Course	**:**	**BIC 21404 Database**
Session	**:**	**II 2024/2025**
Lab task	**:**	**5**
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Write a summary (300 words) on the lesson learned, difficulties arise or any new knowledge obtained throughout the Lab 5 Exercise.

Lesson learned in Lab 5:

In Lab 5 I discovered how much power lives right inside a SQL query. When I calculated a ten percent pay bump and formatted it to two decimal places, it clicked that arithmetic and presentation can happen together no extra spreadsheet needed. Seeing ROUND in action reminded me that clear, polished numbers matter just as much as the raw figures, especially if someone unfamiliar with SQL will read the report.

Adding a new column for the actual increase by subtracting the old salary from the bumped figure felt like magic. In one simple statement I could produce both the new salary and the difference, all neatly labeled. That exercise taught me the value of column aliases in keeping results readable; I didn't have to guess what each number meant.

Next, I played with text. Filtering last names that start with J, A, or M and then measuring each name's length reinforced how SQL isn't just for numbers. Using LIKE and LENGTH showed how easily we can slice and analyze strings without exporting data somewhere else. Sorting by last name wrapped it up neatly, and I appreciated how the ORDER BY clause gives me control over how results appear.

Finally, tackling dates highlighted another strength of SQL. Even though Oracle's MONTHS_BETWEEN isn't in every database, I learned to work around that by counting days or using TIMESTAMPDIFF. Rounding up with CEIL to get whole months drove home how date math can solve real-world problems like figuring out tenure or eligibility without extra coding.

Of course, I had to look up exact function names a couple of times, but each stumble made me more comfortable exploring documentation. By the end of Lab 5 I felt that SQL had moved from "just querying" to a robust toolkit for calculations, string work, and date handling all in one place. That newfound fluency means I can turn raw data into meaningful insights directly in the database.

Exercise

1. The manager of human resource department needs a report to display the employee number, last name, salary, and salary increased by 10% for each employee. Label the column as New Salary and format the new salary in 2 decimal point.

Solution:	

SQL statement	SELECT
	  EMPLOYEE_ID,
	  LAST_NAME,
	  SALARY,
	  ROUND(SALARY * 1.10, 2) AS "New Salary"
	FROM
	  EMPLOYEES;

Output display

	EMPLOYEE_ID	LAST_NAME	SALARY	New Salary
Edit Copy Delete	100	King	24000.00	26400.00
Edit Copy Delete	101	Kochhar	17000.00	18700.00
Edit Copy Delete	102	De Haan	17000.00	18700.00
Edit Copy Delete	103	Hunold	9000.00	9900.00
Edit Copy Delete	104	Ernst	6000.00	6600.00
Edit Copy Delete	105	Austin	4800.00	5280.00
Edit Copy Delete	106	Pataballa	4800.00	5280.00
Edit Copy Delete	107	Lorentz	4200.00	4620.00
Edit Copy Delete	108	Greenberg	12000.00	13200.00
Edit Copy Delete	109	Faviet	9000.00	9900.00
Edit Copy Delete	110	Chen	8200.00	9020.00
Edit Copy Delete	111	Sciarra	7700.00	8470.00
Edit Copy Delete	112	Urman	7800.00	8580.00
Edit Copy Delete	113	Popp	6900.00	7590.00
Edit Copy Delete	114	Raphaely	11000.00	12100.00
Edit Copy Delete	115	Khoo	3100.00	3410.00
Edit Copy Delete	116	Baida	2900.00	3190.00
Edit Copy Delete	117	Tobias	2800.00	3080.00
Edit Copy Delete	118	Himuro	2600.00	2860.00
Edit Copy Delete	119	Colmenares	2500.00	2750.00
Edit Copy Delete	120	Weiss	8000.00	8800.00
Edit Copy Delete	121	Fripp	8200.00	9020.00
Edit Copy Delete	122	Kaufling	7900.00	8690.00
Edit Copy Delete	123	Vollman	6500.00	7150.00
Edit Copy Delete	124	Mourgos	5800.00	6380.00

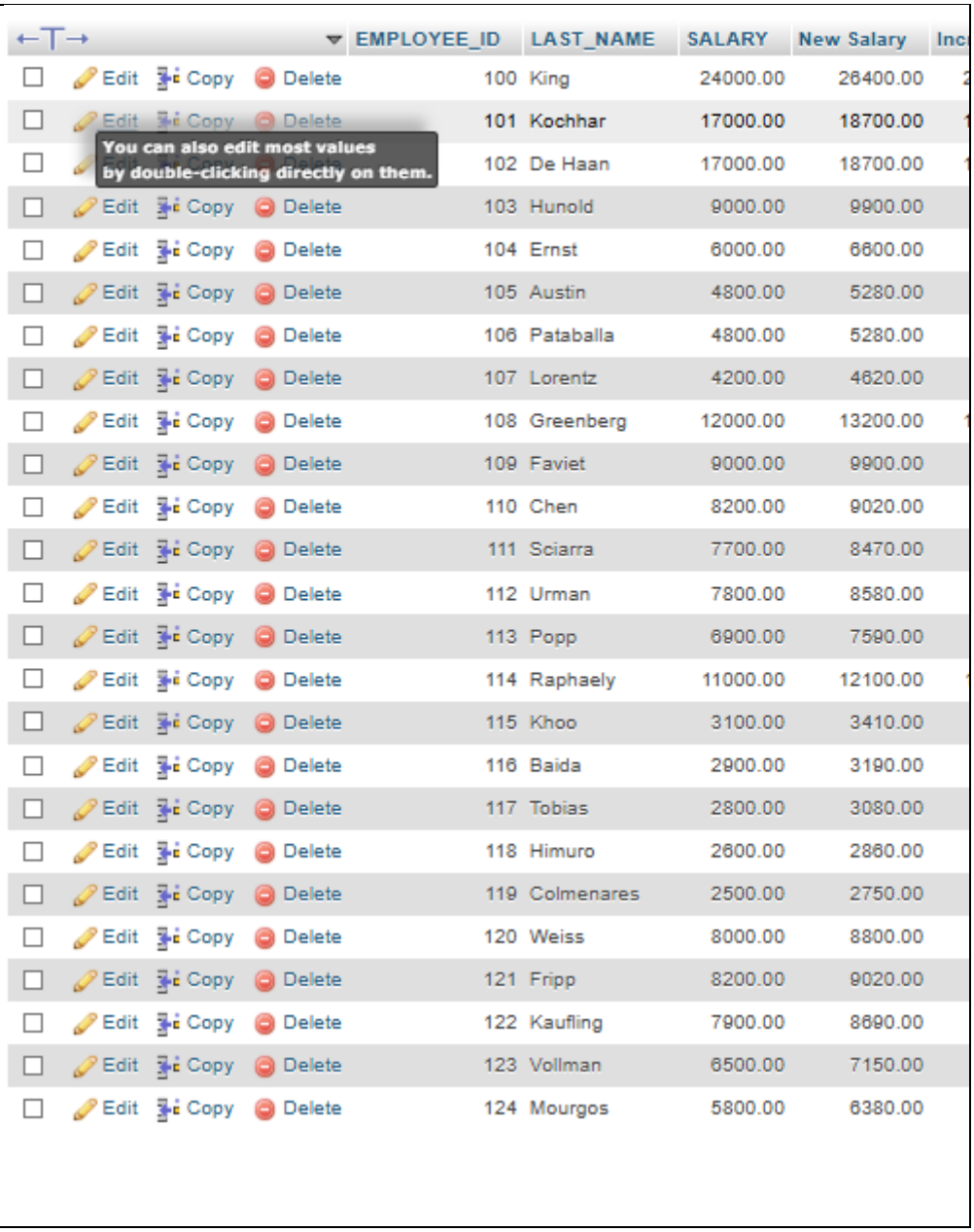
2. Modify your query in exercise (1) to add a column that subtracts the old salary from the new salary. Label the column as Increase.

Solution:

SQL statement

```
SELECT
  EMPLOYEE_ID,
  LAST_NAME,
  SALARY,
  ROUND(SALARY * 1.10, 2) AS "New Salary",
  ROUND(SALARY * 1.10 - SALARY, 2) AS "Increase"
FROM
  EMPLOYEES;
```

Output display



EMPLOYEE_ID	LAST_NAME	SALARY	New Salary
100	King	24000.00	26400.00
101	Kochhar	17000.00	18700.00
102	De Haan	17000.00	18700.00
103	Hunold	9000.00	9900.00
104	Ernst	6000.00	6600.00
105	Austin	4800.00	5280.00
106	Pataballa	4800.00	5280.00
107	Lorentz	4200.00	4620.00
108	Greenberg	12000.00	13200.00
109	Faviet	9000.00	9900.00
110	Chen	8200.00	9020.00
111	Sciarra	7700.00	8470.00
112	Urman	7800.00	8580.00
113	Popp	6900.00	7590.00
114	Raphaely	11000.00	12100.00
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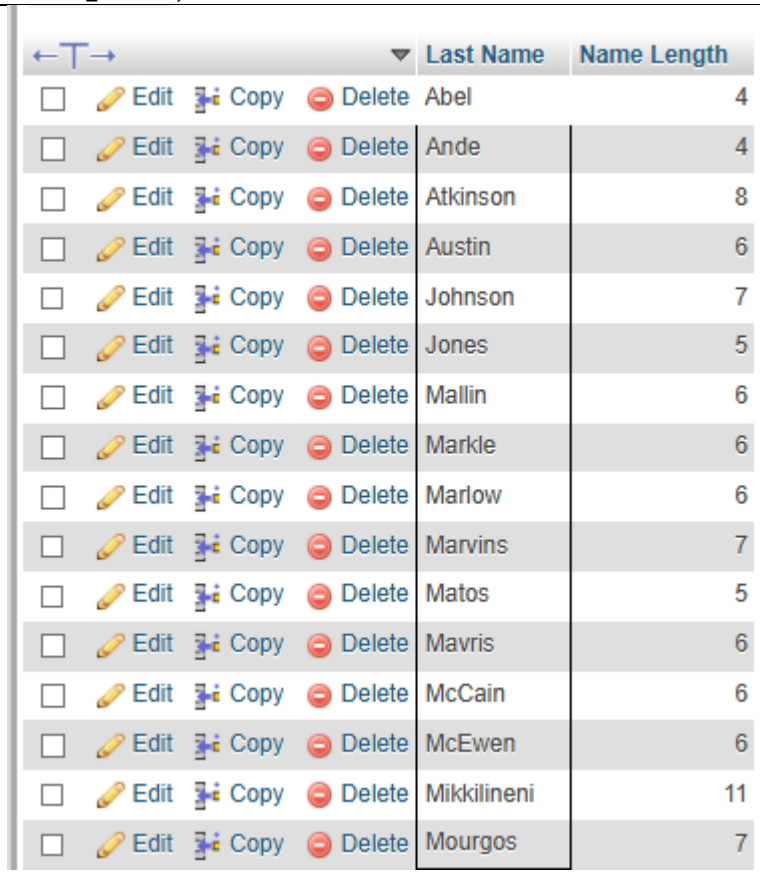
120	Weiss	8000.00	8800.00
121	Fripp	8200.00	9020.00
122	Kaufling	7900.00	8690.00
123	Vollman	6500.00	7150.00
124	Mourgos	5800.00	6380.00

3. Write a query that displays the last name and the length of the last name for all employees whose name starts with the letters "J","A", or "M". Give each column an appropriate label. Sort the results by the employees' last names.

Solution:	

SQL statement	SELECT
	  LAST_NAME AS "Last Name",
	  LENGTH(LAST_NAME) AS "Name Length"
	FROM
	  EMPLOYEES
	WHERE
	  LAST_NAME LIKE 'J%'

	OR LAST_NAME LIKE 'A%' OR LAST_NAME LIKE 'M%' ORDER BY LAST_NAME;
Output display	

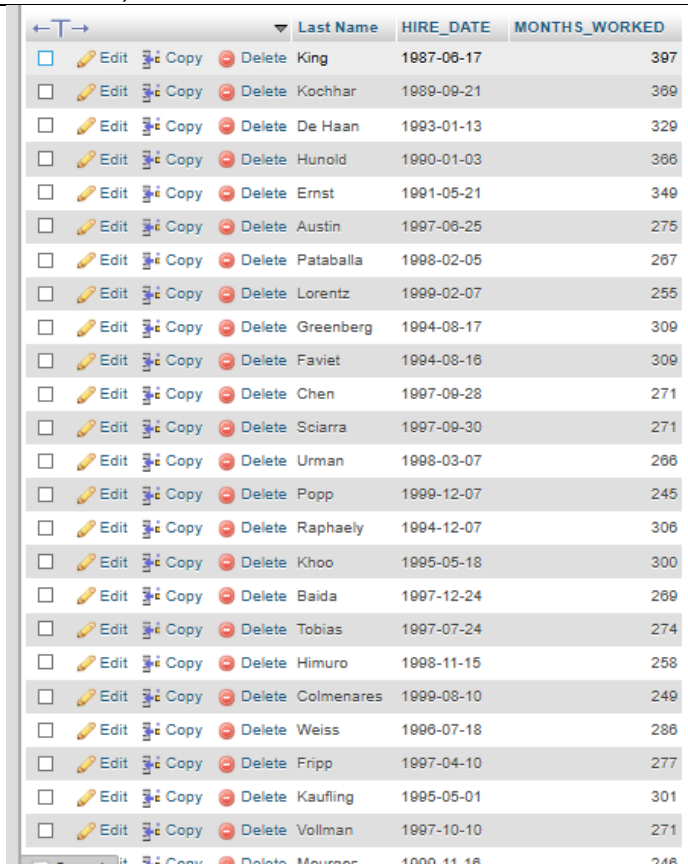
←T→				Last Name	Name Length
☐	Edit	Copy	Delete	Abel	4
☐	Edit	Copy	Delete	Ande	4
☐	Edit	Copy	Delete	Atkinson	8
☐	Edit	Copy	Delete	Austin	6
☐	Edit	Copy	Delete	Johnson	7
☐	Edit	Copy	Delete	Jones	5
☐	Edit	Copy	Delete	Mallin	6
☐	Edit	Copy	Delete	Markle	6
☐	Edit	Copy	Delete	Marlow	6
☐	Edit	Copy	Delete	Marvins	7
☐	Edit	Copy	Delete	Matos	5
☐	Edit	Copy	Delete	Mavris	6
☐	Edit	Copy	Delete	McCain	6
☐	Edit	Copy	Delete	McEwen	6
☐	Edit	Copy	Delete	Mikkilineni	11
☐	Edit	Copy	Delete	Mourgos	7

4. The HR department wants to find the duration of employment for each employee. For each employee, display the last name, hire date and months' work until 1.1.2020. Calculate the number of months between 1.1.2020 and the date on which the employee was hired. Label the column as MONTHS_WORKED. Round the number of months up to the closest whole number.

Solution:	
SQL statement	SELECT LAST_NAME AS `Last Name`, HIRE_DATE, CEIL(DATEDIFF(

```
    '2020-01-01',
    HIRE_DATE
  ) / 30
 )          AS `MONTHS_WORKED`
FROM
 EMPLOYEES
LIMIT 25;
```

Output display



Last Name	HIRE_DATE	MONTHS_WORKED
King	1987-06-17	397
Kochhar	1989-09-21	369
De Haan	1993-01-13	329
Hunold	1990-01-03	366
Ernst	1991-05-21	349
Austin	1997-06-25	275
Pataballa	1998-02-05	267
Lorentz	1999-02-07	255
Greenberg	1994-08-17	309
Faviet	1994-08-16	309
Chen	1997-09-28	271
Sciarra	1997-09-30	271
Urman	1998-03-07	266
Popp	1999-12-07	245
Raphaely	1994-12-07	306
Khoo	1995-05-18	300
Baida	1997-12-24	269
Tobias	1997-07-24	274
Himuro	1998-11-15	258
Colmenares	1999-08-10	249
Weiss	1996-07-18	286
Fripp	1997-04-10	277
Kaufling	1995-05-01	301
Vollman	1997-10-10	271