SQL Assignment

Question 1: Create a SQL statement to list all managers and their titles.

- This query basically pulls together information about employees who are also managers of departments, including details like their names, gender, and birth date, as well as the department they manage and the dates they started and stopped managing.
- It also brings in their job titles and the dates they held those titles.
- We use LEFT JOINs to make sure we don't miss any manager records, even if there's no corresponding employee or title data.

```
MariaDB [employees]> SELECT
    ->     e.emp_no,
    ->     e.first_name,
    ->     e.last_name,
    ->     e.gender,
    ->     e.birth_date,
    ->     dm.dept_no,
    ->     dm.from_date AS manager_from_date,
    ->     dm.to_date AS manager_to_date,
    ->     t.title,
    ->     t.from_date AS title_from_date,
    ->     t.to_date AS title_to_date
    -> FROM
    ->     dept_manager dm
    -> LEFT JOIN
    ->     employees e ON dm.emp_no = e.emp_no
    -> LEFT JOIN
    ->     titles t ON e.emp_no = t.emp_no;
+--------+------------+-----------+--------+------------+---------+------------------+----------------+--------------------+-----------------+---------------+
| emp_no | first_name | last_name | gender | birth_date | dept_no | manager_from_date | manager_to_date | title              | title_from_date | title_to_date |
+--------+------------+-----------+--------+------------+---------+------------------+----------------+--------------------+-----------------+---------------+
|  10001 | Georgi     | Facello   | M      | 1953-09-02 | d001    | 1991-10-01       | 9999-01-01     | Senior Engineer    | 1986-06-26      | 9999-01-01    |
```

| 10002 | Bezalel | Simmel | F | 1964-06-02 | d002 | 1985-01-01 | 1989-12-17 | Staff | 1996-08-03 | 9999-01-01 |

| 10003 | Parto | Bamford | M | 1959-12-03 | d004 | 1988-09-09 | 1992-08-02 | Senior Engineer | 1995-12-03 | 9999-01-01 |

| 10008 | Saniya | Kalloufi | M | 1958-02-19 | d002 | 1989-12-17 | 9999-01-01 | Assistant Engineer | 1998-03-11 | 2000-07-31 |

| 10011 | Mary | Sluis | F | 1953-11-07 | d003 | 1992-03-21 | 9999-01-01 | NULL | NULL | NULL |

| 10012 | Patricio | Bridgland | M | 1960-10-04 | d003 | 1985-01-01 | 1992-03-21 | NULL | NULL | NULL |

| 10013 | Eberhardt | Terkki | M | 1963-06-07 | d001 | 1985-01-01 | 1991-10-01 | NULL | NULL | NULL |

| 10014 | Berni | Genin | M | 1956-02-12 | d004 | 1985-01-01 | 1988-09-09 | NULL | NULL | NULL |

+--------+------------+-----------+--------+------------+---------+------------------+----------------+--------------------+-----------------+---------------+

emp_no	first_name	last_name	gender	birth_date	dept_no	manager_from_date	manager_to_date	title	title_from_date	title_to_date
10001	Georgi	Facello	M	1953-09-02	d001	1991-10-01	9999-01-01	Senior Engineer	1986-06-26	9999-01-01
10002	Bezalel	Simmel	F	1964-06-02	d002	1985-01-01	1989-12-17	Staff	1996-08-03	9999-01-01
10003	Parto	Bamford	M	1959-12-03	d004	1988-09-09	1992-08-02	Senior Engineer	1995-12-03	9999-01-01
10008	Saniya	Kalloufi	M	1958-02-19	d002	1989-12-17	9999-01-01	Assistant Engineer	1998-03-11	2000-07-31
10011	Mary	Sluis	F	1953-11-07	d003	1992-03-21	9999-01-01	NULL	NULL	NULL
10012	Patricio	Bridgland	M	1960-10-04	d003	1985-01-01	1992-03-21	NULL	NULL	NULL
10013	Eberhardt	Terkki	M	1963-06-07	d001	1985-01-01	1991-10-01	NULL	NULL	NULL
10014	Berni	Genin	M	1956-02-12	d004	1985-01-01	1988-09-09	NULL	NULL	NULL

Those without titles excluded:

MariaDB [employees]> SELECT

e.emp_no,

e.first_name,

e.last_name,

e.gender,

e.birth_date,

dm.dept_no,

dm.from_date AS manager_from_date,

dm.to_date AS manager_to_date,

t.title,

```
  t.from_date AS title_from_date,
t.to_date AS title_to_date
FROM
  dept_manager dm
JOIN employees e
ON  dm.emp_no = e.emp_no
JOIN
    titles t ON e.emp_no = t.emp_no;
```

```
+--------+------------+-----------+--------+------------+---------+------------------+----------------+------------------+----------------+--------------+
| emp_no | first_name | last_name | gender | birth_date | dept_no | manager_from_date | manager_to_date | title            | title_from_date | title_to_date |
+--------+------------+-----------+--------+------------+---------+------------------+----------------+------------------+----------------+--------------+
| 10001 | Georgi     | Facello   | M      | 1953-09-02 | d001    | 1991-10-01       | 9999-01-01     | Senior Engineer  | 1986-06-26     | 9999-01-01   |
| 10002 | Bezalel    | Simmel    | F      | 1964-06-02 | d002    | 1985-01-01       | 1989-12-17     | Staff            | 1996-08-03     | 9999-01-01   |
| 10003 | Parto      | Bamford   | M      | 1959-12-03 | d004    | 1988-09-09       | 1992-08-02     | Senior Engineer  | 1995-12-03     | 9999-01-01   |
| 10008 | Saniya     | Kalloufi  | M      | 1958-02-19 | d002    | 1989-12-17       | 9999-01-01     | Assistant Engineer | 1998-03-11   | 2000-07-31   |
+--------+------------+-----------+--------+------------+---------+------------------+----------------+------------------+----------------+--------------+
4 rows in set (0.001 sec)
```

Only the current managers: (Using where condition to filter by to date 9999 01 01)

```
MariaDB [employees]> SELECT
    ->     e.emp_no,
```

```
    ->     e.first_name,
    ->     e.last_name,
    ->     e.gender,
    ->     e.birth_date,
    ->     dm.dept_no,
    ->     dm.from_date AS manager_from_date,
    ->     dm.to_date AS manager_to_date,
    ->     t.title,
    ->     t.from_date AS title_from_date,
    ->     t.to_date AS title_to_date
    -> FROM
    ->     dept_manager dm
    -> LEFT JOIN
    ->     employees e ON dm.emp_no = e.emp_no
    -> LEFT JOIN
    ->     titles t ON e.emp_no = t.emp_no
    -> WHERE
    ->     dm.to_date = '9999-01-01';
```

```
+--------+------------+-----------+--------+------------+---------+------------------+----------------+-------------------+-
----------------+--------------+
| emp_no | first_name | last_name | gender | birth_date | dept_no | manager_from_date |
manager_to_date | title              | title_from_date | title_to_date |
+--------+------------+-----------+--------+------------+---------+------------------+----------------+-------------------+-
----------------+--------------+
|  10001 | Georgi     | Facello   | M      | 1953-09-02 | d001    | 1991-10-01       | 9999-01-01     |
Senior Engineer    | 1986-06-26      | 9999-01-01    |
|  10008 | Saniya     | Kalloufi  | M      | 1958-02-19 | d002    | 1989-12-17       | 9999-01-01     |
Assistant Engineer | 1998-03-11      | 2000-07-31    |
|  10011 | Mary       | Sluis     | F      | 1953-11-07 | d003    | 1992-03-21       | 9999-01-01     | NULL
| NULL           | NULL         |
+--------+------------+-----------+--------+------------+---------+------------------+----------------+-------------------+-
----------------+--------------+
```

3 rows in set (0.001 sec)

emp_no	first_name	last_name	gender	birth_date	dept_no	manager_from_date	manager_to_date	title	title_from_date	title_to_date
10001	Georgi	Facello	M	1953-09-02	d001	1991-10-01	9999-01-01	Senior Engineer	1986-06-26	9999-01-01
10008	Saniya	Kalloufi	M	1958-02-19	d002	1989-12-17	9999-01-01	Assistant Engineer	1998-03-11	2000-07-31
10011	Mary	Sluis	F	1953-11-07	d003	1992-03-21	9999-01-01	NULL	NULL	NULL

Question 2: Create a SQL statement to show the salary of all employees and their department name.

- We left join employees to salaries so that we do not miss out on any employee and we see the rows even if there is no salary information.
- We then join dept_emp that provides us with the information on which employee works in which department.
- We also use the departments table where dept no and dept names are.

```
MariaDB [employees]> SELECT
    ->     e.emp_no,
    ->     e.first_name,
    ->     e.last_name,
    ->     s.salary,
    ->     d.dept_name AS department_name
    -> FROM
    ->     employees e
    -> LEFT JOIN
    ->     salaries s ON e.emp_no = s.emp_no
    -> LEFT JOIN
    ->     dept_emp de ON e.emp_no = de.emp_no
    -> left JOIN
    ->     departments d ON de.dept_no = d.dept_no;
+--------+------------+-----------+--------+-----------------+
| emp_no | first_name | last_name | salary | department_name |
+--------+------------+-----------+--------+-----------------+
|  10001 | Georgi     | Facello   |  60117 | Development     |
|  10001 | Georgi     | Facello   |  62102 | Development     |
|  10002 | Bezalel    | Simmel    |  66074 | Sales           |
|  10003 | Parto      | Bamford   |  66596 | Production      |
|  10004 | Chirstian  | Koblick   |  66961 | Production      |
|  10005 | Kyoichi    | Maliniak  |  71046 | Human Resources |
|  10006 | Anneke     | Preusig   |  74333 | Development     |
|  10007 | Tzvetan    | Zielinski |  75286 | NULL            |
|  10008 | Saniya     | Kalloufi  |  75994 | NULL            |
```

| 10009 | Sumant | Peac | NULL | NULL |

| 10010 | Duangkaew | Piveteau | NULL | NULL |

| 10011 | Mary | Sluis | NULL | NULL |

| 10012 | Patricio | Bridgland | NULL | NULL |

| 10013 | Eberhardt | Terkki | NULL | NULL |

| 10014 | Berni | Genin | NULL | Development |

+--------+------------+-----------+--------+-----------------+

15 rows in set (0.001 sec)

emp_no	first_name	last_name	salary	department_name
10001	Georgi	Facello	60117	Development
10001	Georgi	Facello	62102	Development
10002	Bezalel	Simmel	66074	Sales
10003	Parto	Bamford	66596	Production
10004	Chirstian	Koblick	66961	Production
10005	Kyoichi	Maliniak	71046	Human Resources
10006	Anneke	Preusig	74333	Development
10007	Tzvetan	Zielinski	75286	NULL
10008	Saniya	Kalloufi	75994	NULL
10009	Sumant	Peac	NULL	NULL
10010	Duangkaew	Piveteau	NULL	NULL
10011	Mary	Sluis	NULL	NULL
10012	Patricio	Bridgland	NULL	NULL
10013	Eberhardt	Terkki	NULL	NULL
10014	Berni	Genin	NULL	Development

15 rows in set (0.001 sec)

Question 3 Create a SQL statement to show the hire date and birth date who belongs to HR department

- As we know from the database that d003 is HR department, we filter accordingly using WHERE clause.
- We use union operator to combine the results of two separate SELECT queries (one from the dept_amp table and the other from the 'dept_manager' table.

```
MariaDB [employees]> SELECT e.emp_no, e.first_name, e.last_name, e.hire_date, e.birth_date
   -> FROM employees e
   -> JOIN (
   ->    SELECT emp_no, dept_no
   ->    FROM dept_emp
   ->    UNION
   ->    SELECT emp_no, dept_no
   ->    FROM dept_manager
   -> ) dm ON e.emp_no = dm.emp_no
   -> WHERE dm.dept_no = 'd003';
+--------+------------+-----------+------------+------------+
| emp_no | first_name | last_name | hire_date  | birth_date |
+--------+------------+-----------+------------+------------+
|  10005 | Kyoichi    | Maliniak  | 1989-09-12 | 1955-01-21 |
|  10011 | Mary       | Sluis     | 1990-01-22 | 1953-11-07 |
|  10012 | Patricio   | Bridgland | 1992-12-18 | 1960-10-04 |
+--------+------------+-----------+------------+------------+
3 rows in set (0.001 sec)
```

```
MariaDB [employees]> SELECT e.emp_no, e.first_name, e.last_name, e.hire_date, e.birth_date
    -> FROM employees e
    -> JOIN (
    ->     SELECT emp_no, dept_no
    ->     FROM dept_emp
    ->     UNION
    ->     SELECT emp_no, dept_no
    ->     FROM dept_manager
    -> ) dm ON e.emp_no = dm.emp_no
    -> WHERE dm.dept_no = 'd003';
+--------+------------+-----------+------------+------------+
| emp_no | first_name | last_name | hire_date  | birth_date |
+--------+------------+-----------+------------+------------+
|  10005 | Kyoichi    | Maliniak  | 1989-09-12 | 1955-01-21 |
|  10011 | Mary       | Sluis     | 1990-01-22 | 1953-11-07 |
|  10012 | Patricio   | Bridgland | 1992-12-18 | 1960-10-04 |
+--------+------------+-----------+------------+------------+
```

Question 4 Create a SQL statement to show all departments and their department's managers

- We need to perform a 'LEFT JOIN' between the departments table and dept_manager table here based on their common column (dept_no)
- The LEFT Join ensures that all rows from the departments table are included in the result set, even if there is no corresponding row in the dept_manager table.
- Another left join is then performed between the dept_manager table and employees table based on the manager's emp_no.

```
MariaDB [employees]> SELECT d.dept_no, d.dept_name, e.first_name AS manager_first_name,
e.last_name AS manager_last_name
   -> FROM departments d
   -> LEFT JOIN dept_manager dm ON d.dept_no = dm.dept_no
   -> LEFT JOIN employees e ON dm.emp_no = e.emp_no;
+---------+--------------------+--------------------+-------------------+
| dept_no | dept_name          | manager_first_name | manager_last_name |
+---------+--------------------+--------------------+-------------------+
| d009    | Customer Service   | NULL               | NULL              |
| d005    | Development        | NULL               | NULL              |
| d002    | Finance            | Bezalel            | Simmel            |
| d002    | Finance            | Saniya             | Kalloufi          |
| d003    | Human Resources    | Mary               | Sluis             |
| d003    | Human Resources    | Patricio           | Bridgland         |
| d001    | Marketing          | Georgi             | Facello           |
| d001    | Marketing          | Eberhardt          | Terkki            |
| d004    | Production         | Parto              | Bamford           |
| d004    | Production         | Berni              | Genin             |
| d006    | Quality Management | NULL               | NULL              |
| d008    | Research           | NULL               | NULL              |
| d007    | Sales              | NULL               | NULL              |
+---------+--------------------+--------------------+-------------------+
13 rows in set (0.001 sec)
```

dept_no	dept_name	manager_first_name	manager_last_name
d009	Customer Service	NULL	NULL
d005	Development	NULL	NULL
d002	Finance	Bezalel	Simmel
d002	Finance	Saniya	Kalloufi
d003	Human Resources	Mary	Sluis
d003	Human Resources	Patricio	Bridgland
d001	Marketing	Georgi	Facello
d001	Marketing	Eberhardt	Terkki
d004	Production	Parto	Bamford
d004	Production	Berni	Genin
d006	Quality Management	NULL	NULL
d008	Research	NULL	NULL
d007	Sales	NULL	NULL

13 rows in set (0.001 sec)

Question 5 Create a SQL statement to show a list of HR's employees who were hired after 1986

- We need to perform a subquery to combine the results of two separate select statements. So we need UNION.
- We then perform a join between the employees table and the subquery based on the employee number. This join is then used to filter employees who belong to the HR department (d003).

```
SELECT e.hire_date, e.first_name, e.last_name
   -> FROM employees e
   -> JOIN (
   ->    SELECT emp_no, dept_no
   ->    FROM dept_emp
   ->    UNION
   ->    SELECT emp_no, dept_no
   ->    FROM dept_manager
   -> ) dm ON e.emp_no = dm.emp_no
   -> WHERE dm.dept_no = 'd003' AND e.hire_date > '1986-01-01';
+------------+------------+-----------+
| hire_date  | first_name | last_name |
+------------+------------+-----------+
| 1989-09-12 | Kyoichi    | Maliniak  |
| 1990-01-22 | Mary       | Sluis     |
| 1992-12-18 | Patricio   | Bridgland |
+------------+------------+-----------+
3 rows in set (0.002 sec)
```

```
MariaDB [employees]> SELECT e.hire_date, e.first_name, e.last_name
    -> FROM employees e
    -> JOIN (
    ->     SELECT emp_no, dept_no
    ->     FROM dept_emp
    ->     UNION
    ->     SELECT emp_no, dept_no
    ->     FROM dept_manager
    -> ) dm ON e.emp_no = dm.emp_no
    -> WHERE dm.dept_no = 'd003' AND e.hire_date > '1986-01-01';
+------------+------------+-----------+
| hire_date  | first_name | last_name |
+------------+------------+-----------+
| 1989-09-12 | Kyoichi    | Maliniak  |
| 1990-01-22 | Mary       | Sluis     |
| 1992-12-18 | Patricio   | Bridgland |
+------------+------------+-----------+
3 rows in set (0.001 sec)
```

Question 6 Create a SQL statement to increase any employee's salary up to 2%. Assume the employee has just phoned in with his/her last name.

- As I am working as a data analyst, I avoid making changes to the data. For this reason, we start by creating a temporary table named temp_salary using the CREATE TEMPORARY TABLE statement.
- We perform a join between the employees and the salaries table, then multiply the existing salary value by 1.02 to lead to a .02 increase.
- We use the update statement to update the salary column in temp_salary table.
- The SET clause specifies the new value for the salary column, which is explained above (existing value * 1.02).
- We use where clause to filter by a last name as an example and our query works.

```
MariaDB [employees]> CREATE TEMPORARY TABLE temp_salary AS
   -> SELECT e.emp_no, e.first_name, e.last_name,
   ->       s.salary * 1.02 AS salary, s.from_date, s.to_date
   -> FROM employees e
   -> JOIN salaries s ON e.emp_no = s.emp_no;
Query OK, 9 rows affected (0.007 sec)
Records: 9 Duplicates: 0 Warnings: 0

MariaDB [employees]> SELECT * FROM temp_salary;
+--------+------------+-----------+----------+------------+------------+
| emp_no | first_name | last_name | salary   | from_date  | to_date    |
+--------+------------+-----------+----------+------------+------------+
|  10001 | Georgi     | Facello   | 61319.34 | 1986-06-26 | 1987-06-26 |
|  10001 | Georgi     | Facello   | 63344.04 | 1987-06-26 | 1988-06-25 |
|  10002 | Bezalel    | Simmel    | 68742.90 | 1988-06-25 | 1989-06-25 |
|  10003 | Parto      | Bamford   | 67927.92 | 1989-06-25 | 1990-06-25 |
|  10004 | Chirstian  | Koblick   | 68300.22 | 1990-06-25 | 1991-06-25 |
|  10005 | Kyoichi    | Maliniak  | 72466.92 | 1991-06-25 | 1992-06-24 |
|  10006 | Anneke     | Preusig   | 75819.66 | 1992-06-24 | 1993-06-24 |
|  10007 | Tzvetan    | Zielinski | 76791.72 | 1993-06-24 | 1994-06-24 |
|  10008 | Saniya     | Kalloufi  | 85264.86 | 1994-06-24 | 1995-06-24 |
+--------+------------+-----------+----------+------------+------------+
```

```
9 rows in set (0.000 sec)

MariaDB [employees]> UPDATE temp_salary
    -> SET salary = salary * 1.02
    -> WHERE last_name = 'Bamford';
Query OK, 1 row affected, 1 warning (0.011 sec)
Rows matched: 1  Changed: 1  Warnings: 1

MariaDB [employees]> select * from temp_salary;
+--------+------------+-----------+----------+------------+------------+
| emp_no | first_name | last_name | salary   | from_date  | to_date    |
+--------+------------+-----------+----------+------------+------------+
|  10001 | Georgi     | Facello   | 61319.34 | 1986-06-26 | 1987-06-26 |
|  10001 | Georgi     | Facello   | 63344.04 | 1987-06-26 | 1988-06-25 |
|  10002 | Bezalel    | Simmel    | 68742.90 | 1988-06-25 | 1989-06-25 |
|  10003 | Parto      | Bamford   | 69286.48 | 1989-06-25 | 1990-06-25 |
|  10004 | Chirstian  | Koblick   | 68300.22 | 1990-06-25 | 1991-06-25 |
|  10005 | Kyoichi    | Maliniak  | 72466.92 | 1991-06-25 | 1992-06-24 |
|  10006 | Anneke     | Preusig   | 75819.66 | 1992-06-24 | 1993-06-24 |
|  10007 | Tzvetan    | Zielinski | 76791.72 | 1993-06-24 | 1994-06-24 |
|  10008 | Saniya     | Kalloufi  | 85264.86 | 1994-06-24 | 1995-06-24 |
+--------+------------+-----------+----------+------------+------------+
9 rows in set (0.000 sec)
```

```
MariaDB [employees]> CREATE TEMPORARY TABLE temp_salary AS
    -> SELECT e.emp_no, e.first_name, e.last_name,
    ->        s.salary * 1.02 AS salary, s.from_date, s.to_date
    -> FROM employees e
    -> JOIN salaries s ON e.emp_no = s.emp_no;
Query OK, 9 rows affected (0.007 sec)
Records: 9  Duplicates: 0  Warnings: 0

MariaDB [employees]> SELECT * FROM temp_salary;
+--------+------------+-----------+----------+------------+------------+
| emp_no | first_name | last_name | salary   | from_date  | to_date    |
+--------+------------+-----------+----------+------------+------------+
|  10001 | Georgi     | Facello   | 61319.34 | 1986-06-26 | 1987-06-26 |
|  10001 | Georgi     | Facello   | 63344.04 | 1987-06-26 | 1988-06-25 |
|  10002 | Bezalel    | Simmel    | 68742.90 | 1988-06-25 | 1989-06-25 |
|  10003 | Parto      | Bamford   | 67927.92 | 1989-06-25 | 1990-06-25 |
|  10004 | Chirstian  | Koblick   | 68300.22 | 1990-06-25 | 1991-06-25 |
|  10005 | Kyoichi    | Maliniak  | 72466.92 | 1991-06-25 | 1992-06-24 |
|  10006 | Anneke     | Preusig   | 75819.66 | 1992-06-24 | 1993-06-24 |
|  10007 | Tzvetan    | Zielinski | 76791.72 | 1993-06-24 | 1994-06-24 |
|  10008 | Saniya     | Kalloufi  | 85264.86 | 1994-06-24 | 1995-06-24 |
+--------+------------+-----------+----------+------------+------------+
9 rows in set (0.000 sec)

MariaDB [employees]> UPDATE temp_salary
    -> SET salary = salary * 1.02
    -> WHERE last_name = 'Bamford';
Query OK, 1 row affected, 1 warning (0.011 sec)
Rows matched: 1  Changed: 1  Warnings: 1

MariaDB [employees]> select * from temp_salary;
+--------+------------+-----------+----------+------------+------------+
| emp_no | first_name | last_name | salary   | from_date  | to_date    |
+--------+------------+-----------+----------+------------+------------+
|  10001 | Georgi     | Facello   | 61319.34 | 1986-06-26 | 1987-06-26 |
|  10001 | Georgi     | Facello   | 63344.04 | 1987-06-26 | 1988-06-25 |
|  10002 | Bezalel    | Simmel    | 68742.90 | 1988-06-25 | 1989-06-25 |
|  10003 | Parto      | Bamford   | 69286.48 | 1989-06-25 | 1990-06-25 |
|  10004 | Chirstian  | Koblick   | 68300.22 | 1990-06-25 | 1991-06-25 |
|  10005 | Kyoichi    | Maliniak  | 72466.92 | 1991-06-25 | 1992-06-24 |
|  10006 | Anneke     | Preusig   | 75819.66 | 1992-06-24 | 1993-06-24 |
|  10007 | Tzvetan    | Zielinski | 76791.72 | 1993-06-24 | 1994-06-24 |
|  10008 | Saniya     | Kalloufi  | 85264.86 | 1994-06-24 | 1995-06-24 |
+--------+------------+-----------+----------+------------+------------+
9 rows in set (0.000 sec)
```

Question 7: Create a SQL statement to delete employee's record who belongs to marketing department and name start with A.

- I work here in a temporary table as well, so that I do not make a change to the data.
- We perform two joins in the join clause, one join with the dept_emp table and one with departments table.
- WHERE CLAUSE is used to filter by using a string function 'e.first_name LIKE 'A%').
- MariaDB [employees]> CREATE TEMPORARY TABLE temp_employees AS
- We finally retrieve all columns from temp_employees using select *.

The result set is empty as there is no person in marketing department with a name starting with A.

-> SELECT e.emp_no

-> FROM employees e

-> JOIN dept_emp de ON e.emp_no = de.emp_no

-> JOIN departments d ON de.dept_no = d.dept_no

-> WHERE d.dept_name = 'Marketing' AND e.first_name LIKE 'A%';

Query OK, 0 rows affected (0.001 sec)

Records: 0 Duplicates: 0 Warnings: 0

MariaDB [employees]> select * from temp_employees;

Empty set (0.000 sec)

```
MariaDB [employees]> CREATE TEMPORARY TABLE temp_employees AS
    -> SELECT e.emp_no
    -> FROM employees e
    -> JOIN dept_emp de ON e.emp_no = de.emp_no
    -> JOIN departments d ON de.dept_no = d.dept_no
    -> WHERE d.dept_name = 'Marketing' AND e.first_name LIKE 'A%';
Query OK, 0 rows affected (0.001 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [employees]> select * from temp_employees;
Empty set (0.000 sec)

MariaDB [employees]>
```

Question 8: Create a database view to list the full names of all departments' managers, and their salaries.

- We start by creating a database view.
- We do a right join between the employees table and the dept_manager table to ensure that all managers are included in the view, even if they do not have a corresponding salary records.
- LEFT JOIN between the dept_manager table and the salaries table ensures that we include the salary information for each manager.
- The GROUP BY clause ensures that we group the results as required.
- We then query the view by using the SELECT * FROM department_manager_salaries statement, which retrieves all columns therein.

```
MariaDB [employees]> CREATE OR REPLACE VIEW department_manager_salaries AS
   -> SELECT e.emp_no, e.first_name, e.last_name, dm.dept_no, s.salary
   -> FROM employees e
   -> RIGHT JOIN dept_manager dm ON e.emp_no = dm.emp_no
   -> LEFT JOIN (
   ->     SELECT emp_no, salary
   ->     FROM salaries
   ->     WHERE (emp_no, to_date) IN (
   ->         SELECT emp_no, MAX(to_date)
   ->         FROM salaries
   ->         GROUP BY emp_no
   ->     )
   -> ) s ON dm.emp_no = s.emp_no;
Query OK, 0 rows affected (0.026 sec)

MariaDB [employees]> SELECT * FROM department_manager_salaries;
+--------+------------+-----------+---------+--------+
| emp_no | first_name | last_name | dept_no | salary |
+--------+------------+-----------+---------+--------+
|  10001 | Georgi     | Facello   | d001    |  68312 |
|  10013 | Eberhardt  | Terkki    | d001    |   NULL |
|  10002 | Bezalel    | Simmel    | d002    |  74135 |
```

| 10008 | Saniya | Kalloufi | d002 | 83593 |

| 10011 | Mary | Sluis | d003 | NULL |

| 10012 | Patricio | Bridgland | d003 | NULL |

| 10003 | Parto | Bamford | d004 | 73256 |

| 10014 | Berni | Genin | d004 | NULL |

+--------+------------+-----------+---------+--------+

8 rows in set (0.014 sec)

```
MariaDB [employees]> CREATE OR REPLACE VIEW department_manager_salaries AS
    -> SELECT e.emp_no, e.first_name, e.last_name, dm.dept_no, s.salary
    -> FROM employees e
    -> RIGHT JOIN dept_manager dm ON e.emp_no = dm.emp_no
    -> LEFT JOIN (
    ->     SELECT emp_no, salary
    ->     FROM salaries
    ->     WHERE (emp_no, to_date) IN (
    ->         SELECT emp_no, MAX(to_date)
    ->         FROM salaries
    ->         GROUP BY emp_no
    ->     )
    -> ) s ON dm.emp_no = s.emp_no;
Query OK, 0 rows affected (0.026 sec)

MariaDB [employees]> SELECT * FROM department_manager_salaries;
+--------+------------+-----------+---------+--------+
| emp_no | first_name | last_name | dept_no | salary |
+--------+------------+-----------+---------+--------+
|  10001 | Georgi     | Facello   | d001    |  68312 |
|  10013 | Eberhardt  | Terkki    | d001    |   NULL |
|  10002 | Bezalel    | Simmel    | d002    |  74135 |
|  10008 | Saniya     | Kalloufi  | d002    |  83593 |
|  10011 | Mary       | Sluis     | d003    |   NULL |
|  10012 | Patricio   | Bridgland | d003    |   NULL |
|  10003 | Parto      | Bamford   | d004    |  73256 |
|  10014 | Berni      | Genin     | d004    |   NULL |
+--------+------------+-----------+---------+--------+
8 rows in set (0.014 sec)
```

Question 9: Create a database view to list all departments and their department's managers, who were hired between 1980 and 1990.

- We start by creating a view as below.
- The view definition includes a SELECT statement that retrieves data from multiple tables.
- We concatenate the first and last names of the department managers from the employees table using CONCAT function.
- The view joins the departments table with dept_manager table on the dept_no column to associate each number with its manager.
- We then query the view using SELECT *
- The result set successfully displays the department number, department name and full name of managers.

```
MariaDB [employees]> CREATE VIEW department_managers_hired_between_1980_and_1990 AS
   -> SELECT d.dept_no, d.dept_name, CONCAT(e.first_name, ' ', e.last_name) AS manager_name
   -> FROM departments d
   -> JOIN dept_manager dm ON d.dept_no = dm.dept_no
   -> JOIN employees e ON dm.emp_no = e.emp_no
   -> WHERE YEAR(e.hire_date) BETWEEN 1980 AND 1990;
Query OK, 0 rows affected (0.018 sec)

MariaDB [employees]> select * from department_managers_hired_between_1980_and_1990;
+---------+----------------+------------------+
| dept_no | dept_name      | manager_name     |
+---------+----------------+------------------+
| d001    | Marketing      | Georgi Facello   |
| d001    | Marketing      | Eberhardt Terkki |
| d002    | Finance        | Bezalel Simmel   |
| d003    | Human Resources | Mary Sluis      |
| d004    | Production     | Parto Bamford    |
| d004    | Production     | Berni Genin      |
+---------+----------------+------------------+
6 rows in set (0.001 sec)
```

```
MariaDB [employees]> CREATE VIEW department_managers_hired_between_1980_and_1990 AS
    -> SELECT d.dept_no, d.dept_name, CONCAT(e.first_name, ' ', e.last_name) AS manager_name
    -> FROM departments d
    -> JOIN dept_manager dm ON d.dept_no = dm.dept_no
    -> JOIN employees e ON dm.emp_no = e.emp_no
    -> WHERE YEAR(e.hire_date) BETWEEN 1980 AND 1990;
Query OK, 0 rows affected (0.018 sec)

MariaDB [employees]> select * from department_managers_hired_between_1980_and_1990;
+---------+-----------------+-----------------+
| dept_no | dept_name       | manager_name    |
+---------+-----------------+-----------------+
| d001    | Marketing       | Georgi Facello  |
| d001    | Marketing       | Eberhardt Terkki |
| d002    | Finance         | Bezalel Simmel  |
| d003    | Human Resources | Mary Sluis      |
| d004    | Production      | Parto Bamford   |
| d004    | Production      | Berni Genin     |
+---------+-----------------+-----------------+
6 rows in set (0.001 sec)
```

Question 10: Create a SQL statement to increase salaries of all department's managers up to 10% who are working since 1990.

- A temporary table is created and dept_manager, employees and departments tables are joined. A left join is performed with the salaries table to retrieve salary values for each employee.
- Where clause filters the results based on the conditions for date.
- For someone to be working since 1990, they should have started in or before 1990.
- Another condition is that a person should not have left the company, so the date should be 9999-01-01. I connect these two with and logical operator, to make sure both conditions are satisfied.

```
MariaDB [employees]> CREATE TEMPORARY TABLE IF NOT EXISTS
`10%increase_for_managers_temp` AS
   -> SELECT e.emp_no, e.first_name, e.last_name, d.dept_name,
   ->       s.salary AS previous_salary,
   ->       s.salary * 1.10 AS new_salary
   -> FROM dept_manager dm
   -> JOIN employees e ON dm.emp_no = e.emp_no
   -> JOIN departments d ON dm.dept_no = d.dept_no
   -> LEFT JOIN salaries s ON e.emp_no = s.emp_no
   -> WHERE (YEAR(e.hire_date) <= 1990 AND dm.to_date = '9999-01-01');
Query OK, 3 rows affected (0.050 sec)
Records: 3  Duplicates: 0  Warnings: 0

MariaDB [employees]> SELECT * FROM `10%increase_for_managers_temp`;
+--------+------------+-----------+-----------------+-----------------+------------+
| emp_no | first_name | last_name | dept_name       | previous_salary | new_salary |
+--------+------------+-----------+-----------------+-----------------+------------+
|  10001 | Georgi     | Facello   | Marketing       |         66129 |   72741.90 |
|  10001 | Georgi     | Facello   | Marketing       |         68312 |   75143.20 |
|  10011 | Mary       | Sluis     | Human Resources |          NULL |      NULL |
+--------+------------+-----------+-----------------+-----------------+------------+
3 rows in set (0.001 sec)
```

```
MariaDB [employees]> CREATE TEMPORARY TABLE IF NOT EXISTS `10%increase_for_managers_temp` AS
    -> SELECT e.emp_no, e.first_name, e.last_name, d.dept_name,
    ->        s.salary AS previous_salary,
    ->        s.salary * 1.10 AS new_salary
    -> FROM dept_manager dm
    -> JOIN employees e ON dm.emp_no = e.emp_no
    -> JOIN departments d ON dm.dept_no = d.dept_no
    -> LEFT JOIN salaries s ON e.emp_no = s.emp_no
    -> WHERE (YEAR(e.hire_date) <= 1990 AND dm.to_date = '9999-01-01');
Query OK, 3 rows affected (0.050 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

```
MariaDB [employees]> SELECT * FROM `10%increase_for_managers_temp`;
+--------+------------+-----------+-----------------+-----------------+------------+
| emp_no | first_name | last_name | dept_name       | previous_salary | new_salary |
+--------+------------+-----------+-----------------+-----------------+------------+
|  10001 | Georgi     | Facello   | Marketing       |           66129 |   72741.90 |
|  10001 | Georgi     | Facello   | Marketing       |           68312 |   75143.20 |
|  10011 | Mary       | Sluis     | Human Resources |            NULL |       NULL |
+--------+------------+-----------+-----------------+-----------------+------------+
3 rows in set (0.001 sec)
```