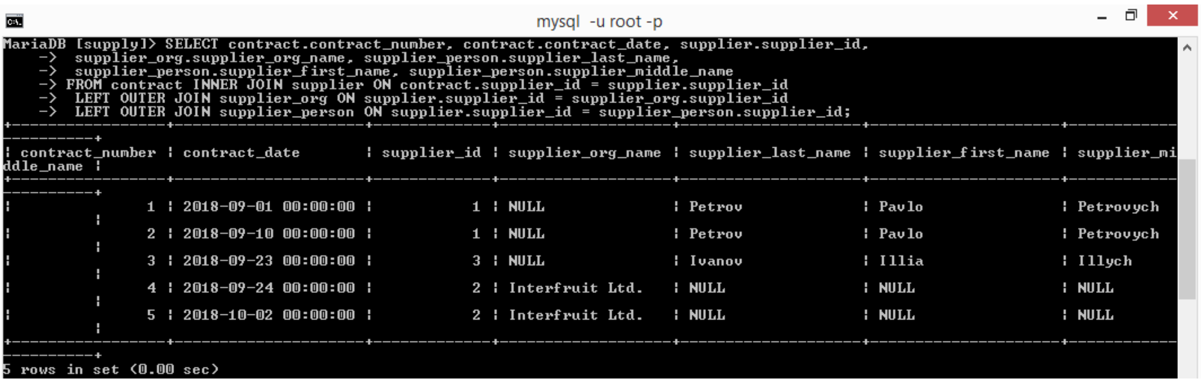
4. CREATION AND USAGE OF VIEWS

Goal: learn how to create and apply views using the MySQL database.

4.1. Create a view that allows seeing the name of the supplier when viewing the list of contracts

Creating views is done with the CREATE VIEW operator. Thus, you can create a view that allows you to view the list of contracts with the name of the supplier, based on the next query (Figure 4.1).

```sql
SELECT contract.contract_number, contract.contract_date, supplier.supplier_id,
   supplier_org.supplier_org_name, supplier_person.supplier_last_name,
   supplier_person.supplier_first_name, supplier_person.supplier_middle_name
FROM contract INNER JOIN supplier ON contract.supplier_id = supplier.supplier_id
   LEFT OUTER JOIN supplier_org ON supplier.supplier_id = supplier_org.supplier_id
   LEFT OUTER JOIN supplier_person ON supplier.supplier_id = supplier_person.supplier_id;
```

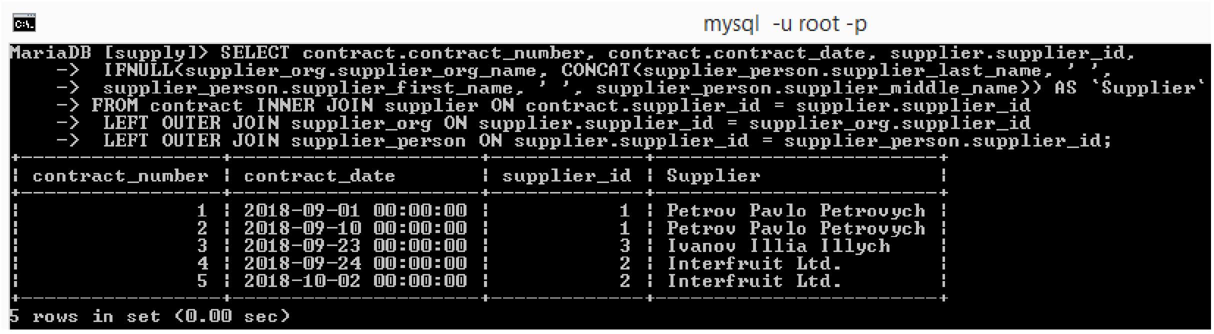


```
MariaDB [supply]> SELECT contract.contract_number, contract.contract_date, supplier.supplier_id,
    ->  supplier_org.supplier_org_name, supplier_person.supplier_last_name,
    ->  supplier_person.supplier_first_name, supplier_person.supplier_middle_name
    -> FROM contract INNER JOIN supplier ON contract.supplier_id = supplier.supplier_id
    ->  LEFT OUTER JOIN supplier_org ON supplier.supplier_id = supplier_org.supplier_id
    ->  LEFT OUTER JOIN supplier_person ON supplier.supplier_id = supplier_person.supplier_id;
+-----------------+---------------------+-------------+-------------------+--------------------+---------------------+----------
----------+
| contract_number | contract_date       | supplier_id | supplier_org_name | supplier_last_name | supplier_first_name | supplier_mi
ddle_name |
+-----------------+---------------------+-------------+-------------------+--------------------+---------------------+----------
----------+
|               1 | 2018-09-01 00:00:00 |           1 | NULL              | Petrov             | Pavlo               | Petrovych
          |
|               2 | 2018-09-10 00:00:00 |           1 | NULL              | Petrov             | Pavlo               | Petrovych
          |
|               3 | 2018-09-23 00:00:00 |           3 | NULL              | Ivanov             | Illia               | Illych
          |
|               4 | 2018-09-24 00:00:00 |           2 | Interfruit Ltd.   | NULL               | NULL                | NULL
          |
|               5 | 2018-10-02 00:00:00 |           2 | Interfruit Ltd.   | NULL               | NULL                | NULL
          |
+-----------------+---------------------+-------------+-------------------+--------------------+---------------------+----------
----------+
5 rows in set (0.00 sec)
```

Figure 4.1

The result of this query has a certain disadvantage – the data of suppliers -entities and individual suppliers are shown in different columns, and also there are NULL values present. This problem can be fixed by applying the following query (Figure 4.2).

```
SELECT contract.contract_number, contract.contract_date, supplier.supplier_id,
   IFNULL(supplier_org.supplier_org_name, CONCAT(supplier_person.supplier_last_name, ' ',
   supplier_person.supplier_first_name, ' ', supplier_person.supplier_middle_name)) AS `Supplier`
FROM contract INNER JOIN supplier ON contract.supplier_id = supplier.supplier_id
   LEFT OUTER JOIN supplier_org ON supplier.supplier_id = supplier_org.supplier_id
   LEFT OUTER JOIN supplier_person ON supplier.supplier_id = supplier_person.supplier_id;
```

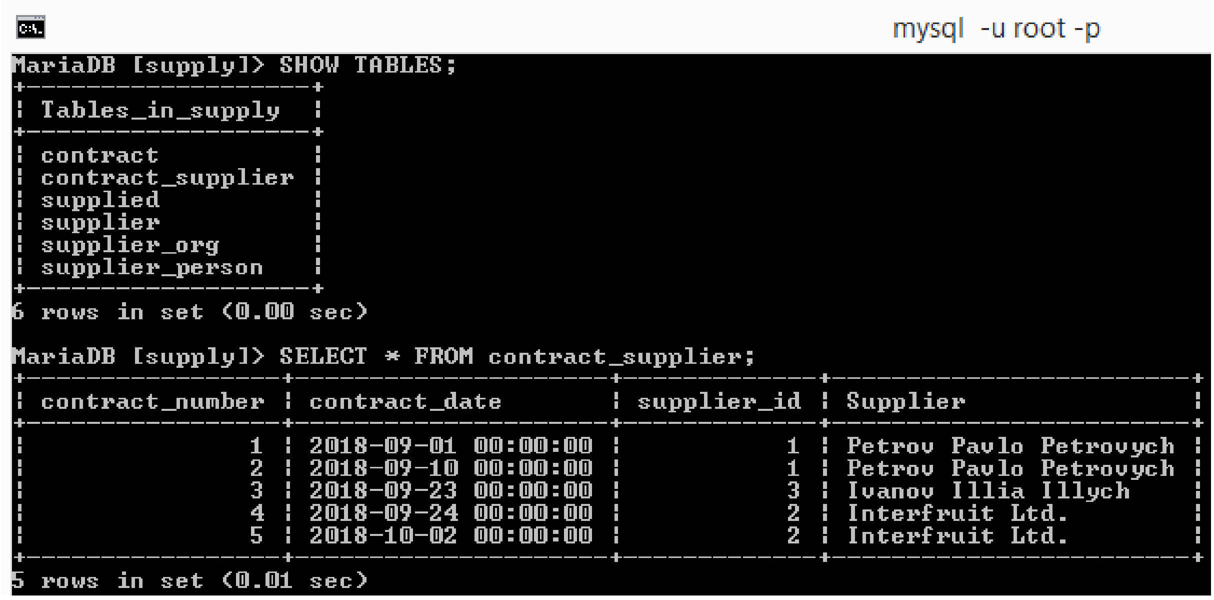


mysql -u root -p

```
MariaDB [supply]> SELECT contract.contract_number, contract.contract_date, supplier.supplier_id,
    ->  IFNULL(supplier_org.supplier_org_name, CONCAT(supplier_person.supplier_last_name, ' ',
    ->  supplier_person.supplier_first_name, ' ', supplier_person.supplier_middle_name)) AS `Supplier`
    -> FROM contract INNER JOIN supplier ON contract.supplier_id = supplier.supplier_id
    ->  LEFT OUTER JOIN supplier_org ON supplier.supplier_id = supplier_org.supplier_id
    ->  LEFT OUTER JOIN supplier_person ON supplier.supplier_id = supplier_person.supplier_id;
+-----------------+---------------------+-------------+-----------------------+
| contract_number | contract_date       | supplier_id | Supplier              |
+-----------------+---------------------+-------------+-----------------------+
|               1 | 2018-09-01 00:00:00 |           1 | Petrov Pavlo Petrovych |
|               2 | 2018-09-10 00:00:00 |           1 | Petrov Pavlo Petrovych |
|               3 | 2018-09-23 00:00:00 |           3 | Ivanov Illia Illych    |
|               4 | 2018-09-24 00:00:00 |           2 | Interfruit Ltd.        |
|               5 | 2018-10-02 00:00:00 |           2 | Interfruit Ltd.        |
+-----------------+---------------------+-------------+-----------------------+
5 rows in set (0.00 sec)
```

Figure 4.2

Now you can create this view with the name contract_supplier using the appropriate SQL statement (Figure 4.3).



mysql -u root -p

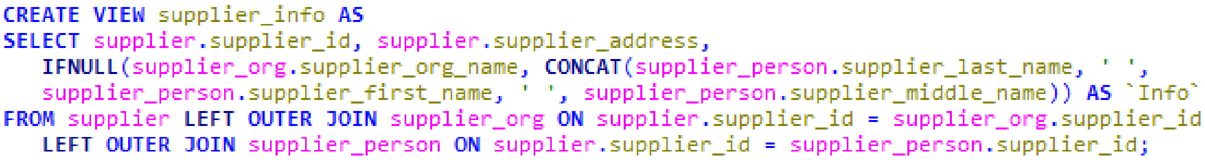
```
MariaDB [supply]> SHOW TABLES;
+-------------------+
| Tables_in_supply  |
+-------------------+
| contract          |
| contract_supplier |
| supplied          |
| supplier          |
| supplier_org      |
| supplier_person   |
+-------------------+
6 rows in set (0.00 sec)

MariaDB [supply]> SELECT * FROM contract_supplier;
+-----------------+---------------------+-------------+------------------------+
| contract_number | contract_date       | supplier_id | Supplier               |
+-----------------+---------------------+-------------+------------------------+
|               1 | 2018-09-01 00:00:00 |           1 | Petrov Pavlo Petrovych |
|               2 | 2018-09-10 00:00:00 |           1 | Petrov Pavlo Petrovych |
|               3 | 2018-09-23 00:00:00 |           3 | Ivanov Illia Illych    |
|               4 | 2018-09-24 00:00:00 |           2 | Interfruit Ltd.        |
|               5 | 2018-10-02 00:00:00 |           2 | Interfruit Ltd.        |
+-----------------+---------------------+-------------+------------------------+
5 rows in set (0.01 sec)
```

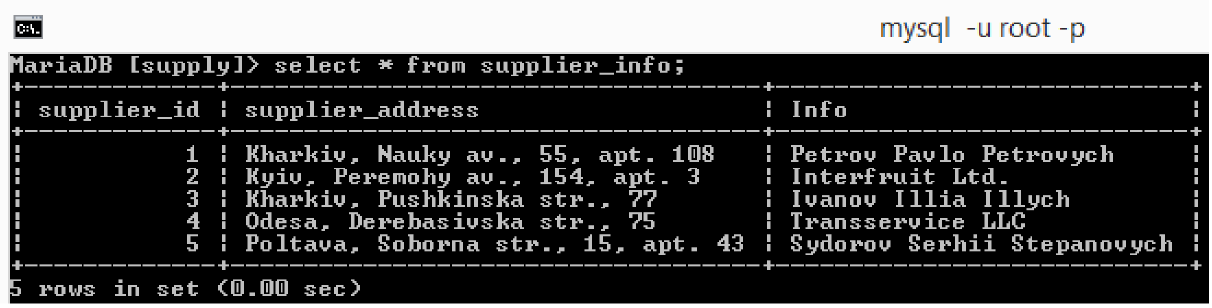
Figure 4.3

4.2. Create a view that allows the user to work with limited supplier data

Suppose that for some users, not all general supplier information (stored in the supplier’s table) should be available, but only information about the code and supplier address. In this case, the user should be able to see the data of the supplier as a business entity (for legal entities – the name, for physical persons – surname, name, and patronymic) (Figure 4.4).



```sql
CREATE VIEW supplier_info AS
SELECT supplier.supplier_id, supplier.supplier_address,
   IFNULL(supplier_org.supplier_org_name, CONCAT(supplier_person.supplier_last_name, ' ',
   supplier_person.supplier_first_name, ' ', supplier_person.supplier_middle_name)) AS `Info`
FROM supplier LEFT OUTER JOIN supplier_org ON supplier.supplier_id = supplier_org.supplier_id
   LEFT OUTER JOIN supplier_person ON supplier.supplier_id = supplier_person.supplier_id;
```



```
MariaDB [supply]> select * from supplier_info;
+-------------+-----------------------------------------+----------------------------+
| supplier_id | supplier_address                        | Info                       |
+-------------+-----------------------------------------+----------------------------+
|           1 | Kharkiv, Nauky av., 55, apt. 108        | Petrov Pavlo Petrovych     |
|           2 | Kyiv, Peremohy av., 154, apt. 3         | Interfruit Ltd.            |
|           3 | Kharkiv, Pushkinska str., 77            | Ivanov Illia Illych        |
|           4 | Odesa, Derebasivska str., 75            | Transservice LLC           |
|           5 | Poltava, Soborna str., 15, apt. 43      | Sydorov Serhii Stepanovych |
+-------------+-----------------------------------------+----------------------------+
5 rows in set (0.00 sec)
```

Figure 4.4

If necessary, you can delete the view using the DROP VIEW operator.

4.3. Questions

1. What is the view?
2. Name advantages and shortcomings of views.
3. Which SQL language operator is used to build views?
4. Which SQL language operator is used to remove views?
5. How you can check the existence of a view in a database?
6. How to specify the list of columns to create a view?

7. What is a vertical view?
8. What is a horizontal view?