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Bees_Database Questions

Create the database

```
CREATE TABLE Population (
        State_ANSI VARCHAR(50),
   County_ANSI VARCHAR(50),
   Rural_Urban_Code_2013 VARCHAR(50),
   Population_1990 VARCHAR(50),
   Population_2000 VARCHAR(50),
   Population_2010 VARCHAR(50),
   Population_2020 VARCHAR(50));

CREATE TABLE Ag_Codes(
State_ANSI VARCHAR(50),
Ag_District_Code VARCHAR(50),
Ag_District VARCHAR(50),
PRIMARY KEY (State_ANSI, Ag_District_Code)
);

CREATE TABLE Geo_Codes(
Geo_Level VARCHAR(50),
   State_ANSI VARCHAR(50),
   County_ANSI VARCHAR(50),
   State VARCHAR(50),
   Area_Name VARCHAR(50),
   PRIMARY KEY (State_ANSI, County_ANSI, Area_Name),
  FOREIGN KEY (State_ANSI, County_ANSI) REFERENCES Population
(State_ANSI, County_ANSI)
);

CREATE TABLE Bee_Colonies(
        State_ANSI VARCHAR(50),
   County_ANSI VARCHAR(50),
   Ag_District_Code VARCHAR(50),
   Colonies_2002 VARCHAR(50),
   Colonies_2007 VARCHAR(50),
   Colonies_2012 VARCHAR(50),
   Colonies_2017 VARCHAR(50),
```

```
  CONSTRAINT UniqueCodes UNIQUE (State_ANSI, County_ANSI,
Ag_District_Code),
  FOREIGN KEY (State_ANSI, County_ANSI) REFERENCES Population
(State_ANSI, County_ANSI)

);
```

Geographic codes

What are the geographic codes for Middlesex County, NJ?

```
SELECT *
FROM Geo_Codes
WHERE State = 'NJ' AND Area_Name = "Middlesex County";
```

Counties in NJ

Using the code for the State of New Jersey retrieved in the previous query, list all the bee_colony data for each county identified by County_ANSI for the State of NJ in descending order by the number of colonies in 2017.

```
SELECT *
FROM Bee_Colonies
WHERE State_ANSI =
(SELECT DISTINCT State_ANSI
FROM Geo_Codes
WHERE State = 'NJ') AND County_ANSI > 0
ORDER BY Colonies_2017 DESC;
```

Population

What are the 2-letter state abbreviations, state names, populations of states for the years available in descending order by the population in 2020? List only the first 12 rows of the answer by using LIMIT 12 at the end of the query.

```
SELECT State, Area_Name,
FORMAT(P.Population_1990, 0) AS Population_1990,
FORMAT(P.Population_2000, 0) AS Population_2000,
FORMAT(P.Population_2010, 0) AS Population_2010,
FORMAT(P.Population_2020, 0) AS Population_2020
FROM Population p JOIN Geo_Codes g
ON p. State_ANSI = g.State_ANSI AND p.County_ANSI = g.County_ANSI
ORDER BY Population_2020 DESC
LIMIT 12;

SELECT State, Area_Name, P.Population_1990, P.Population_2000,
P.Population_2010, P.Population_2020
FROM Population p JOIN Geo_Codes g
ON p. State_ANSI = g.State_ANSI AND p.County_ANSI = g.County_ANSI
ORDER BY Population_2020 DESC
LIMIT 12;
```

'Green' in Name

How many different counties are there in the US with 'Green' in their name?

```
SELECT COUNT(Geo_Level) As Number_of_Green_Counties
FROM Geo_Codes
WHERE Geo_Level = 'County' AND Area_Name LIKE '%Green%';

SELECT *
FROM Geo_Codes
WHERE Geo_Level = 'County' AND Area_Name LIKE '%Green%';
```

Total Colonies in NJ Ag Districts

What is the Ag_District_Code, Ag_District_Name and total bee colonies for each of the available years for each agricultural district in NJ?

```
SELECT Bee_Colonies.Ag_District_Code, Ag_Codes.Ag_District,
SUM(Colonies_2002), SUM(Colonies_2007), SUM(Colonies_2012),
SUM(Colonies_2017)
FROM Bee_Colonies INNER JOIN Ag_Codes ON
Bee_Colonies.Ag_District_Code = Ag_Codes.Ag_District_Code
WHERE Bee_Colonies.State_ANSI IN
(SELECT DISTINCT Geo_Codes.State_ANSI
FROM Geo_Codes
WHERE State = 'NJ')
 AND Bee_Colonies.State_ANSI = Ag_Codes.State_ANSI
GROUP BY Bee_Colonies.Ag_District_Code, Ag_Codes.Ag_District;
```

Counties in Middlesex Ag District

What is the state two letter code, county name (also known as area name), agricultural district code, and agricultural district name for counties in the same agricultural district as Middlesex County, NJ? Note that the only constants you can use in your query are: 'Middlesex County' and 'NJ'.

```
SELECT c.State, c.Area_Name, a.Ag_District_Code, a.Ag_District AS
'Ag_District_Name'
FROM Geo_Codes AS c JOIN Bee_Colonies AS b
ON c.State_ANSI = b.State_ANSI
AND c.County_ANSI = b.County_ANSI JOIN Ag_Codes AS a
ON b.Ag_District_Code = a.Ag_District_Code
AND a.State_ANSI = b.State_ANSI
WHERE a.Ag_District_Code =
(SELECT Ag_District_Code
FROM Bee_Colonies
WHERE Bee_Colonies.State_ANSI = (SELECT State_ANSI
FROM Geo_Codes
WHERE Area_Name = 'Middlesex County' AND State = 'NJ')
```

```
AND Bee_Colonies.County_ANSI = (SELECT County_ANSI FROM Geo_Codes
WHERE Area_Name = 'Middlesex County' AND State = 'NJ'))
AND State = 'NJ';
```

Declines in Bee Colonies in States

Generate a report for the states that have experienced (1) the largest decline in the number of bee colonies from 2002 to 2017, and (2) the largest percentage decline in the number of colonies from 2002 to 2017. List the 2-letter abbreviation for the state, the state name, the colony counts for each of the available years, the amount of the change in the colonies in a column called Amount_of_Change, the percent change in colonies in a column called Percent_Change. Consider only the counts for 2002 and 2017 in calculating the change in amount or percent.

```
SELECT * FROM (
SELECT State, Area_Name, Colonies_2002,
Colonies_2007,Colonies_2012,Colonies_2017,
FORMAT(Colonies_2017-Colonies_2002, 0) As Amount_Of_Change,
FORMAT((((Colonies_2017-Colonies_2002)/Colonies_2002)*100),0) AS
Percent_Change
FROM Bee_Colonies INNER JOIN Geo_Codes
ON Bee_Colonies.State_ANSI = Geo_Codes.State_ANSI
WHERE Bee_Colonies.County_ANSI = 0
AND (Colonies_2017-Colonies_2002 =
(SELECT MAX(Colonies_2017-Colonies_2002)
FROM Bee_Colonies WHERE County_ANSI = 0))
LIMIT 1) A
UNION (
SELECT State, Area_Name, Colonies_2002, Colonies_2007, Colonies_2012,
Colonies_2017,
FORMAT(Colonies_2017-Colonies_2002,0) AS Amount_of_Change,
FORMAT((((Colonies_2017-Colonies_2002)/Colonies_2002)*100),0) AS
Percent_Change
```

```
FROM Bee_Colonies INNER JOIN Geo_Codes
ON Bee_Colonies.State_ANSI = Geo_Codes.State_ANSI
WHERE Bee_Colonies.County_ANSI = 0
AND (Colonies_2017-Colonies_2002 =
(SELECT MIN(Colonies_2017-Colonies_2002)
FROM Bee_Colonies WHERE County_ANSI = 0))
LIMIT 1 );
```

Growth/Decline in Human Population

Generate a report for the counties have experienced (1) the largest percentage growth in their population from 2000 to 2020, and (2) the largest percentage decline in their population from 2000 to 2020. List the 2-letter abbreviation for the state, the county name, the colony counts for each of the available years, the amount of the change in the colonies in a column called Amount_of_Change, the percent change in colonies in a column called Percent_Change, and the percent change in population in a column called Population_Percent_Change. Consider only the counts for 2002 and 2017 in calculating the Amount_of_Change and Percent_Change. Consider only the populations for 2000 and 2020 in calculating the Population_Percent_Change.

```
SELECT State, Area_Name, FORMAT(Colonies_2002, 0),
FORMAT(Colonies_2007, 0), FORMAT(Colonies_2012, 0),
FORMAT(Colonies_2017, 0),
FORMAT (Colonies_2017 - Colonies_2002, 0) AS Amount_of_Change,
(((Colonies_2017-Colonies_2002)/Colonies_2002)*100) AS
Percent_Colony_Change,
FORMAT (((Population_2020 - Population_2000)/Population_2000) * 100,
0) AS Percent_Population_Change
FROM Bee_Colonies INNER JOIN Geo_Codes ON Bee_Colonies.State_ANSI =
Geo_Codes.State_ANSI AND Bee_Colonies.County_ANSI =
Geo_Codes.County_ANSI
```

```
INNER JOIN Population ON Population.State_ANSI = Geo_Codes.State_ANSI
AND Population.County_ANSI = Geo_Codes.County_ANSI
WHERE Bee_Colonies.County_ANSI > 0 AND
(Population_2020-Population_2000)/Population_2000 = (
        SELECT MAX((Population_2020-Population_2000)/Population_2000)
   FROM Population
   WHERE County_ANSI > 0)
OR
Bee_Colonies.County_ANSI > 0 AND
(Population_2020-Population_2000)/Population_2000 = (
        SELECT MIN((Population_2020-Population_2000)/Population_2000)
   FROM Population
   WHERE County_ANSI > 0);
```