Queries III
WV K-12 Education Problem

Topics

- Use grouping in a query
- Use `IIF` function in a calculated field
- Set criteria on fields not displayed in query results
- Use an outer join 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 365. macOS users can access a ready-to-use version through Windows Virtual Desktop by following the instructions at https://cs101.wvu.edu/wvd.

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_ppq3_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_ppq3_wvkep.accdb** database in Microsoft Access.

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

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

5. 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 5a as *Query5A*).

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

Use grouping in a query / Use IIF function in a calculated field

a. We wish to evaluate the annual performance of each district. Create a query listing, for each district and school year, the population, total enrollment, and an indication if the district had a high graduation rate.

   A district has a high graduation rate if the average graduation rate is at least 90% (≥ 0.9). You can determine whether or not a district had a high graduation rate using the formula:

   ```
   IIf(Avg([GraduationRate])>=0.9,"True","False")
   ```

   HINT: Since we are providing the average function in the formula for the calculated field, please change the **Total** line to *Expression* for the calculated file.

   HINT: This query will show 440 records and 5 fields.

Set criteria on fields not displayed in query results

b. We wish to view statistics for intermediate and middle schools. Create a new query listing the managing district, school name, school year, enrollment, and attendance rate.

   Only display records for schools with the Intermediate School or Middle School school types. Do not display the school type in the result.

   Sort by managing district, then by school name and school year, all in ascending order.

   HINT: This query will show 1,009 records and 5 fields.

Use an outer join in a query

    c.   We wish to calculate the number of schools from each school type for each school year. Create a new query that lists each school type's name, the school year, the number of schools from that school type in that school year.

        Your results must include all school types, even if they had no schools.

        Sort by school type name and then by school year, both in ascending order.

        HINT: This query will show 68 records and 3 fields.

    d.   We wish to count the total number of districts in each region. Copy-and-paste this SQL code into a new query:

```
SELECT Districts.Region, COUNT(Districts.District) AS
DistrictCount FROM Districts INNER JOIN DistrictStatistics ON
Districts.District = DistrictStatistics.District GROUP BY
Districts.Region ORDER BY Districts.Region;
```

        The provided query will show incorrect county counts because it has an unnecessary table. For example, there are only 4 counties in the Greenbrier Valley, not 32. Remove the unnecessary table to fix the query.

        HINT: This query will show 10 records and 2 fields.

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

    a.   What are some possible causes of low graduation rates (below 90%)?

7. 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 6a 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*.