# 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:
	1. 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. |

Open the education\_ppq3\_wvkep.accdb database in Microsoft Access.

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

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

1. 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

* 1. 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% ($\geq 0.9$). 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

* 1. 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

* 1. 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.
	2. 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.
1. In the AnalysisQuestions table, answer the analysis question below. Respond to one question per record.
	1. What are some possible causes of low graduation rates (below 90%)?
2. 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*.