Queries I
WV K-12 Education Problem

Topics

- Create a single table query
- Use sorting in a query
- Use multiple tables in a query
- Sort on multiple fields
- Use a SQL SELECT 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_ppq1_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_ppq1_wvkep.accdb** database in Microsoft Access.

3. 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 3a as *Query3A*).

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

Create a single table query

a. Create a query to view information on each school. List each school name, the county where it is located, and if it is closed.

   HINT: This query will show 733 records and 3 fields.

Use sorting in a query

b. We wish to view annual statistics for each district. Create a query listing each school year, district, and dropout rate.

   Sort by school year in ascending order.

   HINT: This query will show 440 records and 3 fields.

Use multiple tables in a query / Sort on multiple fields

c. Create a query to view information on each school and their annual proficiency rates. List each school name, region, school year, the number of students who took proficiency tests, the math proficiency rate, and reading proficiency rate.

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

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

Use a SQL SELECT query

    d. We want to determine the number of schools and dropout rate for each district in each school year. Copy-and-paste this SQL code into a new query:

```
SELECT DistrictStatistics.District,
DistrictStatistics.SchoolYear,
COUNT(SchoolStatistics.SchoolID) AS SchoolCount,
DistrictStatistics.DropoutRate FROM DistrictStatistics INNER
JOIN SchoolStatistics ON DistrictStatistics.District =
SchoolStatistics.ManagingDistrict AND
DistrictStatistics.SchoolYear = SchoolStatistics.SchoolYear
GROUP BY DistrictStatistics.District,
DistrictStatistics.SchoolYear, DistrictStatistics.DropoutRate
ORDER BY DistrictStatistics.District,
DistrictStatistics.SchoolYear;
```

IMPORTANT: Do not make any modifications to this query other than entering the above SQL code.

HINT: This query will show 440 records and 4 fields.

    e. We wish to list each school and their proficiency rates for the 2018-2019 school year. Copy-and-paste this SQL code into a new query:

```
SELECT Schools.SchoolName, SchoolStatistics.District,
Round((SchoolStatistics.MathProficiency +
SchoolStatistics.ReadingProficiency)/2,3) AS
AvgProficiencyRate FROM Schools INNER JOIN SchoolStatistics ON
Schools.SchoolID = SchoolStatistics.SchoolID WHERE
(((Round((SchoolStatistics.MathProficiency +
SchoolStatistics.ReadingProficiency)/2,3)) Is Not Null) AND
((SchoolStatistics.SchoolYear)="2018-2019")) ORDER BY
Round((SchoolStatistics.MathProficiency +
SchoolStatistics.ReadingProficiency)/2,3), Schools.SchoolName;
```

The provided query will prompt for a missing value when run. Correct the invalid field name to fix the query.

HINT: Once corrected, this query will show 619 records and 3 fields.

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

    a. Are there any noticeable patterns in the average 2018-2019 proficiency rates? Provide a possible explanation for any pattern.

5. 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 4a 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*.