Module 7 Challenge

Start Assignment

Due Sunday by 11:59pm

Points 100

Submitting a text entry box or a website url

Background

Now that Bobby has proven his SQL chops, his manager has given both of you two more assignments: determine the number of retiring employees per title, and identify employees who are eligible to participate in a mentorship program. Then, you'll write a report that summarizes your analysis and helps prepare Bobby's manager for the "silver tsunami" as many current employees reach retirement age.

What You're Creating

This new assignment consists of two technical analysis deliverables and a written report. You will submit the following:

- Deliverable 1: The Number of Retiring Employees by Title
- Deliverable 2: The Employees Eligible for the Mentorship Program
- Deliverable 3: A written report on the employee database analysis (README.md)

Files

Use the following link to download the Challenge starter code.

<u>Download challenge starter code</u> (https://2u-data-curriculumteam.s3.amazonaws.com/datavizonline/module_7/Employee_Challenge_starter_code.sql)

Deliverable 1: The Number of Retiring Employees by Title (50 points)

Deliverable 1 Instructions

Using the ERD you created in this module as a reference and your knowledge of SQL queries, create a Retirement Titles table that holds all the titles of employees who were born between January 1, 1952 and December 31, 1955. Because some employees may have multiple titles in the database—for example, due to promotions—you'll need to use the DISTINCT ON statement to create a table that contains the most recent title of each employee. Then, use the COUNT() function to create a table that has the number of retirement-age employees by most recent job title. Finally, because we want to include only current employees in our analysis, be sure to exclude those employees who have already left the company.

REWIND

For this deliverable, you've already done the following in this module:

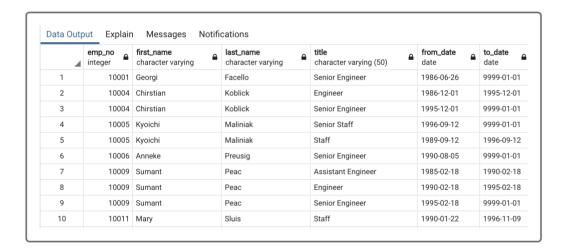
- <u>Lesson 7.3.1:</u> Create new tables with the (INTO) statement
- Lesson 7.3.1: Export a table as a CSV file
- Lesson 7.3.1: Filter queries with the WHERE clause
- Lesson 7.3.3: Use the INNER JOIN clause to join two tables on a primary key
- Lesson 7.3.3: Use the ON () clause
- Lesson 7.3.3: Use an alias instead of a full table name
- Lesson 7.3.4: Use the ORDER BY clause
- Lesson 7.3.4: Use the COUNT() function to retrieve the total number of rows that matches a specified criteria

Create a SQL file in the Queries folder of your Pewlett-Hackard-Analysis GitHub folder, and name it Employee_Database_challenge.sql.

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Follow the instructions below to complete Deliverable 1.

- 1. Retrieve the emp_no, first_name, and last_name columns from the Employees table.
- 2. Retrieve the title, from_date, and to_date columns from the Titles table.
- 3. Create a new table using the INTO clause.
- 4. Join both tables on the primary key.
- 5. Filter the data on the <u>birth_date</u> column to retrieve the employees who were born between 1952 and 1955. Then, order by the employee number.
- 6. Export the Retirement Titles table from the previous step as retirement_titles.csv and save it to your Data folder in the Pewlett-Hackard-Analysis folder.
- 7. Before you export your table, confirm that it looks like this image:



Note: There are duplicate entries for some employees because they have switched titles over the years. Use the following instructions to remove these duplicates and keep only the most recent title of each employee.

- 8. Copy the query from the Employee_Database_challenge.sql file).
- 9. Retrieve the employee number, first and last name, and title columns from the Retirement Titles table.

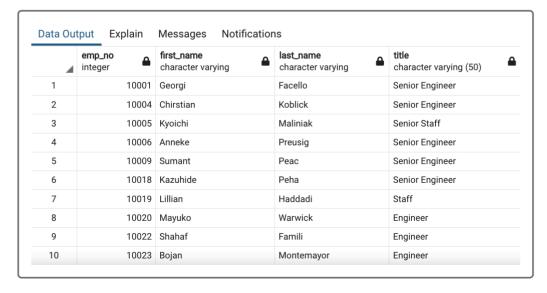
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- These columns will be in the new table that will hold the most recent title of each employee.
- 10. Use the DISTINCT ON statement to retrieve the first occurrence of the employee number for each set of rows defined by the ON () clause.

If you'd like a hint on using the **DISTINCT ON** statement, that's totally okay. If not, that's great too. You can always revisit this later if you change your mind.

SHOW HINT

- 11. Exclude those employees that have already left the company by filtering on to_date to keep only those dates that are equal to '9999-01-01'.
- 12. Create a Unique Titles table using the INTO clause.
- 13. Sort the Unique Titles table in ascending order by the employee number and descending order by the last date (i.e., to_date) of the most recent title.
- 14. Export the Unique Titles table as <u>unique_titles.csv</u> and save it to your Data folder in the Pewlett-Hackard-Analysis folder.
- 15. Before you export your table, confirm that it looks like this image:



- 16. Write another query in the Employee_Database_challenge.sql file to retrieve the number of employees by their most recent job title who are about to retire.
- 17. First, retrieve the number of titles from the Unique Titles table.
- 18. Then, create a Retiring Titles table to hold the required information.
- 19. Group the table by title, then sort the count column in descending order.
- 20. Export the Retiring Titles table as retiring_titles.csv and save it to your Data folder in the Pewlett-Hackard-Analysis folder.
- 21. Before you export your table, confirm that it looks like this image:

4	count bigint	title character varying (50)
1	25916	Senior Engineer
2	24926	Senior Staff
3	9285	Engineer
4	7636	Staff
5	3603	Technique Leader
6	1090	Assistant Engineer
7	2	Manager

22. Save your Employee_Database_challenge.sql file in your Queries folder in the Pewlett-Hackard folder.

Deliverable 1 Requirements

You will earn a perfect score for Deliverable 1 by completing all requirements below:

- A query is written and executed to create a Retirement Titles table for employees who are born between January 1, 1952 and December 31, 1955. (10 pt)
- The Retirement Titles table is exported as retirement_titles.csv. (5
 pt)
- A query is written and executed to create a Unique Titles table that contains the employee number, first and last name, and most recent title. (15 pt)
- The Unique Titles table is exported as unique titles.csv. (5 pt)
- A query is written and executed to create a Retiring Titles table that contains the number of titles filled by employees who are retiring. (10 pt)
- The Retiring Titles table is exported as retiring_titles.csv. (5 pt)

Deliverable 2: The Employees Eligible for the Mentorship Program (30 points)

Deliverable 2 Instructions

Using the ERD you created in this module as a reference and your knowledge of SQL queries, create a mentorship-eligibility table that holds the current employees who were born between January 1, 1965 and December 31, 1965.

REWIND

For this deliverable, you've already done the following in this module:

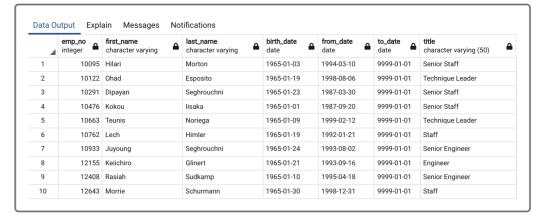
- Lesson 7.3.1: Create new tables with the INTO statement
- Lesson 7.3.1: Export a table as a CSV file
- Lesson 7.3.1: Filter queries with the WHERE clause

• Lesson 7.3.3: Use the INNER JOIN clause to join two tables on a similar column

- Lesson 7.3.3: Use the ON () clause
- Lesson 7.3.3: Use an alias instead of a full table name
- Lesson 7.3.4: Use the ORDER BY clause

In the Employee_Database_challenge.sql file, write a query to create a Mentorship Eligibility table that holds the employees who are eligible to participate in a mentorship program.

- 1. Retrieve the emp_no, first_name, and birth_date columns from the Employees table.
- 2. Retrieve the from_date and to_date columns from the Department Employee table.
- 3. Retrieve the title column from the Titles table.
- 4. Use a DISTINCT ON statement to retrieve the first occurrence of the employee number for each set of rows defined by the ON () clause.
- 5. Create a new table using the INTO clause.
- 6. Join the Employees and the Department Employee tables on the primary key.
- 7. Join the Employees and the Titles tables on the primary key.
- 8. Filter the data on the to_date column to all the current employees, then filter the data on the birth_date columns to get all the employees whose birth dates are between January 1, 1965 and December 31, 1965.
- 9. Order the table by the employee number.
- 10. Export the Mentorship Eligibility table as mentorship_eligibility.csv and save it to your Data folder in the Pewlett-Hackard-Analysis folder.
- 11. Before you export your table, confirm that it looks like this image:



Deliverable 2 Requirements

You will earn a perfect score for Deliverable 2 by completing all requirements below:

- A query is written and executed to create a Mentorship Eligibility table for current employees who were born between January 1, 1965 and December 31, 1965. (25 pt)
- The Mentorship Eligibility table is exported and saved as mentorship_eligibilty.csv. (5 pt)

Deliverable 3: A written report on the employee database analysis (20 points)

Deliverable 3 Instructions

For this part of the Challenge, you'll write a report to help the manager prepare for the upcoming "silver tsunami."

The analysis should contain the following:

- 1. **Overview of the analysis:** Explain the purpose of this analysis.
- 2. **Results:** Provide a bulleted list with four major points from the two analysis deliverables. Use images as support where needed.
- 3. Summary: Provide high-level responses to the following questions, then provide two additional queries or tables that may provide more insight into the upcoming "silver tsunami."

- How many roles will need to be filled as the "silver tsunami" begins to make an impact?
- Are there enough qualified, retirement-ready employees in the departments to mentor the next generation of Pewlett Hackard employees?

Deliverable 3 Requirements

Structure, Organization, and Formatting (6 points)

The written analysis has the following structure, organization, and formatting:

- There is a title, and there are multiple sections. (2 pt)
- Each section has a heading and subheading. (2 pt)
- Links to images are working and displayed correctly. (2 pt)

Analysis (14 points)

The written analysis has the following:

- 1. Overview of the analysis:
 - The purpose of the new analysis is well defined. (3 pt)
- 2. Results:
 - There is a bulleted list with four major points from the two analysis deliverables. (6 pt)
- 3. Summary:
 - The summary addresses the two questions and contains two additional queries or tables that may provide more insight. (5 pt)

Submission

Once you're ready to submit, make sure to check your work against the rubric to ensure you are meeting the requirements for this Challenge one final time. It's easy to overlook items when you're in the zone!

As a reminder, the deliverables for this Challenge are as follows:

- Deliverable 1: The Number of Retiring Employees by Title
- Deliverable 2: The Employees Eligible for the Mentorship Program
- Deliverable 3: A written report on the employee database analysis (README.md)

Upload the following to your Pewlett-Hackard-Analysis GitHub repository:

- 1. The Queries folder with the Employee_Database_challenge.sql file
- 2. The Data folder with the retirement_titles.csv, unique_titles.csv, retiring_titles.csv, and mentorship_eligibilty.csv files
- 3. An updated README.md that has your written analysis

To submit your challenge assignment in Canvas, click Submit, then provide the URL of your Pewlett-Hackard-Analysis GitHub repository for grading. Comments are disabled for graded submissions in BootCampSpot. If you have questions about your feedback, please notify your instructional staff or the Student Success Manager. If you would like to resubmit your work for an improved grade, you can use the **Re-Submit Assignment** button to upload new links. You may resubmit up to 3 times for a total of 4 submissions.

IMPORTANT

Once you receive feedback on your Challenge, make any suggested updates or adjustments to your work. Then, add this week's Challenge to your professional portfolio.

NOTE

You are allowed to miss up to two Challenge assignments and still earn your certificate. If you complete all Challenge assignments, your lowest two grades will be dropped. If you wish to skip this assignment, click Next, and move on to the next Module.

Module-7 Rubric

Criteria	Ratings					
Deliverable 1: The number of retiring employees by title	50 to >46.0 pts Mastery √A query is written and executed to create a retirement titles table, which is exported. √A query is written and executed to create the unique titles table, which is exported. √A query is written and executed to create a retiring titles table, which is exported.	Approaching Mastery A query is written and executed to create a retirement titles table, which is exported. A query is written to retrieve the unique titles table, which is exported but not sorted correctly. A query is written to create a retiring titles table, which is exported but not	42 to >39.0 pts Progressing √A query is written and executed to create a retirement titles table, which is exported √A query is written to retrieve the unique titles table, which is exported but does not have the correct columns OR it is not sorted correctly. √A query is written to create a retiring titles table, which is exported, but the number of titles is incorrect OR it is not sorted correctly.	39 to >0.0 pts Emerging √A query is written and executed to create a retirement titles table, which is exported. √A query is written to retrieve the unique titles table, which is exported but does not have the correct columns, duplicates are not removed, and it is not sorted correctly. √A query is written to create a retiring titles table, which is exported, but the number of titles OR columns is incorrect.	0 pts Incomplete	50 pts
Deliverable 2: The employees eligible for the mentorship program	30 to >26.0 pts Mastery √A query is written and executed to create a mentorship eligibility table for current employees born in 1965. √The mentorship eligibility table is exported, and the columns are correct.	26 to >23.0 pts Approaching Mastery A query is written to retrieve the data, both inner join clauses are correct, only ONE of TWO filtering conditions are met, and the table may be ordered correctly. The mentorship eligibility table is exported and saved, but the columns are not correct.	23 to >19.0 pts Progressing A query is written to retrieve data, but only ONE inner join clause is used, only ONE of TWO filtering conditions are met, and the table is not ordered correctly. The mentorship eligibility table is exported and saved, but the columns are not correct	clause is used, the where clauses do not	0 pts Incomplete	30 pts
Deliverable 3: Structure, Organization, and Formatting	6 to >5.0 pts Mastery √The written analysis has ALL of the following: √There is a title, and there are multiple sections. √Each section has a heading and subheading. √There are images, which are formatted and displayed correctly.	5 to >4.0 pts Approaching Master The written analysis has ALL of the following: There is a title, and there are multiple sections. Each section has a heading and subheading. There are images, which are formatted and displaye correctly with one or to minor errors.	√The written analysis ALL of the following: √There is a title, and t are multiple sections. ONE of the following: √Each section may ha heading and subheadi √There are images, w are formatted and displayed correctly wit	analysis has ALL of the following: AND There is a title. There may be a subheading for a section. There are no headings for each section, but there are three	0 pts Incomplete	6 pts

Criteria Deliverable 3: Analysis	Ratings					
	14 to >12.0 pts Mastery	12 to >10.0 pts Approaching Mastery	10 to >8.0 pts Progressing	8 to >0.0 pts Emerging	0 pts Incomplete	
	√The purpose is well defined. √There is a bulleted list that addresses FOUR major results. √The summary addresses the TWO questions and contains TWO additional queries or tables.	√The purpose is well defined. √There is a bulleted list that addresses THREE of the FOUR major results. √The summary addresses the TWO questions and contains ONE of TWO additional queries or tables.	√The purpose is well defined √There is a bulleted list that addresses TWO of the FOUR major results. √The summary addresses ONE or TWO questions and contains ONE or TWO additional queries or tables.	√The purpose is well defined. √There is a bulleted list that addresses ONE of FOUR major results. √The summary addresses ONE of the questions and contains ONE additional query or table.		14 pts

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