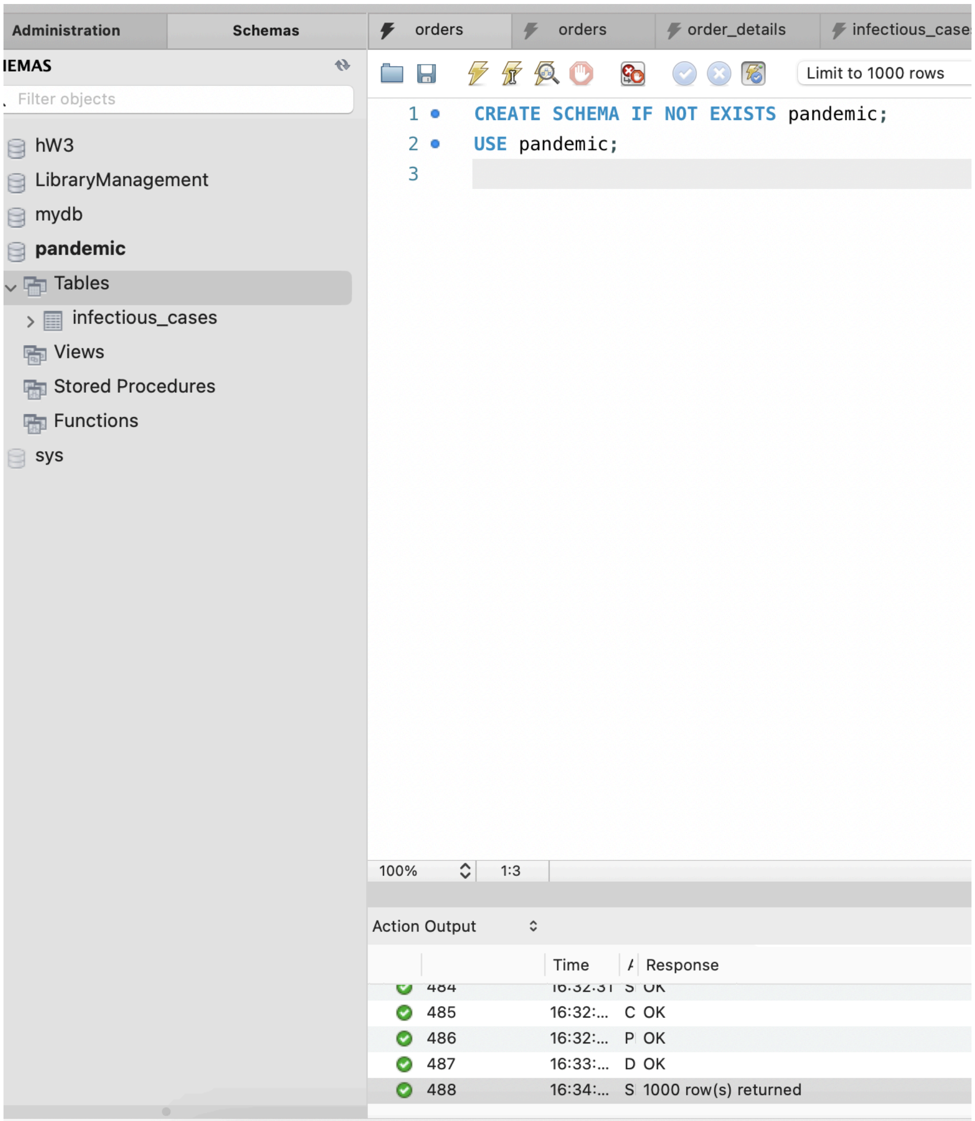
1.

```
CREATE SCHEMA IF NOT EXISTS pandemic;
USE pandemic;
```

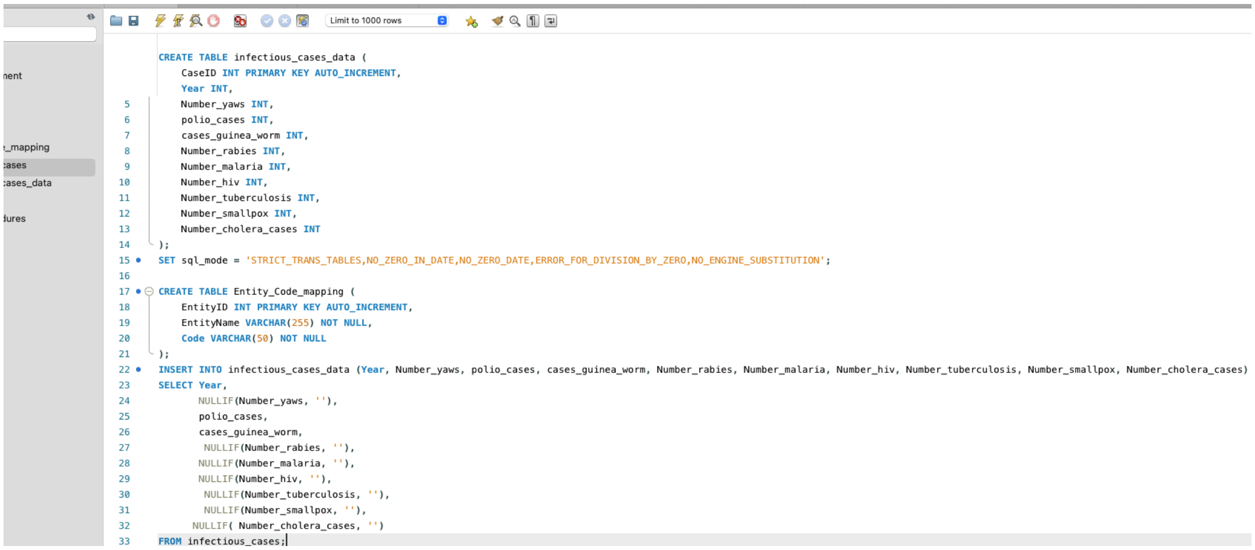


```
CREATE SCHEMA IF NOT EXISTS pandemic;
USE pandemic;
```

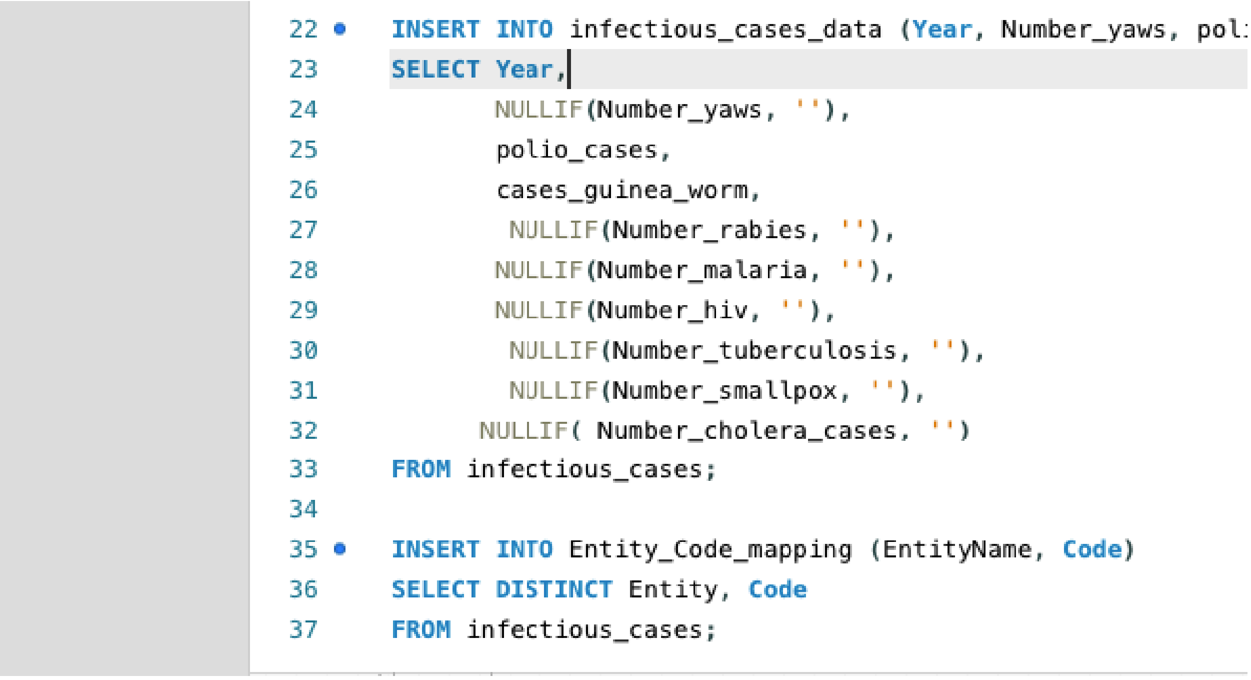
```
                Time      /   Response
484             16:32:31  S   OK
485             16:32:...  C  OK
486             16:32:...  P  OK
487             16:33:...  D  OK
488             16:34:...  S  1000 row(s) returned
```

2.

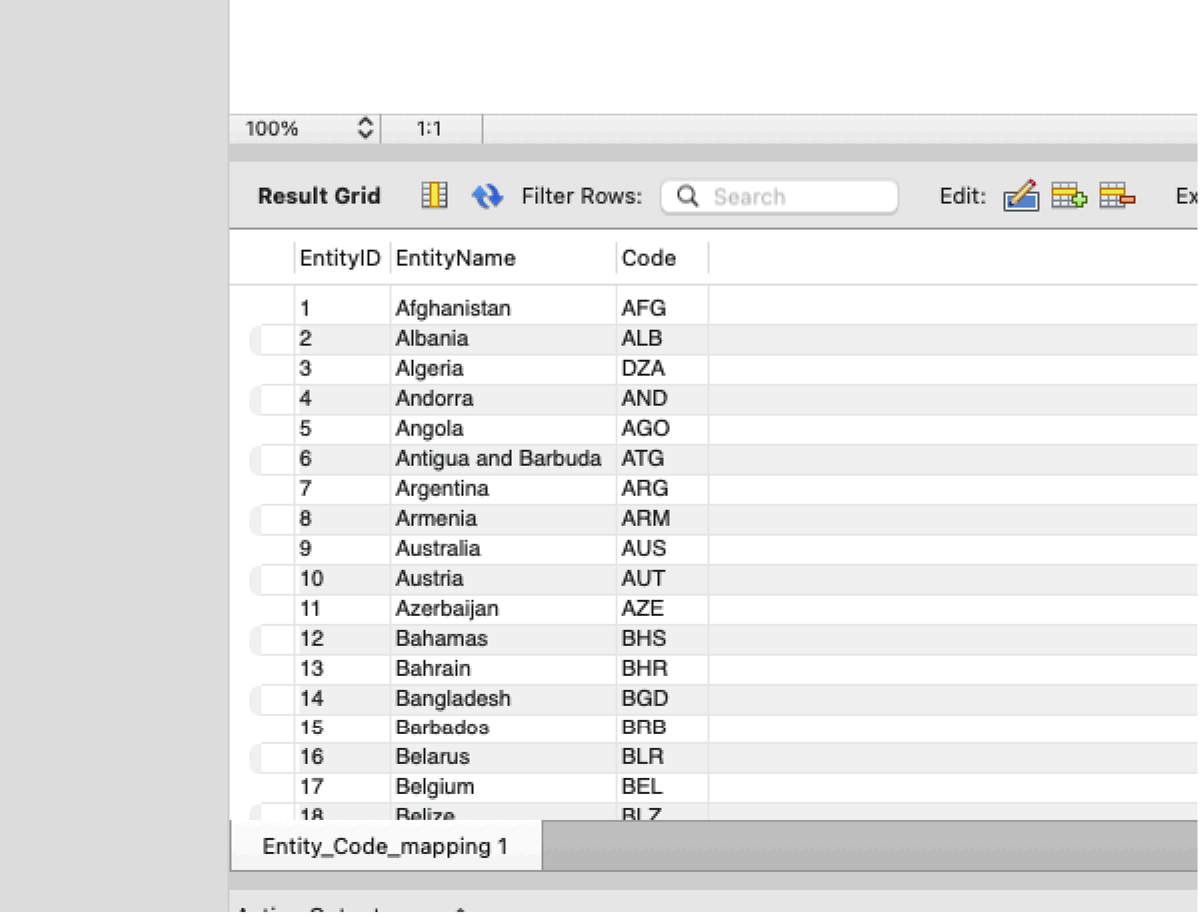
```
CREATE TABLE infectious_cases_data (
    CaseID INT PRIMARY KEY AUTO_INCREMENT,
    Year INT,
    Number_yaws INT,
    polio_cases INT,
    cases_guinea_worm INT,
    Number_rabies INT,
    Number_malaria INT,
    Number_hiv INT,
    Number_tuberculosis INT,
    Number_smallpox INT,
    Number_cholera_cases INT
);
SET sql_mode =
'STRICT_TRANS_TABLES,NO_ZERO_IN_DATE,NO_ZERO_DATE,ERROR_FOR_DIVISION_BY_ZE
RO,NO_ENGINE_SUBSTITUTION';

CREATE TABLE Entity_Code_mapping (
    EntityID INT PRIMARY KEY AUTO_INCREMENT,
    EntityName VARCHAR(255) NOT NULL,
    Code VARCHAR(50) NOT NULL
);
INSERT INTO infectious_cases_data (Year, Number_yaws, polio_cases, cases_guinea_worm,
Number_rabies, Number_malaria, Number_hiv, Number_tuberculosis, Number_smallpox,
Number_cholera_cases)
SELECT Year,
       NULLIF(Number_yaws, ''),
       polio_cases,
       cases_guinea_worm,
        NULLIF(Number_rabies, ''),
       NULLIF(Number_malaria, ''),
       NULLIF(Number_hiv, ''),
        NULLIF(Number_tuberculosis, ''),
        NULLIF(Number_smallpox, ''),
      NULLIF( Number_cholera_cases, '')
FROM infectious_cases;

INSERT INTO Entity_Code_mapping (EntityName, Code)
SELECT DISTINCT Entity, Code
FROM infectious_cases;
```



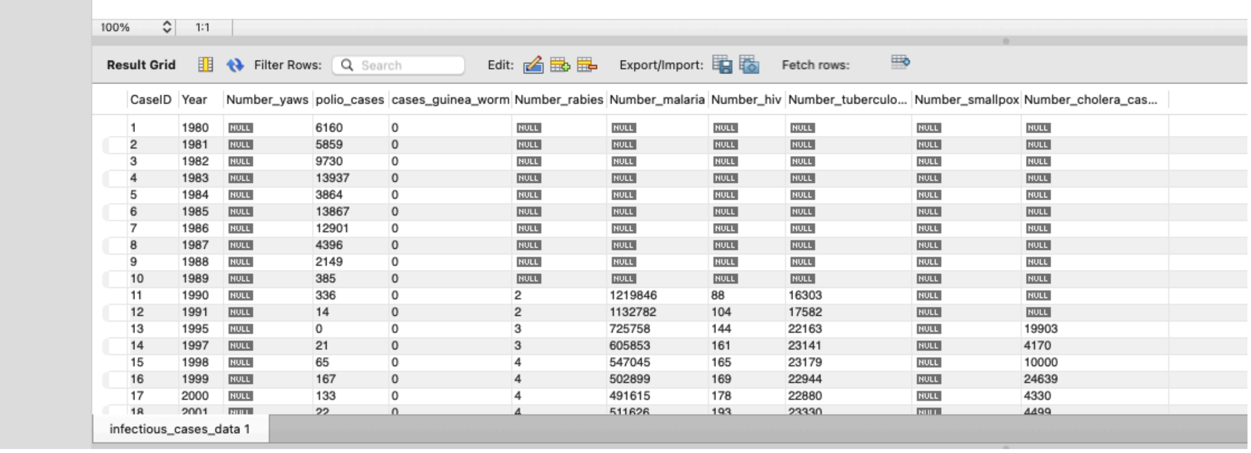
```sql
CREATE TABLE infectious_cases_data (
    CaseID INT PRIMARY KEY AUTO_INCREMENT,
    Year INT,
    Number_yaws INT,
    polio_cases INT,
    cases_guinea_worm INT,
    Number_rabies INT,
    Number_malaria INT,
    Number_hiv INT,
    Number_tuberculosis INT,
    Number_smallpox INT,
    Number_cholera_cases INT
);
SET sql_mode = 'STRICT_TRANS_TABLES,NO_ZERO_IN_DATE,NO_ZERO_DATE,ERROR_FOR_DIVISION_BY_ZERO,NO_ENGINE_SUBSTITUTION';

CREATE TABLE Entity_Code_mapping (
    EntityID INT PRIMARY KEY AUTO_INCREMENT,
    EntityName VARCHAR(255) NOT NULL,
    Code VARCHAR(50) NOT NULL
);
INSERT INTO infectious_cases_data (Year, Number_yaws, polio_cases, cases_guinea_worm, Number_rabies, Number_malaria, Number_hiv, Number_tuberculosis, Number_smallpox, Number_cholera_cases)
SELECT Year,
       NULLIF(Number_yaws, ''),
       polio_cases,
       cases_guinea_worm,
        NULLIF(Number_rabies, ''),
       NULLIF(Number_malaria, ''),
       NULLIF(Number_hiv, ''),
        NULLIF(Number_tuberculosis, ''),
        NULLIF(Number_smallpox, ''),
      NULLIF( Number_cholera_cases, '')
FROM infectious_cases;
```



```sql
INSERT INTO infectious_cases_data (Year, Number_yaws, pol
SELECT Year,
       NULLIF(Number_yaws, ''),
       polio_cases,
       cases_guinea_worm,
        NULLIF(Number_rabies, ''),
       NULLIF(Number_malaria, ''),
       NULLIF(Number_hiv, ''),
        NULLIF(Number_tuberculosis, ''),
        NULLIF(Number_smallpox, ''),
      NULLIF( Number_cholera_cases, '')
FROM infectious_cases;

INSERT INTO Entity_Code_mapping (EntityName, Code)
SELECT DISTINCT Entity, Code
FROM infectious_cases;
```



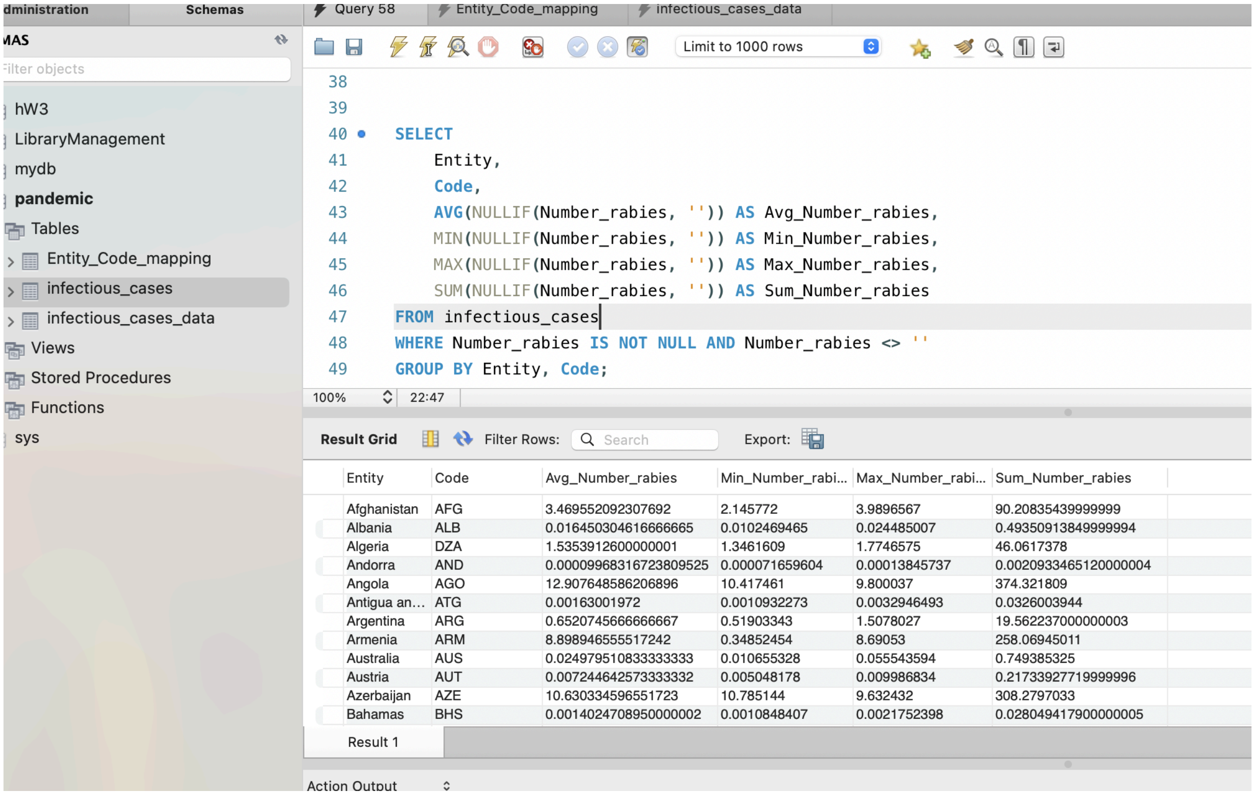
| EntityID | EntityName | Code |
|---|---|---|
| 1 | Afghanistan | AFG |
| 2 | Albania | ALB |
| 3 | Algeria | DZA |
| 4 | Andorra | AND |
| 5 | Angola | AGO |
| 6 | Antigua and Barbuda | ATG |
| 7 | Argentina | ARG |
| 8 | Armenia | ARM |
| 9 | Australia | AUS |
| 10 | Austria | AUT |
| 11 | Azerbaijan | AZE |
| 12 | Bahamas | BHS |
| 13 | Bahrain | BHR |
| 14 | Bangladesh | BGD |
| 15 | Barbados | BRB |
| 16 | Belarus | BLR |
| 17 | Belgium | BEL |
| 18 | Belize | BLZ |



| CaseID | Year | Number_yaws | polio_cases | cases_guinea_worm | Number_rabies | Number_malaria | Number_hiv | Number_tuberculo... | Number_smallpox | Number_cholera_cas... |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1980 | NULL | 6160 | 0 | NULL | NULL | NULL | NULL | NULL | NULL |
| 2 | 1981 | NULL | 5859 | 0 | NULL | NULL | NULL | NULL | NULL | NULL |
| 3 | 1982 | NULL | 9730 | 0 | NULL | NULL | NULL | NULL | NULL | NULL |
| 4 | 1983 | NULL | 13937 | 0 | NULL | NULL | NULL | NULL | NULL | NULL |
| 5 | 1984 | NULL | 3864 | 0 | NULL | NULL | NULL | NULL | NULL | NULL |
| 6 | 1985 | NULL | 13867 | 0 | NULL | NULL | NULL | NULL | NULL | NULL |
| 7 | 1986 | NULL | 12901 | 0 | NULL | NULL | NULL | NULL | NULL | NULL |
| 8 | 1987 | NULL | 4396 | 0 | NULL | NULL | NULL | NULL | NULL | NULL |
| 9 | 1988 | NULL | 2149 | 0 | NULL | NULL | NULL | NULL | NULL | NULL |
| 10 | 1989 | NULL | 385 | 0 | NULL | NULL | NULL | NULL | NULL | NULL |
| 11 | 1990 | NULL | 336 | 0 | 2 | 1219846 | 88 | 16303 | NULL | NULL |
| 12 | 1991 | NULL | 14 | 0 | 2 | 1132782 | 104 | 17582 | NULL | NULL |
| 13 | 1995 | NULL | 0 | 0 | 3 | 725758 | 144 | 22163 | NULL | 19903 |
| 14 | 1997 | NULL | 21 | 0 | 3 | 605853 | 161 | 23141 | NULL | 4170 |
| 15 | 1998 | NULL | 65 | 0 | 4 | 547045 | 165 | 23179 | NULL | 10000 |
| 16 | 1999 | NULL | 167 | 0 | 4 | 502899 | 169 | 22944 | NULL | 24639 |
| 17 | 2000 | NULL | 133 | 0 | 4 | 491615 | 178 | 22880 | NULL | 4330 |
| 18 | 2001 | NULL | 22 | 0 | 4 | 511626 | 193 | 23330 | NULL | 4499 |

3.1

```
SELECT
  Entity,
  Code,
  AVG(NULLIF(Number_rabies, '')) AS Avg_Number_rabies,
  MIN(NULLIF(Number_rabies, '')) AS Min_Number_rabies,
    MAX(NULLIF(Number_rabies, '')) AS Max_Number_rabies,
    SUM(NULLIF(Number_rabies, '')) AS Sum_Number_rabies
FROM infectious_cases
WHERE Number_rabies IS NOT NULL AND Number_rabies <> ''
GROUP BY Entity, Code;
```

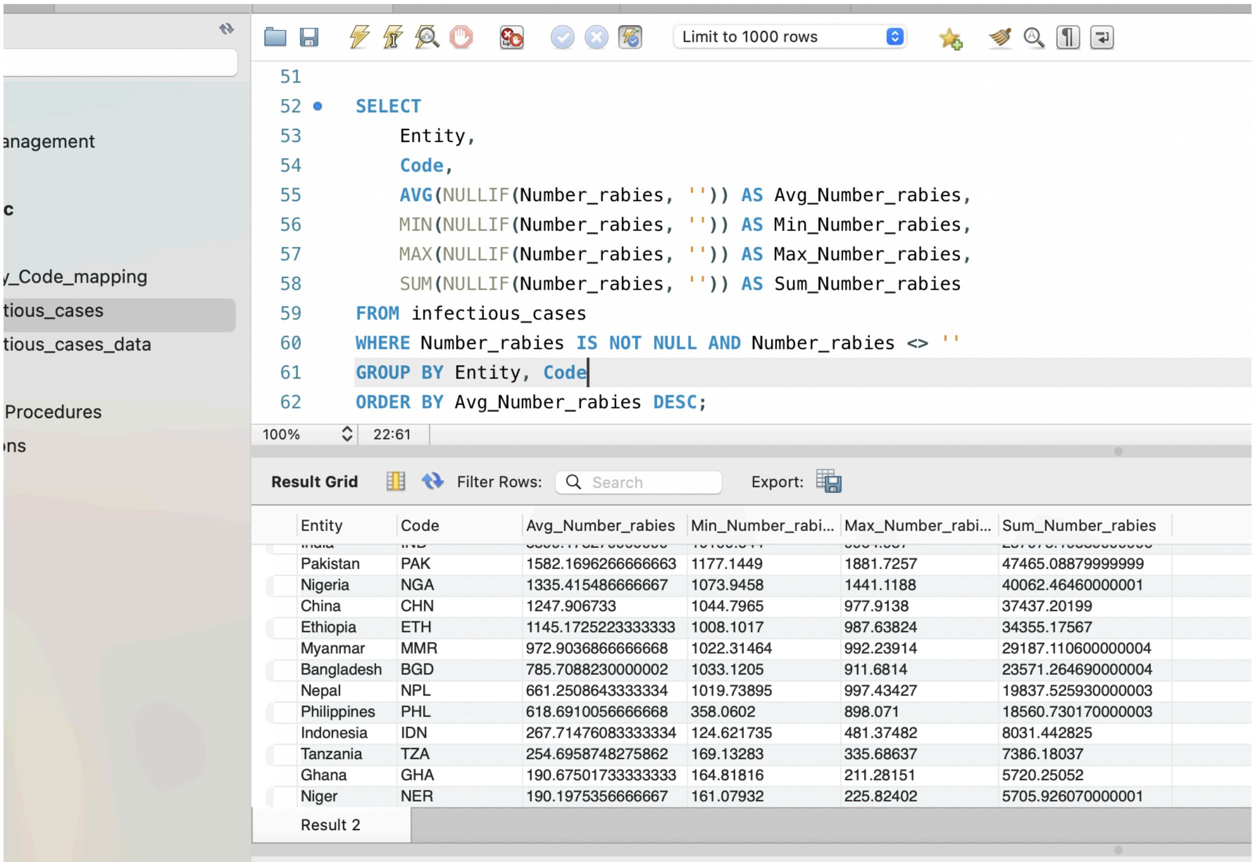


```
SELECT
    Entity,
    Code,
    AVG(NULLIF(Number_rabies, '')) AS Avg_Number_rabies,
    MIN(NULLIF(Number_rabies, '')) AS Min_Number_rabies,
    MAX(NULLIF(Number_rabies, '')) AS Max_Number_rabies,
    SUM(NULLIF(Number_rabies, '')) AS Sum_Number_rabies
FROM infectious_cases
WHERE Number_rabies IS NOT NULL AND Number_rabies <> ''
GROUP BY Entity, Code;
```

| Entity | Code | Avg_Number_rabies | Min_Number_rabi... | Max_Number_rabi... | Sum_Number_rabies |
|---|---|---|---|---|---|
| Afghanistan | AFG | 3.469552092307692 | 2.145772 | 3.9896567 | 90.20835439999999 |
| Albania | ALB | 0.016450304616666665 | 0.0102469465 | 0.024485007 | 0.49350913849999994 |
| Algeria | DZA | 1.5353912600000001 | 1.3461609 | 1.7746575 | 46.0617378 |
| Andorra | AND | 0.00009968316723809525 | 0.000071659604 | 0.00013845737 | 0.0020933465120000004 |
| Angola | AGO | 12.907648586206896 | 10.417461 | 9.800037 | 374.321809 |
| Antigua an... | ATG | 0.00163001972 | 0.0010932273 | 0.0032946493 | 0.0326003944 |
| Argentina | ARG | 0.6520745666666667 | 0.51903343 | 1.5078027 | 19.562237000000003 |
| Armenia | ARM | 8.898946555517242 | 0.34852454 | 8.69053 | 258.06945011 |
| Australia | AUS | 0.024979510833333333 | 0.010655328 | 0.055543594 | 0.749385325 |
| Austria | AUT | 0.007244642573333332 | 0.005048178 | 0.009986834 | 0.21733927719999996 |
| Azerbaijan | AZE | 10.630334596551723 | 10.785144 | 9.632432 | 308.2797033 |
| Bahamas | BHS | 0.0014024708950000002 | 0.0010848407 | 0.0021752398 | 0.028049417900000005 |

3.2

```
SELECT
    Entity,
    Code,
    AVG(NULLIF(Number_rabies, '')) AS Avg_Number_rabies,
    MIN(NULLIF(Number_rabies, '')) AS Min_Number_rabies,
    MAX(NULLIF(Number_rabies, '')) AS Max_Number_rabies,
    SUM(NULLIF(Number_rabies, '')) AS Sum_Number_rabies
FROM infectious_cases
WHERE Number_rabies IS NOT NULL AND Number_rabies <> ''
GROUP BY Entity, Code
ORDER BY Avg_Number_rabies DESC;
```

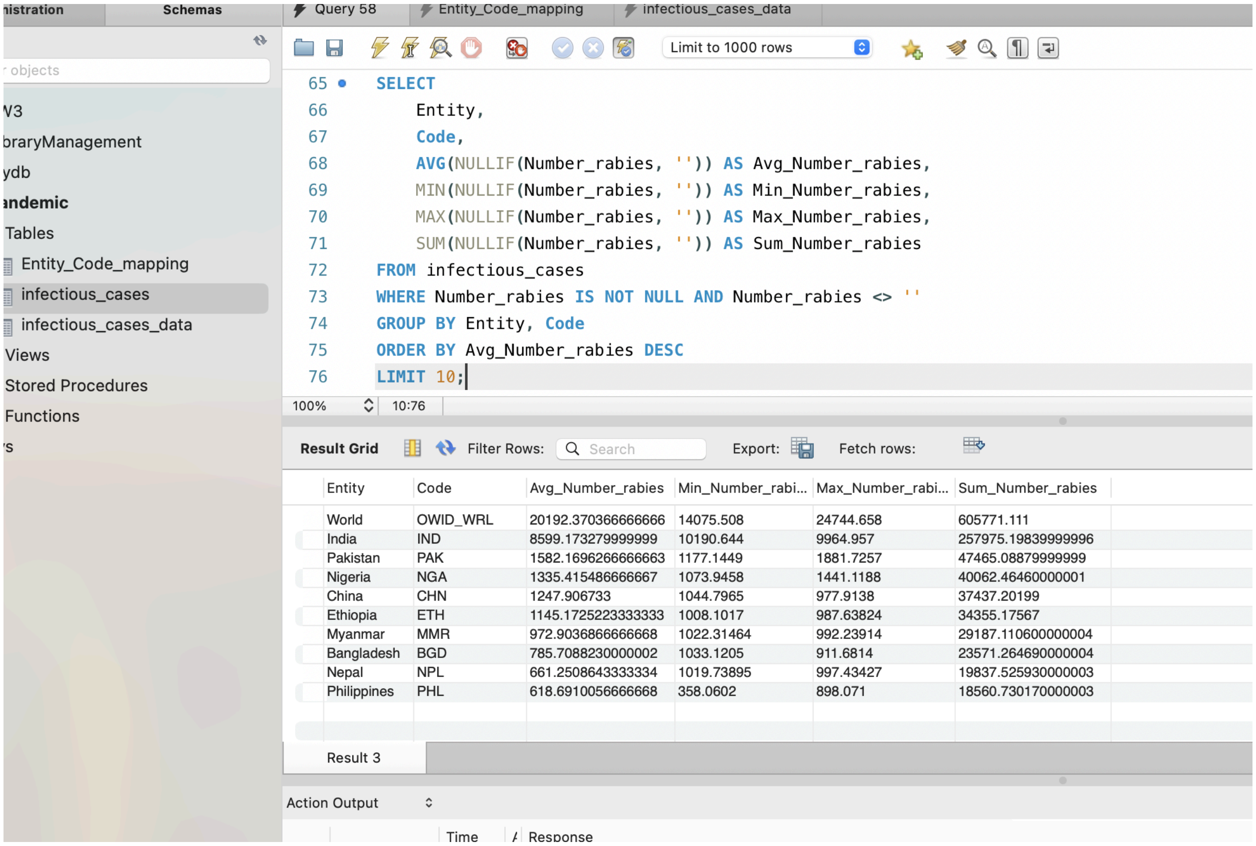


```
SELECT
    Entity,
    Code,
    AVG(NULLIF(Number_rabies, '')) AS Avg_Number_rabies,
    MIN(NULLIF(Number_rabies, '')) AS Min_Number_rabies,
    MAX(NULLIF(Number_rabies, '')) AS Max_Number_rabies,
    SUM(NULLIF(Number_rabies, '')) AS Sum_Number_rabies
FROM infectious_cases
WHERE Number_rabies IS NOT NULL AND Number_rabies <> ''
GROUP BY Entity, Code
ORDER BY Avg_Number_rabies DESC;
```

| Entity | Code | Avg_Number_rabies | Min_Number_rabi... | Max_Number_rabi... | Sum_Number_rabies |
|---|---|---|---|---|---|
| India | IND | [illegible] | [illegible] | [illegible] | [illegible] |
| Pakistan | PAK | 1582.1696266666663 | 1177.1449 | 1881.7257 | 47465.08879999999 |
| Nigeria | NGA | 1335.415486666667 | 1073.9458 | 1441.1188 | 40062.46460000001 |
| China | CHN | 1247.906733 | 1044.7965 | 977.9138 | 37437.20199 |
| Ethiopia | ETH | 1145.1725223333333 | 1008.1017 | 987.63824 | 34355.17567 |
| Myanmar | MMR | 972.9036866666668 | 1022.31464 | 992.23914 | 29187.110600000004 |
| Bangladesh | BGD | 785.7088230000002 | 1033.1205 | 911.6814 | 23571.264690000004 |
| Nepal | NPL | 661.2508643333334 | 1019.73895 | 997.43427 | 19837.525930000003 |
| Philippines | PHL | 618.6910056666668 | 358.0602 | 898.071 | 18560.730170000003 |
| Indonesia | IDN | 267.71476083333334 | 124.621735 | 481.37482 | 8031.442825 |
| Tanzania | TZA | 254.6958748275862 | 169.13283 | 335.68637 | 7386.18037 |
| Ghana | GHA | 190.67501733333333 | 164.81816 | 211.28151 | 5720.25052 |
| Niger | NER | 190.1975356666667 | 161.07932 | 225.82402 | 5705.926070000001 |

3.3

```
SELECT
  Entity,
  Code,
  AVG(NULLIF(Number_rabies, '')) AS Avg_Number_rabies,
  MIN(NULLIF(Number_rabies, '')) AS Min_Number_rabies,
  MAX(NULLIF(Number_rabies, '')) AS Max_Number_rabies,
  SUM(NULLIF(Number_rabies, '')) AS Sum_Number_rabies
FROM infectious_cases
WHERE Number_rabies IS NOT NULL AND Number_rabies <> ''
GROUP BY Entity, Code
ORDER BY Avg_Number_rabies DESC
LIMIT 10;
```



```sql
SELECT
    Entity,
    Code,
    AVG(NULLIF(Number_rabies, '')) AS Avg_Number_rabies,
    MIN(NULLIF(Number_rabies, '')) AS Min_Number_rabies,
    MAX(NULLIF(Number_rabies, '')) AS Max_Number_rabies,
    SUM(NULLIF(Number_rabies, '')) AS Sum_Number_rabies
FROM infectious_cases
WHERE Number_rabies IS NOT NULL AND Number_rabies <> ''
GROUP BY Entity, Code
ORDER BY Avg_Number_rabies DESC
LIMIT 10;
```

| Entity | Code | Avg_Number_rabies | Min_Number_rabi... | Max_Number_rabi... | Sum_Number_rabies |
|---|---|---|---|---|---|
| World | OWID_WRL | 20192.370366666666 | 14075.508 | 24744.658 | 605771.111 |
| India | IND | 8599.173279999999 | 10190.644 | 9964.957 | 257975.19839999996 |
| Pakistan | PAK | 1582.1696266666663 | 1177.1449 | 1881.7257 | 47465.08879999999 |
| Nigeria | NGA | 1335.415486666667 | 1073.9458 | 1441.1188 | 40062.46460000001 |
| China | CHN | 1247.906733 | 1044.7965 | 977.9138 | 37437.20199 |
| Ethiopia | ETH | 1145.1725223333333 | 1008.1017 | 987.63824 | 34355.17567 |
| Myanmar | MMR | 972.9036866666668 | 1022.31464 | 992.23914 | 29187.110600000004 |
| Bangladesh | BGD | 785.7088230000002 | 1033.1205 | 911.6814 | 23571.264690000004 |
| Nepal | NPL | 661.2508643333334 | 1019.73895 | 997.43427 | 19837.525930000003 |
| Philippines | PHL | 618.6910056666668 | 358.0602 | 898.071 | 18560.730170000003 |

4.SELECT

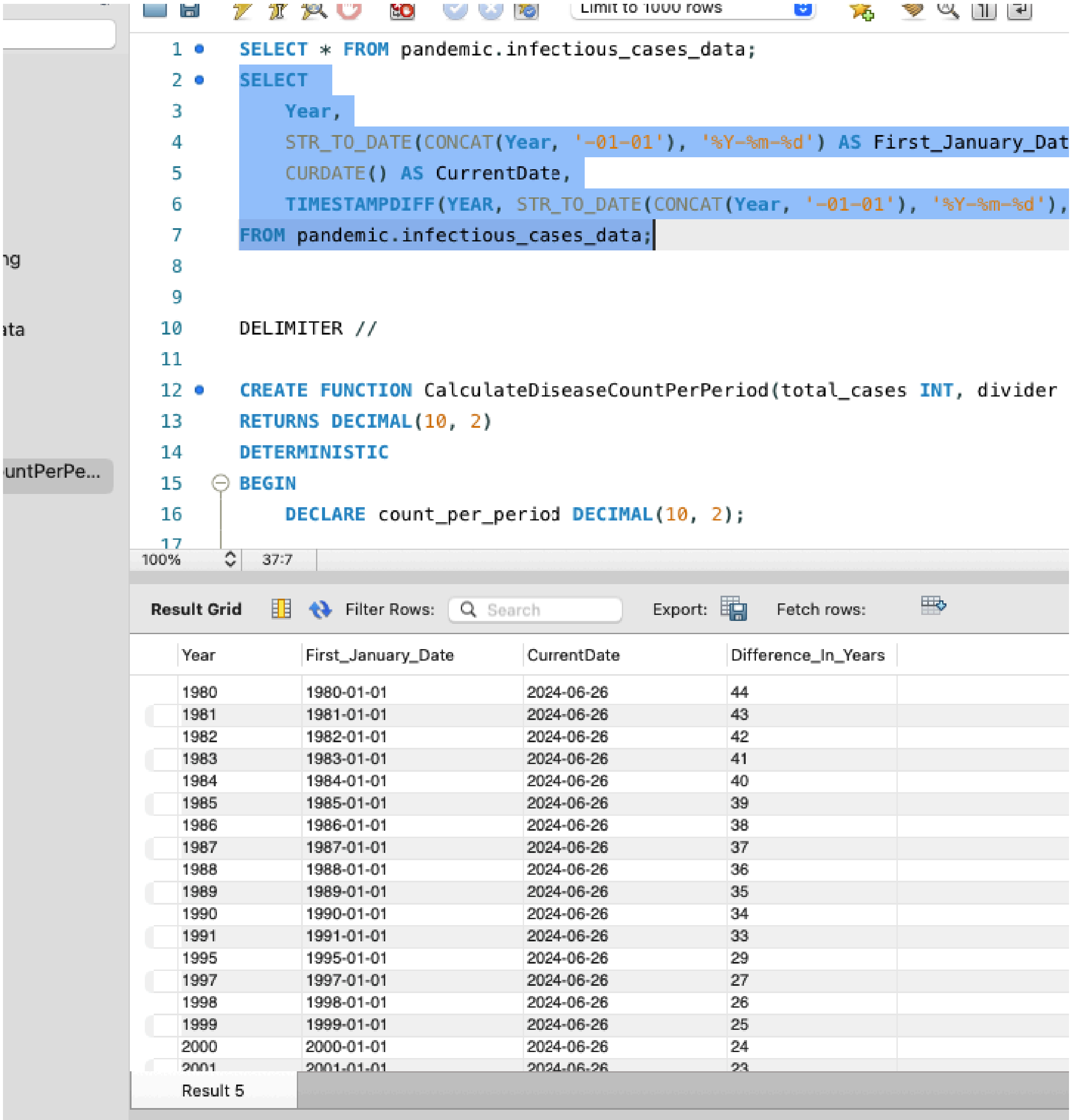
Year,

STR_TO_DATE(CONCAT(Year, '-01-01'), '%Y-%m-%d') AS First_January_Date,

CURDATE() AS CurrentDate,

TIMESTAMPDIFF(YEAR, STR_TO_DATE(CONCAT(Year, '-01-01'), '%Y-%m-%d'), CURDATE()) AS Difference_In_Years

FROM pandemic.infectious_cases_data;



```
SELECT * FROM pandemic.infectious_cases_data;
SELECT
    Year,
    STR_TO_DATE(CONCAT(Year, '-01-01'), '%Y-%m-%d') AS First_January_Dat
    CURDATE() AS CurrentDate,
    TIMESTAMPDIFF(YEAR, STR_TO_DATE(CONCAT(Year, '-01-01'), '%Y-%m-%d'),
FROM pandemic.infectious_cases_data;


DELIMITER //

CREATE FUNCTION CalculateDiseaseCountPerPeriod(total_cases INT, divider
RETURNS DECIMAL(10, 2)
DETERMINISTIC
BEGIN
    DECLARE count_per_period DECIMAL(10, 2);
```

| Year | First_January_Date | CurrentDate | Difference_In_Years |
|---|---|---|---|
| 1980 | 1980-01-01 | 2024-06-26 | 44 |
| 1981 | 1981-01-01 | 2024-06-26 | 43 |
| 1982 | 1982-01-01 | 2024-06-26 | 42 |
| 1983 | 1983-01-01 | 2024-06-26 | 41 |
| 1984 | 1984-01-01 | 2024-06-26 | 40 |
| 1985 | 1985-01-01 | 2024-06-26 | 39 |
| 1986 | 1986-01-01 | 2024-06-26 | 38 |
| 1987 | 1987-01-01 | 2024-06-26 | 37 |
| 1988 | 1988-01-01 | 2024-06-26 | 36 |
| 1989 | 1989-01-01 | 2024-06-26 | 35 |
| 1990 | 1990-01-01 | 2024-06-26 | 34 |
| 1991 | 1991-01-01 | 2024-06-26 | 33 |
| 1995 | 1995-01-01 | 2024-06-26 | 29 |
| 1997 | 1997-01-01 | 2024-06-26 | 27 |
| 1998 | 1998-01-01 | 2024-06-26 | 26 |
| 1999 | 1999-01-01 | 2024-06-26 | 25 |
| 2000 | 2000-01-01 | 2024-06-26 | 24 |
| 2001 | 2001-01-01 | 2024-06-26 | 23 |

5.

DELIMITER //

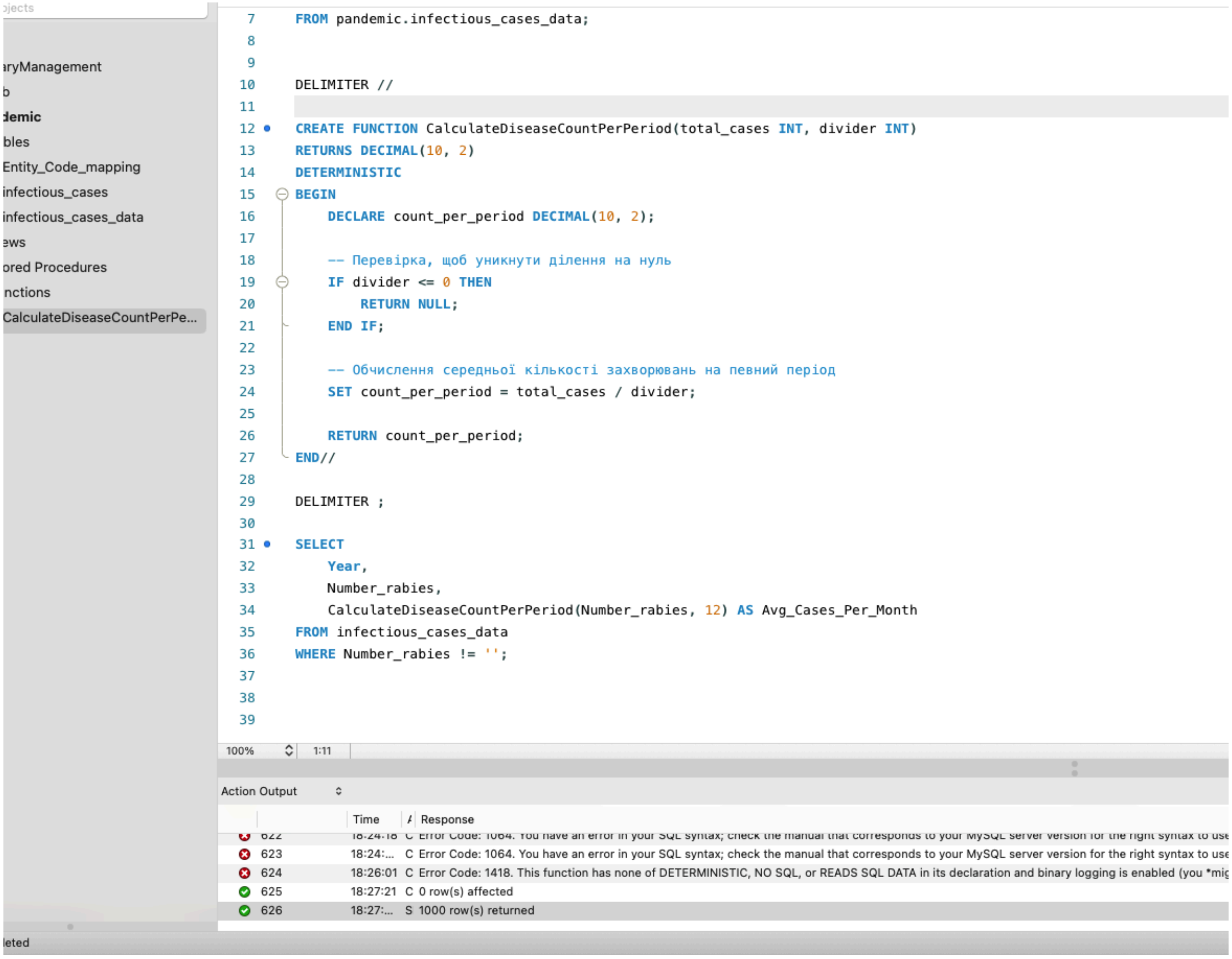
CREATE FUNCTION CalculateDiseaseCountPerPeriod(total_cases INT, divider INT)

RETURNS DECIMAL(10, 2)

DETERMINISTIC

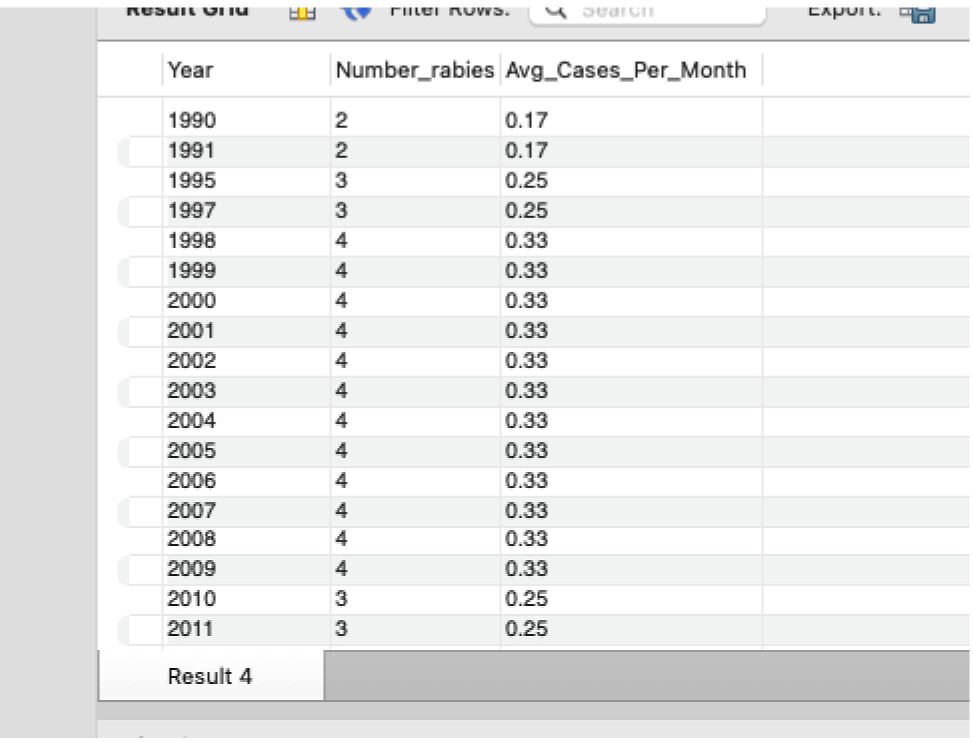
BEGIN

```
    DECLARE count_per_period DECIMAL(10, 2);

    -- Перевірка, щоб уникнути ділення на нуль
    IF divider <= 0 THEN
        RETURN NULL;
    END IF;

    -- Обчислення середньої кількості захворювань на певний період
    SET count_per_period = total_cases / divider;

    RETURN count_per_period;
END//

DELIMITER ;

SELECT
    Year,
    Number_rabies,
    CalculateDiseaseCountPerPeriod(Number_rabies, 12) AS Avg_Cases_Per_Month
FROM infectious_cases_data
WHERE Number_rabies != '';
```



```sql
FROM pandemic.infectious_cases_data;


DELIMITER //

CREATE FUNCTION CalculateDiseaseCountPerPeriod(total_cases INT, divider INT)
RETURNS DECIMAL(10, 2)
DETERMINISTIC
BEGIN
    DECLARE count_per_period DECIMAL(10, 2);

    -- Перевірка, щоб уникнути ділення на нуль
    IF divider <= 0 THEN
        RETURN NULL;
    END IF;

    -- Обчислення середньої кількості захворювань на певний період
    SET count_per_period = total_cases / divider;

    RETURN count_per_period;
END//

DELIMITER ;

SELECT
    Year,
    Number_rabies,
    CalculateDiseaseCountPerPeriod(Number_rabies, 12) AS Avg_Cases_Per_Month
FROM infectious_cases_data
WHERE Number_rabies != '';
```

```
      Time      A Response
622   18:24:18  C Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use
623   18:24:... C Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use
624   18:26:01  C Error Code: 1418. This function has none of DETERMINISTIC, NO SQL, or READS SQL DATA in its declaration and binary logging is enabled (you *mig
625   18:27:21  C 0 row(s) affected
626   18:27:... S 1000 row(s) returned
```



| Year | Number_rabies | Avg_Cases_Per_Month |
|---|---|---|
| 1990 | 2 | 0.17 |
| 1991 | 2 | 0.17 |
| 1995 | 3 | 0.25 |
| 1997 | 3 | 0.25 |
| 1998 | 4 | 0.33 |
| 1999 | 4 | 0.33 |
| 2000 | 4 | 0.33 |
| 2001 | 4 | 0.33 |
| 2002 | 4 | 0.33 |
| 2003 | 4 | 0.33 |
| 2004 | 4 | 0.33 |
| 2005 | 4 | 0.33 |
| 2006 | 4 | 0.33 |
| 2007 | 4 | 0.33 |
| 2008 | 4 | 0.33 |
| 2009 | 4 | 0.33 |
| 2010 | 3 | 0.25 |
| 2011 | 3 | 0.25 |