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Write queries to answer the following questions. The query should produce only the result set requested. If your query produces a table that contains additional information, please explain how the requested information could be found.

Write your queries and explanations in a Word document. Upload the Word doc to Canvas. You do not need to turn in your database (I will use my copy of the database to verify that your queries work correctly).

1. Answer the following questions using data in the CountyCropResources and Counties tables located in the OklahomaResources.mdb database.
 - a. What counties produce more than 100 hectares (ha) of cotton? Display the county name and area of cotton for each county.

```
SELECT Counties.Name, CountyCropResources.CottonHa
FROM Counties, CountyCropResources
WHERE (CountyCropResources.CountyID = Counties.CountyID) AND
(CountyCropResources.CottonHa >100)
;
```

- b. Repeat the results from part *a*, but display the areas as whole numbers.

```
SELECT Counties.Name, ROUND (CountyCropResources.CottonHa) As CtnHa
FROM Counties, CountyCropResources
WHERE (CountyCropResources.CountyID = Counties.CountyID) AND
(CountyCropResources.CottonHa >100)
;
```

- c. What is the total area of cropland in Oklahoma?

```
SELECT SUM (CropLandHa) AS CropSum
FROM CountyCropResources;
```

Sum = 6009644.94543.

- d. What is the total area of irrigated land in Oklahoma?

```
SELECT SUM (IrrLandHa) AS IrrSum
FROM CountyCropResources;
```

Sum = 204759.514170.

2. Part 1: What is the sum of the areas in cotton, hay, peanuts, sorghum, soybeans, and wheat for each county? Include the county name in the output.

```
SELECT Counties.Name, (NZ(CountyCropResources.CottonHa, 0) +
NZ(CountyCropResources.HayHa, 0) + NZ(CountyCropResources.PeanutHa, 0) +
NZ(CountyCropResources.SorghumHa, 0) + NZ(CountyCropResources.SoybeanHa, 0)
+ NZ(CountyCropResources.WheatHa, 0)) AS CropHa
FROM Counties, CountyCropResources
WHERE Counties.CountyID = CountyCropResources.CountyID
;
```

Part 2: In which county(ies) do these values exceed the total cropland in that county?

Step 1:

```
SELECT Counties.Name, ((NZ(CountyCropResources.CottonHa, 0) +
NZ(CountyCropResources.HayHa, 0) + NZ(CountyCropResources.PeanutHa, 0)
+ NZ(CountyCropResources.SorghumHa, 0) +
NZ(CountyCropResources.SoybeanHa, 0) +
NZ(CountyCropResources.WheatHa, 0))/CropLandHa) AS CropRat
FROM Counties, CountyCropResources
WHERE Counties.CountyID = CountyCropResources.CountyID;
```

Step 2:

Save above query and open new query. I saved above query as CropRat. Also, please note that the ratio inside the query is saved as CropRat.

Step 3: Run query below in newly opened query.

```
SELECT Name, CropRat
FROM CropRat
WHERE CropRat.CropRat > 1;
```

OR

Run the code below at once:

```
SELECT Name, ((NZ(CountyCropResources.CottonHa, 0) +
NZ(CountyCropResources.HayHa, 0) + NZ(CountyCropResources.PeanutHa, 0) +
NZ(CountyCropResources.SorghumHa, 0) + NZ(CountyCropResources.SoybeanHa, 0)
+ NZ(CountyCropResources.WheatHa, 0))/CropLandHa) AS CropRat
FROM Counties, CountyCropResources
WHERE Counties.CountyID = CountyCropResources.CountyID AND
((NZ(CountyCropResources.CottonHa, 0) + NZ(CountyCropResources.HayHa, 0) +
NZ(CountyCropResources.PeanutHa, 0) + NZ(CountyCropResources.SorghumHa, 0)
+ NZ(CountyCropResources.SoybeanHa, 0) + NZ(CountyCropResources.WheatHa, 0))/CropLandHa) > 1;
```

Answer: Dewey County with the ratio of 55.0060519438.

- a. Calculate the fraction of the cultivated area occupied by all of the crops in the table. In other words, calculate the ratio of the sum of areas calculated above to the cultivated area for each county. Include county name in the output.

```
SELECT Counties.Name, ((NZ(CountyCropResources.CottonHa, 0) +
NZ(CountyCropResources.HayHa, 0) + NZ(CountyCropResources.PeanutHa, 0)
+ NZ(CountyCropResources.SorghumHa, 0) +
NZ(CountyCropResources.SoybeanHa, 0) +
NZ(CountyCropResources.WheatHa, 0))/CropLandHa) AS CropRat
FROM Counties, CountyCropResources
WHERE Counties.CountyID = CountyCropResources.CountyID;
```

- b. If the area in peanut production is projected to be down 10% in each county from the value reported in the table, what is the projected peanut area in each county?

```
SELECT Name, (PeanutHa*90/100) AS ProjPnut
FROM Counties, CountyCropResources
WHERE Counties.CountyID = CountyCropResources.CountyID;
```

- c. What county has the largest area in wheat? What is that area in hectares? (Your result set may include extra information, but still allows the question to be answered easily)

```
SELECT Name, WheatHa
FROM Counties, CountyCropResources
WHERE Counties.CountyID = CountyCropResources.CountyID
ORDER BY WheatHa DESC;
```

Answer: Garfield County has largest area in wheat, which is 137270.040486 Ha.

- d. List the counties in which cotton area exceeds sorghum area. Include county name, CottonHa, and SorghumHa by county in your result set.

```
SELECT Name, CottonHa, SorghumHa
FROM Counties, CountyCropResources
WHERE Counties.CountyID = CountyCropResources.CountyID AND (CottonHa
> SorghumHa)
;
```