200),
```

Insert value for Covid_Deaths : (continued...)

```
INSERT INTO Covid_Deaths (Patient_ID, Date_Of_Death, Cause_Of_Death, New_Deaths, Total_Deaths) VALUES
(112, '2021-02-28', 'COVID-19',  40, 240),
(113, '2021-03-30', 'COVID-19',  45, 285),
(114, '2021-04-25', 'COVID-19',  50, 335),
(115, '2021-05-30', 'COVID-19',  55, 390),
(116, '2021-06-25', 'COVID-19',  60, 450),
(117, '2021-07-30', 'COVID-19',  65, 515),
(118, '2021-08-25', 'COVID-19',  70, 585),
(119, '2021-09-30', 'COVID-19',  75, 660),
(120, '2021-10-25', 'COVID-19',  80, 740),
(121, '2021-11-30', 'COVID-19',  85, 825),
(122, '2021-12-25', 'COVID-19',  90, 915),
(123, '2022-01-30', 'COVID-19',  95, 1010),
```

Insert value for Covid_Deaths : (continued...)

```
INSERT INTO Covid_Deaths (Patient_ID, Date_Of_Death, Cause_Of_Death, New_Deaths,
Total_Deaths) VALUES
(124, '2022-02-25', 'COVID-19',  100, 1110),
(125, '2022-03-30', 'COVID-19',  105, 1215),
(126, '2022-04-25', 'COVID-19', 110, 1325),
(127, '2022-05-30', 'COVID-19',  115, 1440),
(128, '2022-06-25', 'COVID-19',  120, 1560),
(129, '2022-07-30', 'COVID-19',  125, 1685),
(130, '2022-08-25', 'COVID-19',  130, 1815),
(131, '2022-09-30', 'COVID-19',  135, 1950),
(132, '2022-10-25', 'COVID-19',  140, 2090),
(133, '2022-11-30', 'COVID-19',  145, 2235),
(134, '2022-12-25', 'COVID-19',  150, 2385),
(135, '2023-01-30', 'COVID-19',  155, 2540);
```

Insert value for Covid_Hospitalization :

```
INSERT INTO Covid_Hospitalization (Patient_ID, Admission_Date, Discharge_Date,
Hospital_Name, Severity) VALUES
(101, '2020-03-15', '2020-03-30', 'KEM Hospital', 'Severe'),
(102, '2020-04-20', '2020-05-05', 'AIIMS Delhi', 'Moderate'),
(103, '2020-05-25', '2020-06-10', 'Manipal Hospital', 'Mild'),
(104, '2020-06-30', '2020-07-15', 'Apollo Hospital', 'Severe'),
(105, '2020-07-05', '2020-07-20', 'Fortis Hospital', 'Moderate'),
(106, '2020-08-10', '2020-08-25', 'Ruby Hall Clinic', 'Mild'),
(107, '2020-09-15', '2020-09-30', 'NIMS Hyderabad', 'Severe'),
(108, '2020-10-20', '2020-11-05', 'Sterling Hospital', 'Moderate'),
(109, '2020-11-25', '2020-12-10', 'SMS Hospital', 'Mild'),
(110, '2020-12-30', '2021-01-15', 'SGPGI Lucknow', 'Severe'),
(111, '2021-01-05', '2021-01-20', 'Surat Municipal Institute', 'Moderate'),
```

Insert value for Covid_Hospitalization : (continued...)

```
INSERT INTO Covid_Hospitalization (Patient_ID, Admission_Date, Discharge_Date,
Hospital_Name, Severity) VALUES
(112, '2021-02-10', '2021-02-25', 'Kanpur Medical College', 'Mild'),
(113, '2021-03-15', '2021-03-30', 'Nagpur Medical College', 'Severe'),
(114, '2021-04-20', '2021-05-05', 'Indore Medical College', 'Moderate'),
(115, '2021-05-25', '2021-06-10', 'Thane Civil Hospital', 'Mild'),
(116, '2021-06-30', '2021-07-15', 'Bhopal Memorial Hospital', 'Severe'),
(117, '2021-07-05', '2021-07-20', 'King George Hospital', 'Moderate'),
(118, '2021-08-10', '2021-08-25', 'Patna Medical College', 'Mild'),
(119, '2021-09-15', '2021-09-30', 'Vadodara Civil Hospital', 'Severe'),
(120, '2021-10-20', '2021-11-05', 'Yashoda Hospital', 'Moderate'),
(121, '2021-11-25', '2021-12-10', 'Christian Medical College', 'Mild'),
(122, '2021-12-30', '2022-01-15', 'Nashik Civil Hospital', 'Severe'),
(123, '2022-01-05', '2022-01-20', 'Faridabad Civil Hospital', 'Moderate'),
```

Insert value for Covid_Hospitalization : (continued...)

```
INSERT INTO Covid_Hospitalization (Patient_ID, Admission_Date, Discharge_Date,
Hospital_Name, Severity) VALUES
(124, '2022-02-10', '2022-02-25', 'Meerut Medical College', 'Mild'),
(125, '2022-03-15', '2022-03-30', 'Rajkot Civil Hospital', 'Severe'),
(126, '2022-04-20', '2022-05-05', 'Srinagar Medical College', 'Moderate'),
(127, '2022-05-25', '2022-06-10', 'Amritsar Medical College', 'Mild'),
(128, '2022-06-30', '2022-07-15', 'Ranchi Medical College', 'Severe'),
(129, '2022-07-05', '2022-07-20', 'Jabalpur Medical College', 'Moderate'),
(130, '2022-08-10', '2022-08-25', 'Gwalior Medical College', 'Mild'),
(131, '2022-09-15', '2022-09-30', 'Vijayawada Medical College', 'Severe'),
(132, '2022-10-20', '2022-11-05', 'Jodhpur Medical College', 'Moderate'),
(133, '2022-11-25', '2022-12-10', 'Madurai Medical College', 'Mild'),
(134, '2022-12-30', '2023-01-15', 'Raipur Medical College', 'Severe'),
(135, '2023-01-05', '2023-01-20', 'Coimbatore Medical College', 'Moderate');
```

Insert value for Covid_vaccinations :

```
INSERT INTO Covid_Vaccinations (Patient_ID, Vaccination_Date, Vaccine_Type,
Dose_Number) VALUES
(101, '2021-01-15', 'Covaxin', 1),
(101, '2021-02-15', 'Covaxin', 2),
(102, '2021-01-20', 'Covishield', 1),
(102, '2021-02-20', 'Covishield', 2),
(103, '2021-01-25', 'Sputnik V', 1),
(103, '2021-02-25', 'Sputnik V', 2),
(104, '2021-01-30', 'Covaxin', 1),
(104, '2021-03-01', 'Covaxin', 2),
(105, '2021-02-05', 'Covishield', 1),
(105, '2021-03-05', 'Covishield', 2),
(106, '2021-02-10', 'Sputnik V', 1),
(106, '2021-03-10', 'Sputnik V', 2),
```

Insert value for Covid_vaccinations : (continued...)

```
INSERT INTO Covid_Vaccinations (Patient_ID, Vaccination_Date, Vaccine_Type,
Dose_Number) VALUES
(107, '2021-02-15', 'Covaxin', 1),
(107, '2021-03-15', 'Covaxin', 2),
(108, '2021-02-20', 'Covishield', 1),
(108, '2021-03-20', 'Covishield', 2),
(109, '2021-02-25', 'Sputnik V', 1),
(109, '2021-03-25', 'Sputnik V', 2),
(110, '2021-03-01', 'Covaxin', 1),
(110, '2021-04-01', 'Covaxin', 2),
(111, '2021-03-05', 'Covishield', 1),
(111, '2021-04-05', 'Covishield', 2),
(112, '2021-03-10', 'Sputnik V', 1),
(112, '2021-04-10', 'Sputnik V', 2),
```

Insert value for Covid_vaccinations : (continued...)

```
INSERT INTO Covid_Vaccinations (Patient_ID, Vaccination_Date, Vaccine_Type,
Dose_Number) VALUES
(113, '2021-03-15', 'Covaxin', 1),
(113, '2021-04-15', 'Covaxin', 2),
(114, '2021-03-20', 'Covishield', 1),
(114, '2021-04-20', 'Covishield', 2),
(115, '2021-03-25', 'Sputnik V', 1),
(115, '2021-04-25', 'Sputnik V', 2),
(116, '2021-04-01', 'Covaxin', 1),
(116, '2021-05-01', 'Covaxin', 2),
(117, '2021-04-05', 'Covishield', 1),
(117, '2021-05-05', 'Covishield', 2),
(118, '2021-04-10', 'Sputnik V', 1),
(118, '2021-05-10', 'Sputnik V', 2),
(119, '2021-04-15', 'Covaxin', 1),
(119, '2021-05-15', 'Covaxin', 2),
```

Insert value for Covid_vaccinations : (continued...)

```
INSERT INTO Covid_Vaccinations (Patient_ID, Vaccination_Date, Vaccine_Type,
Dose_Number) VALUES
(120, '2021-04-20', 'Covishield', 1),
(120, '2021-05-20', 'Covishield', 2),
(121, '2021-04-25', 'Sputnik V', 1),
(121, '2021-05-25', 'Sputnik V', 2),
(122, '2021-04-30', 'Covaxin', 1),
(122, '2021-05-30', 'Covaxin', 2),
(123, '2021-05-05', 'Covishield', 1),
(123, '2021-06-05', 'Covishield', 2),
(124, '2021-05-10', 'Sputnik V', 1),
(124, '2021-06-10', 'Sputnik V', 2),
(125, '2021-05-15', 'Covaxin', 1),
(125, '2021-06-15', 'Covaxin', 2),
```

Insert value for Covid_vaccinations : (continued...)

```
INSERT INTO Covid_Vaccinations (Patient_ID, Vaccination_Date, Vaccine_Type,
Dose_Number) VALUES
(126, '2021-05-20', 'Covishield', 1),
(126, '2021-06-20', 'Covishield', 2),
(127, '2021-05-25', 'Sputnik V', 1),
(127, '2021-06-25', 'Sputnik V', 2),
(128, '2021-05-30', 'Covaxin', 1),
(128, '2021-06-30', 'Covaxin', 2),
(129, '2021-06-05', 'Covishield', 1),
(129, '2021-07-05', 'Covishield', 2),
(130, '2021-06-10', 'Sputnik V', 1),
(130, '2021-07-10', 'Sputnik V', 2),
(131, '2021-06-15', 'Covaxin', 1),
(131, '2021-07-15', 'Covaxin', 2),
```

Insert value for Covid_vaccinations : (continued...)

```
INSERT INTO Covid_Vaccinations (Patient_ID, Vaccination_Date, Vaccine_Type,
Dose_Number) VALUES
(132, '2021-06-20', 'Covishield', 1),
(132, '2021-07-20', 'Covishield', 2),
(133, '2021-06-25', 'Sputnik V', 1),
(133, '2021-07-25', 'Sputnik V', 2),
(134, '2021-06-30', 'Covaxin', 1),
(134, '2021-07-30', 'Covaxin', 2),
(135, '2021-07-05', 'Covishield', 1),
(135, '2021-08-05', 'Covishield', 2);
```

Suppose I want to see details of patients table

Result Grid | Filter Rows: | Edit: | Export/Import

Patient_ID	Name	Age	Gender	City	Contact_Number
101	John Xavir	45	Male	Mumbai	1234567890
102	Tanvi Thakur	30	Female	Delhi	0987654321
103	Veda Krishnan	28	Female	Bangalore	1122334455
104	Varun Mishra	50	Male	Chennai	2233445566
105	Ashish Agarwal	35	Male	Kolkata	3344556677
106	Anu Sharma	40	Female	Pune	4455667788
107	Bhavya Reddy	60	Male	Hyderabad	5566778899
108	Devika Nair	25	Female	Ahmedabad	6677889900
109	Ishaan Gupta	55	Male	Jaipur	7788990011
110	Aditi Singh	32	Female	Lucknow	8899001122
111	Ian Moore	48	Male	Surat	9900112233
112	Chitra Desai	29	Female	Kanpur	1011121314
113	Dhruv Kapoor	38	Male	Nagpur	1213141516
114	Pooja Sinha	27	Female	Indore	1314151617
115	Nikhil Chandra	42	Male	Thane	1415161718

Result Grid | Filter Rows: | Edit: | Export/Import

Patient_ID	Name	Age	Gender	City	Contact_Number
116	Nisha Roy	33	Female	Bhopal	1516171819
117	Vivek Kadam	36	Male	Visakhapat...	1617181920
118	Lakshmi Pillai	31	Female	Patna	1718192021
119	Jatin Patel	44	Male	Vadodara	1819202122
120	Riya Thakur	26	Female	Ghaziabad	1920212223
121	Siddharth Rao	39	Male	Ludhiana	2021222324
122	Tina Sharma	34	Female	Agra	2122232425
123	Umar Patel	41	Male	Nashik	2223242526
124	Vibhuti Das	37	Female	Faridabad	2324252627
125	Raghav Bhat	49	Male	Meerut	2425262728
126	Kavya Malhotra	28	Female	Rajkot	2526272829
127	Asif Patel	35	Male	Srinagar	2627282930
128	Zara Khan	30	Female	Amritsar	2728293031
129	Kabir Jain	45	Male	Ranchi	2829303132
130	Jaya Menon	32	Female	Jabalpur	2930313233
131	Hardik Iyer	38	Male	Gwalior	3031323334
132	Ananya Patel	29	Female	Vijayawada	3132333435
133	Arjun Mehta	40	Male	Jodhpur	3233343536
134	Isha Joshi	27	Female	Madurai	3334353637
135	Gaurav Rao	36	Male	Raipur	3435363738

Suppose I want to see details of Covid_Cases table

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Conte

Case_ID	Patient_ID	Date_Reported	Location	Country	New_Cases	Total_Cases	Status
1	101	2020-03-15	Mumbai	India	50	500	Recovered
2	102	2020-04-20	Delhi	India	100	1000	Active
3	103	2020-05-25	Bangalore	India	75	750	Recovered
4	104	2020-06-30	Chennai	India	60	600	Deceased
5	105	2020-07-05	Kolkata	India	80	800	Active
6	106	2020-08-10	Pune	India	90	900	Recovered
7	107	2020-09-15	Hyderabad	India	70	700	Deceased
8	108	2020-10-20	Ahmedabad	India	65	650	Active
9	109	2020-11-25	Jaipur	India	55	550	Recovered
10	110	2020-12-30	Lucknow	India	85	850	Active
11	111	2021-01-05	Surat	India	95	950	Recovered
12	112	2021-02-10	Kanpur	India	45	450	Deceased
13	113	2021-03-15	Nagpur	India	100	1000	Active
14	114	2021-04-20	Indore	India	110	1100	Recovered
15	115	2021-05-25	Thane	India	120	1200	Active

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Co

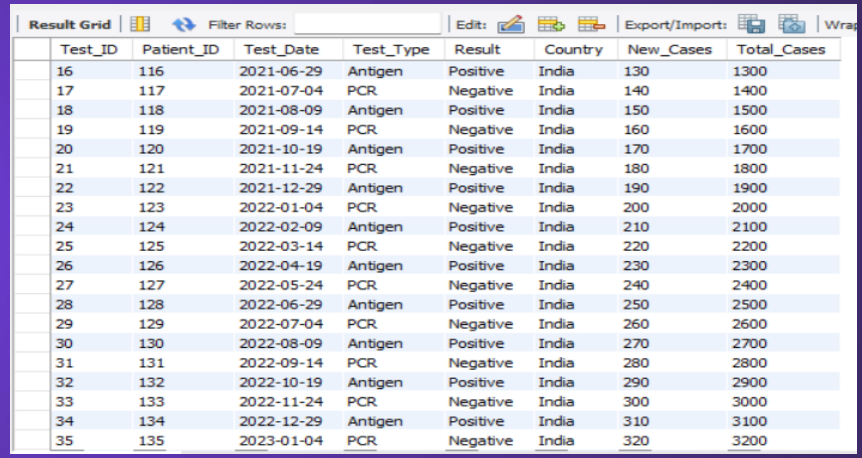
Case_ID	Patient_ID	Date_Reported	Location	Country	New_Cases	Total_Cases	Status
16	116	2021-06-30	Bhopal	India	130	1300	Recovered
17	117	2021-07-05	Visakhapat...	India	140	14000	Deceased
18	118	2021-08-10	Patna	India	150	1500	Active
19	119	2021-09-15	Vadodara	India	160	1600	Recovered
20	120	2021-10-20	Ghaziabad	India	170	1700	Active
21	121	2021-11-25	Ludhiana	India	180	1800	Recovered
22	122	2021-12-30	Agra	India	190	1900	Active
23	123	2022-01-05	Nashik	India	200	2000	Recovered
24	124	2022-02-10	Faridabad	India	210	2100	Deceased
25	125	2022-03-15	Meerut	India	220	2200	Active
26	126	2022-04-20	Rajkot	India	230	2300	Recovered
27	127	2022-05-25	Srinagar	India	240	2400	Active
28	128	2022-06-30	Amritsar	India	250	2500	Recovered
29	129	2022-07-05	Ranchi	India	260	2600	Active
30	130	2022-08-10	Jabalpur	India	270	2700	Recovered
31	131	2022-09-15	Gwalior	India	280	2800	Active
32	132	2022-10-20	Vijayawada	India	290	2900	Recovered
33	133	2022-11-25	Jodhpur	India	300	3000	Active
34	134	2022-12-30	Madurai	India	310	3100	Recovered
35	135	2023-01-05	Raipur	India	320	3200	Active

Covid_cases 10

Suppose I want to see details of Covid_Testing table

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap

Test_ID	Patient_ID	Test_Date	Test_Type	Result	Country	New_Cases	Total_Cases
1	101	2020-03-14	PCR	Positive	India	50	500
2	102	2020-04-19	Antigen	Positive	India	100	1000
3	103	2020-05-24	PCR	Negative	India	75	750
4	104	2020-06-29	Antigen	Positive	India	60	600
5	105	2020-07-04	PCR	Negative	India	80	800
6	106	2020-08-09	Antigen	Positive	India	90	900
7	107	2020-09-14	PCR	Negative	India	70	700
8	108	2020-10-19	Antigen	Positive	India	65	650
9	109	2020-11-24	PCR	Negative	India	55	550
10	110	2020-12-29	Antigen	Positive	India	85	850
11	111	2021-01-04	PCR	Negative	India	95	950
12	112	2021-02-09	Antigen	Positive	India	45	450
13	113	2021-03-14	PCR	Negative	India	100	1000
14	114	2021-04-19	Antigen	Positive	India	110	1100
15	115	2021-05-24	PCR	Negative	India	120	1200



Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap

Test_ID	Patient_ID	Test_Date	Test_Type	Result	Country	New_Cases	Total_Cases
16	116	2021-06-29	Antigen	Positive	India	130	1300
17	117	2021-07-04	PCR	Negative	India	140	1400
18	118	2021-08-09	Antigen	Positive	India	150	1500
19	119	2021-09-14	PCR	Negative	India	160	1600
20	120	2021-10-19	Antigen	Positive	India	170	1700
21	121	2021-11-24	PCR	Negative	India	180	1800
22	122	2021-12-29	Antigen	Positive	India	190	1900
23	123	2022-01-04	PCR	Negative	India	200	2000
24	124	2022-02-09	Antigen	Positive	India	210	2100
25	125	2022-03-14	PCR	Negative	India	220	2200
26	126	2022-04-19	Antigen	Positive	India	230	2300
27	127	2022-05-24	PCR	Negative	India	240	2400
28	128	2022-06-29	Antigen	Positive	India	250	2500
29	129	2022-07-04	PCR	Negative	India	260	2600
30	130	2022-08-09	Antigen	Positive	India	270	2700
31	131	2022-09-14	PCR	Negative	India	280	2800
32	132	2022-10-19	Antigen	Positive	India	290	2900
33	133	2022-11-24	PCR	Negative	India	300	3000
34	134	2022-12-29	Antigen	Positive	India	310	3100
35	135	2023-01-04	PCR	Negative	India	320	3200

Suppose I want to see details of Covid_Deaths table

Result Grid | Filter Rows: | Edit: | Export/Import:

Death_ID	Patient_ID	Date_Of_Death	Cause_Of_Death	New_Deaths	Total_Deaths
1	101	2020-03-20	COVID-19	5	5
2	102	2020-04-25	COVID-19	10	15
3	103	2020-05-30	COVID-19	8	23
4	104	2020-06-15	COVID-19	12	35
5	105	2020-07-10	COVID-19	15	50
6	106	2020-08-05	COVID-19	20	70
7	107	2020-09-01	COVID-19	18	88
8	108	2020-10-10	COVID-19	22	110
9	109	2020-11-15	COVID-19	25	135
10	110	2020-12-20	COVID-19	30	165
11	111	2021-01-25	COVID-19	35	200
12	112	2021-02-28	COVID-19	40	240
13	113	2021-03-30	COVID-19	45	285
14	114	2021-04-25	COVID-19	50	335
15	115	2021-05-30	COVID-19	55	390

Result Grid | Filter Rows: | Edit: | Export/Import:

Death_ID	Patient_ID	Date_Of_Death	Cause_Of_Death	New_Deaths	Total_Deaths
16	116	2021-06-25	COVID-19	60	450
17	117	2021-07-30	COVID-19	65	515
18	118	2021-08-25	COVID-19	70	585
19	119	2021-09-30	COVID-19	75	660
20	120	2021-10-25	COVID-19	80	740
21	121	2021-11-30	COVID-19	85	825
22	122	2021-12-25	COVID-19	90	915
23	123	2022-01-30	COVID-19	95	1010
24	124	2022-02-25	COVID-19	100	1110
25	125	2022-03-30	COVID-19	105	1215
26	126	2022-04-25	COVID-19	110	1325
27	127	2022-05-30	COVID-19	115	1440
28	128	2022-06-25	COVID-19	120	1560
29	129	2022-07-30	COVID-19	125	1685
30	130	2022-08-25	COVID-19	130	1815
31	131	2022-09-30	COVID-19	135	1950
32	132	2022-10-25	COVID-19	140	2090
33	133	2022-11-30	COVID-19	145	2235
34	134	2022-12-25	COVID-19	150	2385
35	135	2023-01-30	COVID-19	155	2540

Suppose I want to see details of Covid_Hospitalization table

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Con

Hospitalization_ID	Patient_ID	Admission_Date	Discharge_Date	Hospital_Name	Severity
1	101	2020-03-15	2020-03-30	KEM Hospital	Severe
2	102	2020-04-20	2020-05-05	AIIMS Delhi	Moderate
3	103	2020-05-25	2020-06-10	Manipal Hospital	Mild
4	104	2020-06-30	2020-07-15	Apollo Hospital	Severe
5	105	2020-07-05	2020-07-20	Fortis Hospital	Moderate
6	106	2020-08-10	2020-08-25	Ruby Hall Clinic	Mild
7	107	2020-09-15	2020-09-30	NIMS Hyderabad	Severe
8	108	2020-10-20	2020-11-05	Sterling Hospital	Moderate
9	109	2020-11-25	2020-12-10	SMS Hospital	Mild
10	110	2020-12-30	2021-01-15	SGPGI Lucknow	Severe
11	111	2021-01-05	2021-01-20	Surat Municipal ...	Moderate
12	112	2021-02-10	2021-02-25	Kanpur Medical ...	Mild
13	113	2021-03-15	2021-03-30	Nagpur Medical ...	Severe
14	114	2021-04-20	2021-05-05	Indore Medical ...	Moderate
15	115	2021-05-25	2021-06-10	Thane Civil Hos...	Mild
16	116	2021-06-30	2021-07-15	Bhopal Memorial...	Severe
17	117	2021-07-05	2021-07-20	King George Ho...	Moderate

Result Grid | Filter Rows: | Edit: | Export/Import: | Wra

Hospitalization_ID	Patient_ID	Admission_Date	Discharge_Date	Hospital_Name	Severity
18	118	2021-08-10	2021-08-25	Patna Medical C...	Mild
19	119	2021-09-15	2021-09-30	Vadodara Civil H...	Severe
20	120	2021-10-20	2021-11-05	Yashoda Hospital	Moderate
21	121	2021-11-25	2021-12-10	Christian Medica...	Mild
22	122	2021-12-30	2022-01-15	Nashik Civil Hos...	Severe
23	123	2022-01-05	2022-01-20	Faridabad Civil ...	Moderate
24	124	2022-02-10	2022-02-25	Meerut Medical ...	Mild
25	125	2022-03-15	2022-03-30	Rajkot Civil Hos...	Severe
26	126	2022-04-20	2022-05-05	Srinagar Medical...	Moderate
27	127	2022-05-25	2022-06-10	Amritsar Medical...	Mild
28	128	2022-06-30	2022-07-15	Ranchi Medical ...	Severe
29	129	2022-07-05	2022-07-20	Jabalpur Medica...	Moderate
30	130	2022-08-10	2022-08-25	Gwalior Medical ...	Mild
31	131	2022-09-15	2022-09-30	Vijayawada Med...	Severe
32	132	2022-10-20	2022-11-05	Jodhpur Medical...	Moderate
33	133	2022-11-25	2022-12-10	Madurai Medical...	Mild
34	134	2022-12-30	2023-01-15	Raipur Medical ...	Severe
35	135	2023-01-05	2023-01-20	Coimbatore Med...	Moderate
NULL	NULL	NULL	NULL	NULL	NULL

Suppose I want to see details of Covid_Vaccinations table (continued...)

Result Grid | Filter Rows: | Edit: | Export/Import:

Vaccination_ID	Patient_ID	Vaccination_Date	Vaccine_Type	Dose_Number
1	101	2021-01-15	Covaxin	1
2	101	2021-02-15	Covaxin	2
3	102	2021-01-20	Covishield	1
4	102	2021-02-20	Covishield	2
5	103	2021-01-25	Sputnik V	1
6	103	2021-02-25	Sputnik V	2
7	104	2021-01-30	Covaxin	1
8	104	2021-03-01	Covaxin	2
9	105	2021-02-05	Covishield	1
10	105	2021-03-05	Covishield	2
11	106	2021-02-10	Sputnik V	1
12	106	2021-03-10	Sputnik V	2
13	107	2021-02-15	Covaxin	1
14	107	2021-03-15	Covaxin	2
15	108	2021-02-20	Covishield	1
16	108	2021-03-20	Covishield	2
17	109	2021-02-25	Sputnik V	1
18	109	2021-03-25	Sputnik V	2
19	110	2021-03-01	Covaxin	1
20	110	2021-04-01	Covaxin	2

Result Grid | Filter Rows: | Edit: | Export/Im

Vaccination_ID	Patient_ID	Vaccination_Date	Vaccine_Type	Dose_Number
21	111	2021-03-05	Covishield	1
22	111	2021-04-05	Covishield	2
23	112	2021-03-10	Sputnik V	1
24	112	2021-04-10	Sputnik V	2
25	113	2021-03-15	Covaxin	1
26	113	2021-04-15	Covaxin	2
27	114	2021-03-20	Covishield	1
28	114	2021-04-20	Covishield	2
29	115	2021-03-25	Sputnik V	1
30	115	2021-04-25	Sputnik V	2
31	116	2021-04-01	Covaxin	1
32	116	2021-05-01	Covaxin	2
33	117	2021-04-05	Covishield	1
34	117	2021-05-05	Covishield	2
35	118	2021-04-10	Sputnik V	1
36	118	2021-05-10	Sputnik V	2
37	119	2021-04-15	Covaxin	1
38	119	2021-05-15	Covaxin	2
39	120	2021-04-20	Covishield	1
40	120	2021-05-20	Covishield	2

Suppose I want to see details of Covid_Vaccinations table (continued...)

Result Grid | Filter Rows: | Edit: | Export/Imp

Vaccination_ID	Patient_ID	Vaccination_Date	Vaccine_Type	Dose_Number
41	121	2021-04-25	Sputnik V	1
42	121	2021-05-25	Sputnik V	2
43	122	2021-04-30	Covaxin	1
44	122	2021-05-30	Covaxin	2
45	123	2021-05-05	Covishield	1
46	123	2021-06-05	Covishield	2
47	124	2021-05-10	Sputnik V	1
48	124	2021-06-10	Sputnik V	2
49	125	2021-05-15	Covaxin	1
50	125	2021-06-15	Covaxin	2
51	126	2021-05-20	Covishield	1
52	126	2021-06-20	Covishield	2
53	127	2021-05-25	Sputnik V	1
54	127	2021-06-25	Sputnik V	2
55	128	2021-05-30	Covaxin	1
56	128	2021-06-30	Covaxin	2
57	129	2021-06-05	Covishield	1
58	129	2021-07-05	Covishield	2
59	130	2021-06-10	Sputnik V	1
60	130	2021-07-10	Sputnik V	2

Result Grid | Filter Rows: | Edit: | Export/Import:

Vaccination_ID	Patient_ID	Vaccination_Date	Vaccine_Type	Dose_Number
61	131	2021-06-15	Covaxin	1
62	131	2021-07-15	Covaxin	2
63	132	2021-06-20	Covishield	1
64	132	2021-07-20	Covishield	2
65	133	2021-06-25	Sputnik V	1
66	133	2021-07-25	Sputnik V	2
67	134	2021-06-30	Covaxin	1
68	134	2021-07-30	Covaxin	2
69	135	2021-07-05	Covishield	1
70	135	2021-08-05	Covishield	2
NULL	NULL	NULL	NULL	NULL

Sub-Queries:

Question no 1. Find the Patients with Severe Hospitalization.

```
SELECT Name, Age, Gender FROM patients
WHERE Patient_ID IN (SELECT Patient_ID FROM covid_hospitalization
WHERE Severity = 'Severe');
```

Result Grid | Filter Rows:

Name	Age	Gender
John Xavir	45	Male
Varun Mishra	50	Male
Bhavya Reddy	60	Male
Aditi Singh	32	Female
Dhruv Kapoor	38	Male
Nisha Roy	33	Female
Jatin Patel	44	Male
Tina Sharma	34	Female
Raghav Bhat	49	Male
Zara Khan	30	Female
Hardik Iyer	38	Male
Isha Joshi	27	Female

Sub-Queries:

Question no 2. Find the Patients Who Tested Positive and Were Hospitalized.

```
SELECT  Name, Age, Gender FROM patients
WHERE Patient_ID IN (SELECT Patient_ID from covid_testing
WHERE Result = 'positive')
AND Patient_ID IN (SELECT Patient_ID FROM Covid_hospitalization);
```

Result Grid | Filter Rows:

Name	Age	Gender
John Xavir	45	Male
Tanvi Thakur	30	Female
Varun Mishra	50	Male
Anu Sharma	40	Female
Devika Nair	25	Female
Aditi Singh	32	Female
Chitra Desai	29	Female
Pooja Sinha	27	Female
Nisha Roy	33	Female
Lakshmi Pillai	31	Female
Riya Thakur	26	Female
Tina Sharma	34	Female
Vibhuti Das	37	Female
Kavya Malh...	28	Female
Zara Khan	30	Female
Jaya Menon	32	Female
Ananya Patel	29	Female
Isha Joshi	27	Female

Sub-Queries:

Question no 3. Find the Patients Who Received Covaxin.

```
SELECT Name, Age, Gender
FROM Patients
WHERE Patient_ID IN ( SELECT Patient_ID FROM Covid_Vaccinations
WHERE Vaccine_Type = 'Covaxin');
```

Result Grid | Filter Rows:

Name	Age	Gender
John Xavir	45	Male
Varun Mishra	50	Male
Bhavya Reddy	60	Male
Aditi Singh	32	Female
Dhruv Kapoor	38	Male
Nisha Roy	33	Female
Jatin Patel	44	Male
Tina Sharma	34	Female
Raghav Bhat	49	Male
Zara Khan	30	Female
Hardik Iyer	38	Male
Isha Joshi	27	Female

Sub-Queries:

Question no 4. Find the Patients Who Took Both Doses of Covishield.

```sql
SELECT Name, Age, Gender
FROM Patients
WHERE Patient_ID IN (SELECT Patient_ID FROM Covid_Vaccinations
WHERE Vaccine_Type = 'Covishield' AND Dose_Number = 2);
```

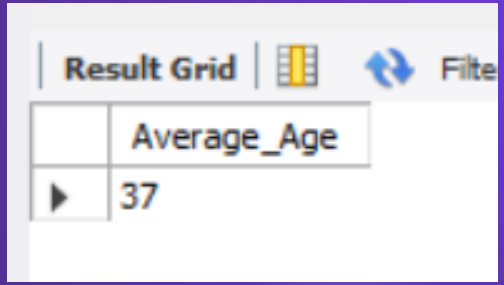
Result Grid | Filter Rows:

Name	Age	Gender
Tanvi Thakur	30	Female
Ashish Agarwal	35	Male
Devika Nair	25	Female
Ian Moore	48	Male
Pooja Sinha	27	Female
Vivek Kadam	36	Male
Riya Thakur	26	Female
Umar Patel	41	Male
Kavya Malhotra	28	Female
Kabir Jain	45	Male
Ananya Patel	29	Female
Gaurav Rao	36	Male

Sub-Queries:

Question no 5. Find the Average Age of Patients Who Died.

```
SELECT ROUND(AVG(Age)) AS Average_Age FROM Patients
WHERE Patient_ID IN (SELECT Patient_ID FROM Covid_Deaths);
```



Joins:

Question no 1. Find the Cities with Highest Number of Deaths.

```
SELECT location, SUM(New_Deaths) AS Total_Deaths
FROM Covid_Deaths AS CD
JOIN covid_cases AS CC
ON CD.patient_ID = CC.patient_ID
GROUP BY Location
HAVING SUM(New_Deaths) > (SELECT AVG(New_Deaths) FROM Covid_Deaths);
```

Result Grid | Filter Rows:

location	Total_Deaths
Vadodara	75
Ghaziabad	80
Ludhiana	85
Agra	90
Nashik	95
Faridabad	100
Meerut	105
Rajkot	110
Srinagar	115
Amritsar	120
Ranchi	125
Jabalpur	130
Gwalior	135
Vijayawada	140
Jodhpur	145
Madurai	150
Raipur	155

Joins:

Question no 2. List the Patients and their Covid Cases Status.

```
SELECT p.Name, p.Age, p.Gender, cc.Date_Reported, cc.Status
FROM Patients AS p
JOIN Covid_Cases AS cc ON p.Patient_ID = cc.Patient_ID;
```

Result Grid | Filter Rows: | Export: | Wrap

Name	Age	Gender	Date_Reported	Status
John Xavir	45	Male	2020-03-15	Recovered
Tanvi Thakur	30	Female	2020-04-20	Active
Veda Krishnan	28	Female	2020-05-25	Recovered
Varun Mishra	50	Male	2020-06-30	Deceased
Ashish Agarwal	35	Male	2020-07-05	Active
Anu Sharma	40	Female	2020-08-10	Recovered
Bhavya Reddy	60	Male	2020-09-15	Deceased
Devika Nair	25	Female	2020-10-20	Active
Ishaan Gupta	55	Male	2020-11-25	Recovered
Aditi Singh	32	Female	2020-12-30	Active
Ian Moore	48	Male	2021-01-05	Recovered
Chitra Desai	29	Female	2021-02-10	Deceased
Dhruv Kapoor	38	Male	2021-03-15	Active
Pooja Sinha	27	Female	2021-04-20	Recovered
Nikhil Chandra	42	Male	2021-05-25	Active
Nisha Roy	33	Female	2021-06-30	Recovered
Vivek Kadam	36	Male	2021-07-05	Deceased
Lakshmi Pillai	31	Female	2021-08-10	Active

Result Grid | Filter Rows: | Export: | Wrap

Name	Age	Gender	Date_Reported	Status
Jatin Patel	44	Male	2021-09-15	Recovered
Riya Thakur	26	Female	2021-10-20	Active
Siddharth Rao	39	Male	2021-11-25	Recovered
Tina Sharma	34	Female	2021-12-30	Active
Umar Patel	41	Male	2022-01-05	Recovered
Vibhuti Das	37	Female	2022-02-10	Deceased
Raghav Bhat	49	Male	2022-03-15	Active
Kavya Malhotra	28	Female	2022-04-20	Recovered
Asif Patel	35	Male	2022-05-25	Active
Zara Khan	30	Female	2022-06-30	Recovered
Kabir Jain	45	Male	2022-07-05	Active
Jaya Menon	32	Female	2022-08-10	Recovered
Hardik Iyer	38	Male	2022-09-15	Active
Ananya Patel	29	Female	2022-10-20	Recovered
Arjun Mehta	40	Male	2022-11-25	Active
Isha Joshi	27	Female	2022-12-30	Recovered
Gaurav Rao	36	Male	2023-01-05	Active

Joins:

Question no 3. Find the Patients Who Tested Positive and Their Test Details.

```sql
SELECT p.Name, p.Age, p.Gender, t.Test_Date, t.Test_Type, t.Result
FROM Patients AS  p
JOIN Covid_Testing AS t
ON p.Patient_ID = t.Patient_ID
WHERE t.Result = 'Positive';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Co

Name	Age	Gender	Test_Date	Test_Type	Result
John Xavir	45	Male	2020-03-14	PCR	Positive
Tanvi Thakur	30	Female	2020-04-19	Antigen	Positive
Varun Mishra	50	Male	2020-06-29	Antigen	Positive
Anu Sharma	40	Female	2020-08-09	Antigen	Positive
Devika Nair	25	Female	2020-10-19	Antigen	Positive
Aditi Singh	32	Female	2020-12-29	Antigen	Positive
Chitra Desai	29	Female	2021-02-09	Antigen	Positive
Pooja Sinha	27	Female	2021-04-19	Antigen	Positive
Nisha Roy	33	Female	2021-06-29	Antigen	Positive
Lakshmi Pillai	31	Female	2021-08-09	Antigen	Positive
Riya Thakur	26	Female	2021-10-19	Antigen	Positive
Tina Sharma	34	Female	2021-12-29	Antigen	Positive
Vibhuti Das	37	Female	2022-02-09	Antigen	Positive
Kavya Malh...	28	Female	2022-04-19	Antigen	Positive
Zara Khan	30	Female	2022-06-29	Antigen	Positive
Jaya Menon	32	Female	2022-08-09	Antigen	Positive
Ananya Patel	29	Female	2022-10-19	Antigen	Positive
Isha Joshi	27	Female	2022-12-29	Antigen	Positive

Joins:

Question no 4. Find the Patients Who Died After Testing Positive.

```sql
SELECT p.Name, p.Age, p.Gender, t.Test_Date, t.Result, d.Date_Of_Death, d.Cause_Of_Death
FROM Patients AS p
JOIN Covid_Testing AS t ON p.Patient_ID = t.Patient_ID
JOIN Covid_Deaths AS d ON p.Patient_ID = d.Patient_ID
WHERE t.Result = 'Positive';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	Age	Gender	Test_Date	Result	Date_Of_Death	Cause_Of_Death
John Xavir	45	Male	2020-03-14	Positive	2020-03-20	COVID-19
Tanvi Thakur	30	Female	2020-04-19	Positive	2020-04-25	COVID-19
Varun Mishra	50	Male	2020-06-29	Positive	2020-06-15	COVID-19
Anu Sharma	40	Female	2020-08-09	Positive	2020-08-05	COVID-19
Devika Nair	25	Female	2020-10-19	Positive	2020-10-10	COVID-19
Aditi Singh	32	Female	2020-12-29	Positive	2020-12-20	COVID-19
Chitra Desai	29	Female	2021-02-09	Positive	2021-02-28	COVID-19
Pooja Sinha	27	Female	2021-04-19	Positive	2021-04-25	COVID-19
Nisha Roy	33	Female	2021-06-29	Positive	2021-06-25	COVID-19
Lakshmi Pillai	31	Female	2021-08-09	Positive	2021-08-25	COVID-19
Riya Thakur	26	Female	2021-10-19	Positive	2021-10-25	COVID-19
Tina Sharma	34	Female	2021-12-29	Positive	2021-12-25	COVID-19
Vibhuti Das	37	Female	2022-02-09	Positive	2022-02-25	COVID-19
Kavya Malhotra	28	Female	2022-04-19	Positive	2022-04-25	COVID-19
Zara Khan	30	Female	2022-06-29	Positive	2022-06-25	COVID-19
Jaya Menon	32	Female	2022-08-09	Positive	2022-08-25	COVID-19
Ananya Patel	29	Female	2022-10-19	Positive	2022-10-25	COVID-19
Isha Joshi	27	Female	2022-12-29	Positive	2022-12-25	COVID-19

Joins:

Question no 5. Find the total Number of Cases Reported in Each City.

```
SELECT cc.Location, COUNT(cc.Case_ID) AS Total_Cases
FROM Covid_Cases AS  cc
JOIN Patients AS p ON cc.Patient_ID = p.Patient_ID
GROUP BY cc.Location;
```

Result Grid | Filter Rows:

Location	Total_Cases
Mumbai	1
Delhi	1
Bangalore	1
Chennai	1
Kolkata	1
Pune	1
Hyderabad	1
Ahmedabad	1
Jaipur	1
Lucknow	1
Surat	1
Kanpur	1
Nagpur	1
Indore	1
Thane	1
Bhopal	1
Visakhapat...	1
Patna	1
Vadodara	1

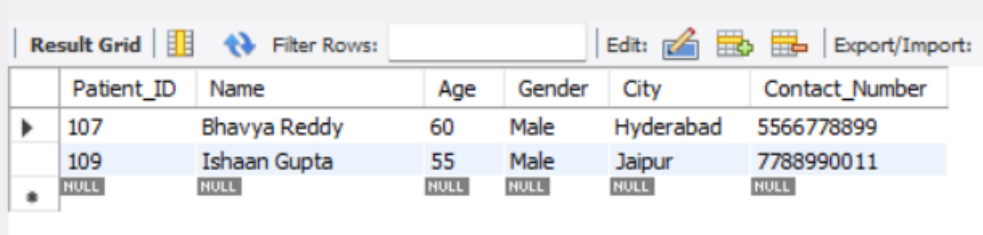
Result Grid | Filter Rows:

Location	Total_Cases
Vadodara	1
Ghaziabad	1
Ludhiana	1
Agra	1
Nashik	1
Faridabad	1
Meerut	1
Rajkot	1
Srinagar	1
Amritsar	1
Ranchi	1
Jabalpur	1
Gwalior	1
Vijayawada	1
Jodhpur	1
Madurai	1
Raipur	1

Normal Query:

Question no 1. List All Patients Above 50 Years.

```
SELECT * FROM Patients WHERE Age > 50;
```



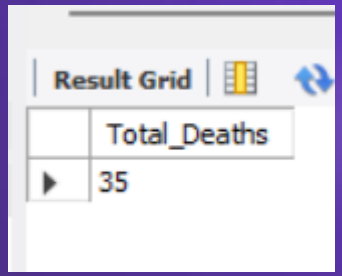
Result Grid | Filter Rows: | Edit: | Export/Import:

Patient_ID	Name	Age	Gender	City	Contact_Number
107	Bhavya Reddy	60	Male	Hyderabad	5566778899
109	Ishaan Gupta	55	Male	Jaipur	7788990011
NULL	NULL	NULL	NULL	NULL	NULL

Normal Query:

Question no 2. Find the Total Counts of Deaths Due to Covid.

```
SELECT COUNT(*) AS Total_Deaths FROM Covid_Deaths
WHERE Cause_Of_Death = 'COVID-19';
```



Normal Query:

Question no 3. Find the Patients Aged Between 35 and 50.

```
SELECT * FROM Patients
WHERE Age BETWEEN 35 AND 50;
```

Result Grid | Filter Rows: | Edit: | Export/Import:

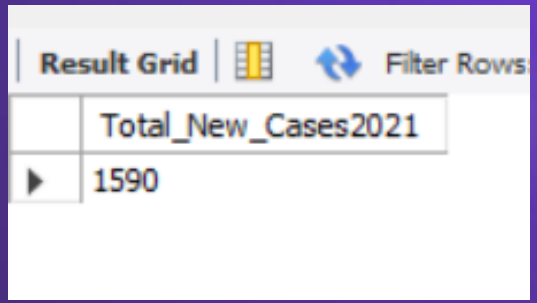
Patient_ID	Name	Age	Gender	City	Contact_Number
101	John Xavir	45	Male	Mumbai	1234567890
104	Varun Mishra	50	Male	Chennai	2233445566
105	Ashish Agarwal	35	Male	Kolkata	3344556677
106	Anu Sharma	40	Female	Pune	4455667788
111	Ian Moore	48	Male	Surat	9900112233
113	Dhruv Kapoor	38	Male	Nagpur	1213141516
115	Nikhil Chandra	42	Male	Thane	1415161718
117	Vivek Kadam	36	Male	Visakhapatnam	1617181920
119	Jatin Patel	44	Male	Vadodara	1819202122
121	Siddharth Rao	39	Male	Ludhiana	2021222324
123	Umar Patel	41	Male	Nashik	2223242526
124	Vibhuti Das	37	Female	Faridabad	2324252627
125	Raghav Bhat	49	Male	Meerut	2425262728
127	Asif Patel	35	Male	Srinagar	2627282930
129	Kabir Jain	45	Male	Ranchi	2829303132
131	Hardik Iyer	38	Male	Gwalior	3031323334
133	Arjun Mehta	40	Male	Jodhpur	3233343536
135	Gaurav Rao	36	Male	Raipur	3435363738
NULL	NULL	NULL	NULL	NULL	NULL

Patients 46

Normal Query:

Question no 4. Find the Sum of New Cases Reported in 2021.

```
SELECT SUM(New_Cases) AS Total_New_Cases2021 FROM Covid_Cases
WHERE YEAR(Date_Reported) = 2021;
```



Normal Query:

Question no 5. Find the Patients Admitted Between Two Dates

```
SELECT * FROM Covid_Hospitalization
WHERE Admission_Date BETWEEN '2021-01-01' AND '2021-12-31';
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell

Hospitalization_ID	Patient_ID	Admission_Date	Discharge_Date	Hospital_Name	Severity
11	111	2021-01-05	2021-01-20	Surat Municipal Institute	Moderate
12	112	2021-02-10	2021-02-25	Kanpur Medical College	Mild
13	113	2021-03-15	2021-03-30	Nagpur Medical College	Severe
14	114	2021-04-20	2021-05-05	Indore Medical College	Moderate
15	115	2021-05-25	2021-06-10	Thane Civil Hospital	Mild
16	116	2021-06-30	2021-07-15	Bhopal Memorial Hospital	Severe
17	117	2021-07-05	2021-07-20	King George Hospital	Moderate
18	118	2021-08-10	2021-08-25	Patna Medical College	Mild
19	119	2021-09-15	2021-09-30	Vadodara Civil Hospital	Severe
20	120	2021-10-20	2021-11-05	Yashoda Hospital	Moderate
21	121	2021-11-25	2021-12-10	Christian Medical College	Mild
22	122	2021-12-30	2022-01-15	Nashik Civil Hospital	Severe
NULL	NULL	NULL	NULL	NULL	NULL

Normal Query:

Question no 6. Find the Sum of Total Deaths in 2020.

```
SELECT SUM(Total_Deaths) AS TotalDeaths2020 FROM Covid_Deaths
WHERE YEAR(Date_Of_Death) = 2020;
```

Result Grid

	TotalDeaths2020
▶	696

Normal Query:

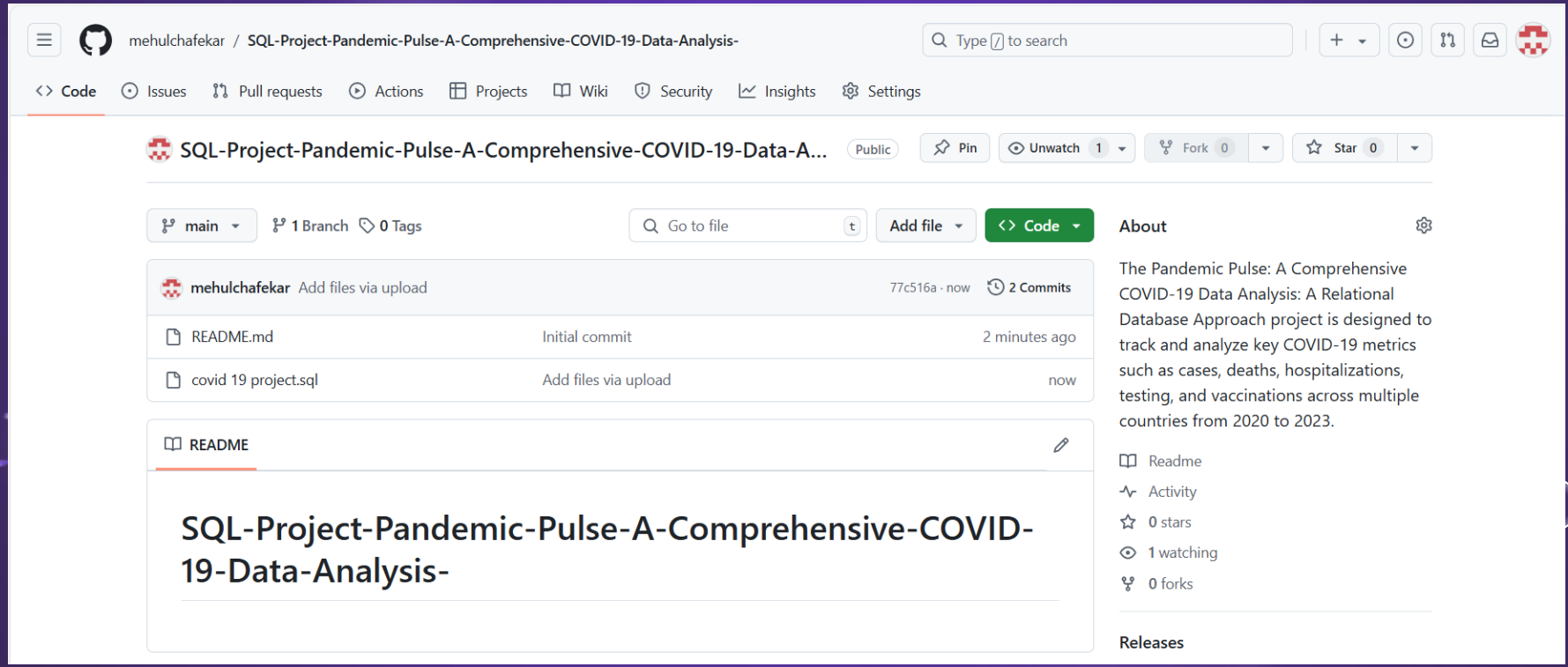
Question no 7. Find the Cities with more than 1000 Total Cases.

```
SELECT Location, SUM(Total_Cases) AS Total_Cases_of_Covid19 FROM Covid_Cases
GROUP BY Location
HAVING SUM(Total_Cases) > 1000;
```

Result Grid | Filter Rows:

Location	Total_Cases_of_Covid19
Indore	1100
Thane	1200
Bhopal	1300
Visakhapatnam	14000
Patna	1500
Vadodara	1600
Ghaziabad	1700
Ludhiana	1800
Agra	1900
Nashik	2000
Faridabad	2100
Meerut	2200
Rajkot	2300
Srinagar	2400
Amritsar	2500
Ranchi	2600
Jabalpur	2700
Gwalior	2800
Vijayawada	2900
Jodhpur	3000
Madurai	3100
Raipur	3200

GitHub Repository:



THANK YOU !

9167083826

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https://github.com/mehulchafekar/SQL-Project-Pandemic-Pulse-A-Comprehensive-COVID-19-Data-Analysis