MSBA 5223 – Database Foundations
Assignment 4

The purpose of this assignment is to help you practice the following skills that are essential to your success in this course and in your professional life beyond school if you have the opportunity to work with databases.

- Code SELECT statements that require any of the language elements presented in this chapter or previous chapters.

Another purpose of this assignment is for you to possibly struggle and feel confused while you apply what you have learned in a slightly different context than what was provided in examples. This will allow you to internalize the use of the various techniques and develop your own approach for addressing problems. The purpose is NOT to make you struggle overmuch and hit your head against a brick wall. If you don't know why something isn't working, ask! If you are not sure why something is doing something other than you expected, ask. I am here to help you learn.

Notes about submitting your assignment:

Instructions on submitting are detailed in assignment 2.

Be sure to save your document periodically. When you have finished the assignment, save the document as a PDF.

Each answer is weighted equally and is worth 10 points.

Execute Queries to Retrieve Information from the MurachCollege Database

ALL Columns in every query should have a name.

1. Write a SELECT statement that joins the Instructors and Courses tables and returns these columns:

   LastName,
   FirstName,
   CourseDescription.

   Return at least one row for each instructor, even if that instructor isn't teaching any courses.

   Sort the result set by LastName and then by FirstName.

Paste your entire query into Word. Use the Snipping Tool to capture the Results area of your query. Paste it into your Word document as Answer #1.

2. Use the UNION operator to generate a result set consisting of five columns from the Students table:

Status	A calculated column that contains a value of UNDERGRAD or GRADUATED
FirstName	
LastName	
EnrollmentDate	
GraduationDate	

   If the student doesn't have a value in the GraduationDate column, the Status column should contain a value of UNDERGRAD. Otherwise, it should contain a value of GRADUATED.
   Sort the final result set by EnrollmentDate.

Paste your entire query into Word. Use the Snipping Tool to capture the results area of your query. Paste it into your Word document as Answer #2.

3. Write a SELECT statement that returns these two columns:

   DepartmentName The DepartmentName column from the Departments table
   CourseID The CourseID column from the Courses table

   Return one row for each Department with no courses. *(Hint: Use an outer join and only return rows where the CourseID column contains a null value.)*

Paste your entire query into Word. Use the Snipping Tool to capture the results area of your query. Paste it into your Word document as Answer #3.

4. Write a SELECT statement that returns these columns:

   The count of the number of instructors in the Instructors table

   The average of the AnnualSalary column in the Instructors table

   Include only those rows where the Status column is equal to "F" (Fulltime).

   All columns should have names.

Paste your entire query into Word. Use the Snipping Tool to capture the results area of your query. Paste it into your Word document as Answer #4.

5. Write a SELECT statement that returns one row for each department that has instructors with these columns:

   DepartmentName
   The count of the instructors in the department from the Instructors table
   The annual salary of the highest paid instructor in the department from the Instructors table

   Sort the result set so the department with the most instructors appears first.

Paste your entire query into Word. Use the Snipping Tool to capture the results area of your query. Paste it into your Word document as Answer #5.

6. Write a SELECT statement that returns one row for each instructor that has courses with these columns:

   The instructor first and last names from the Instructors table in this format: John Doe

   (Note: If the instructor first name has a null value, the concatenation of the first and last name will result in a null value.)

   A count of the number of courses in the Courses table
   The sum of the course units in the Courses table

   (Hint: You will need to concatenate the instructor first and last names again in the GROUP BY clause.)

   Sort the result set in descending sequence by the total course units for each instructor.

Paste your entire query into Word. Use the Snipping Tool to capture the results area of your query. Paste it into your Word document as Answer #6.

7. Write a SELECT statement that returns one row for each course that has students enrolled with these columns:
   The DepartmentName column from the Departments table
   The CourseDescription from the Courses table
   A count of the number of students from the StudentCourses table
   Sort the result set by DepartmentName, then by the enrollment for each course.

Paste your entire query into Word. Use the Snipping Tool to capture the results area of your query. Paste it into your Word document as Answer #7.

8. Begin by writing a SELECT statement that returns one row for **each student that has courses** with these columns:
   The StudentID column from the Students table
   The sum of the course units in the Courses table
   Sort the result set in descending sequence by the total course units for each student.
   Then, modify the query so it only includes students who haven't graduated and who are taking more than nine units.
   (Only submit the final query.)

Paste your entire query into Word. Use the Snipping Tool to capture the results area of your query. Paste it into your Word document as Answer #8.

9. Write a SELECT statement that answers this question: What is the total number of courses **taught by parttime** instructors? Return these columns:
   The instructor last name and first name from the Instructors table in this format: Doe, John
   The total number of courses taught for each instructor in the Courses table
   Use the ROLLUP operator to include a row that gives the grand total.

Paste your entire query into Word. Use the Snipping Tool to capture the results area of your query. Paste it into your Word document as Answer #9.

Execute Queries to Retrieve Information from the AdventureWorks database

10. How many people work in each department? To answer this you will use the following tables and JOIN them:

    HumanResources.Department HumanResources.EmployeeDepartmentHistory

    Look at the HumanResources.EmployeeDepartmentHistory table first. How do you know which department someone is **currently** in? (Look at StartDate and EndDate.) Start working by writing and executing a query that will give you a list of employees and their current department. HINT: This should give you the same number of total rows that you get when selecting all the rows from HumanResources.Employee.

    After you have a good list, modify this to get a count for each department just using the HumanResources.EmployeeDepartmentHistory table. This should give you 16 rows. Then join the HumanResources.Department table to get the department name.

    In your result, show the department name (Name), and the number of employees. This should be in alphabetical order by the department name.

    Only submit the final version of this query.

Paste your entire query into Word. Use the Snipping Tool to capture the results area of your query. Paste it into your Word document as Answer #10.

11. Make sure your name is on your document. Submit the one document **as a PDF** to the Assignment - Assignment 4.