Queries II
WV K-12 Education Problem

Topics

- Use calculated fields in a query
- Format fields
- Use criteria to restrict results
- Use AND/OR criteria in a query
- Use NOT criteria in a query

Background Information

This project includes information on West Virginia K-12 schools from 2012 to 2020.

Instructions

IMPORTANT: This assignment requires the Windows version of Microsoft Office.

IMPORTANT: Complete the steps below in the order they are given. Completing the steps out of order may complicate the assignment or result in an incorrect result.

1. Download and extract the provided Data Files ZIP file. It contains the following file for use in this assignment:

    a. **education_ppq2_wvkep.accdb** – Information on West Virginia K-12 schools [1], [2].

Table: *Districts*		
Field Name	**Type**	**Description**
District	Short Text	Primary key. Name of the school district.
Region	Short Text	Region where the school district is located.

Table: *DistrictStatistics*		
Field Name	**Type**	**Description**
District	Short Text	Part of composite key. Name of the school district.
SchoolYear	Short Text	Part of composite key. School year for the data.
Population	Number	Population of the school district.
DropoutRate	Percentage	Percentage of students who dropped out of school in the school district.

Table: *Schools*		
Field Name	**Type**	**Description**
SchoolID	Short Text	State-assigned identifier for the school.
SchoolName	Short Text	Name of the school.
County	Short Text	County where the school is located.
Closed	Yes/No	If yes, school is closed as of 2020-2021 school year.

Table: *SchoolStatistics*		
Field Name	**Type**	**Description**
ID	AutoNumber	Primary key. Unique identifier for the school statistics.
SchoolID	Short Text	State-assigned identifier for the school.
SchoolYear	Short Text	School year for the data.
ManagingDistrict	Short Text	Name of school district that manages the school.
GradesServed	Short Text	Grades served by the school.
SchoolTypeAbbrv	Short Text	Abbreviation of the school type.
Enrollment	Number	Number of students enrolled in the school.
AttendanceRate	Percentage	Average daily attendance rate for the school.
GraduationRate	Percentage	For high schools, percentage of students who has received a regular diploma in four years.
StudentsTested	Number	Number of students who took state proficiency tests.
MathProficiency	Percentage	Percentage of students that tested proficient in math.
ReadingProficiency	Percentage	Percentage of students that tested proficient in reading.

Table: *SchoolTypes*		
Field Name	**Type**	**Description**
SchoolTypeAbbrv	Short Text	Primary key. Abbreviation of the school type.
SchoolTypeName	Short Text	Name of the school type.

Table: *AnalysisQuestions*		
Field Name	**Type**	**Description**
QuestionNumber	Short Text	Primary key. Question being answered.
Response	Long Text	Response to the analysis question prompt.

2. Open the **education_ppq2_wvkep.accdb** database in Microsoft Access.

3. There is nothing to do for this step. Please proceed to the next step.

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4. Create separate queries to provide the information requested below. Name each query after the step in which it appears (e.g., the name the query in Step 4a as *Query4A*).

    HINT: Run your queries to test them. Make sure that they display all and only the records that you would expect to appear.

Use calculated fields in a query / Format fields

a. We wish to understand the proficiency test participation rates for each school. Create a new query that lists each school name, managing district, school year, the number of enrolled students, the number of students tested, and a calculated field with the proficiency test participation rate.

    You can calculate the proficiency test participation rate using the formula:
    $$\frac{[SchoolStatistics.StudentsTested]}{[SchoolStatistics.Enrollment]}$$

    Format the calculated field as a percentage with 2 decimal places. Sort by managing district and then by school name, both in ascending order.

    HINT: This query will show 5,361 records and 6 fields.

Use criteria to restrict results

b. Create a query to view schools whose graduation rates were greater than 90%. List the managing district, school name, grades served, school year, and graduation rate.

    Only display records where the graduation rate was greater than 90% (> 0.9).

    HINT: This query will show 476 records and 5 fields.

Use AND/OR criteria in a query

c. We would like to learn more about districts. Create a query listing the district, region, population, and school year.

    Only display districts that are in the North Central region or have a population of at least 110,000 (≥ 110000).

    HINT: This query will show 70 records and 4 fields.

Use NOT criteria in a query

    d. Create a query displaying information on all secondary schools. List the managing district, school name, grades served, school year, and school type name.

       Only display records for schools that were not elementary schools or intermediate schools.

       HINT: This query will show 2,212 records and 5 fields.

    e. We wish to list each school and the population and dropout rate of its managing district for the 2019-2020 school year. Copy-and-paste this SQL code into a new query:

```
SELECT Schools.SchoolName, DistrictStatistics.District,
DistrictStatistics.Population, DistrictStatistics.DropoutRate
FROM Schools, DistrictStatistics WHERE
DistrictStatistics.SchoolYear="2019-2020" ORDER BY
Schools.SchoolName, DistrictStatistics.District;
```

       The provided query will show more records than it should because it is missing a table. Add the missing table to fix the query.

       HINT: Once corrected, this query will show 652 records and 4 fields.

5. In the *AnalysisQuestions* table, answer the analysis question below. Respond to one question per record.

    a. Is there a relationship between a district's population and its dropout rate? Explain your answer.

6. Run the Compact and Repair Database utility on your database. Ignore any errors you receive when running the utility.

Grading Rubric

This assignment is worth 8 points. It will be graded by your instructor using this rubric:

Standard	Meets Requirements (8 points)	Does Not Meet Requirements (0 points)
Student made reasonable effort in correctly completing assignment.	Assignment is at least 70% complete and correct, or student contacted instructor for help on incorrect or incomplete items.	Assignment is less than 70% complete and correct, and student did not contact instructor for assistance on incorrect or incomplete items.

This rubric will be used for peer evaluation of this assignment:

Standard	Excellent	Satisfactory	Needs Improvement
Assignment is correct and complete.	Assignment is at least 90% complete and correct.	Assignment is 70%-89% complete and correct.	Assignment is less than 70% complete and correct.

The analysis question in Step 5a will be evaluated using this rubric:

Standard	Meets Requirements	Does Not Meet Requirements
Answer is reasonable.	Answer addresses the question prompt and is factually correct or a reasonable interpretation of available data.	Answer does not address the question prompt, is factually incorrect, or is an unreasonable interpretation of available data.
Answer is supported.	Logical rationale is provided to support the given answer.	Logical rationale is not provided to support the given answer.

References

[1] "ZoomWV Data Dashboard," *West Virginia Department of Education*. Available: *https://zoomwv.k12.wv.us/*.

[2] "County Population Totals: 2010-2019," U.S. Census Bureau, Washington, DC, Jun. 2020. Available: *https://www.census.gov/data/datasets/time-series/demo/popest/2010s-counties-total.html*.