

Итоговая контрольная работа

Работа с MySQL в Linux

3.. “Установить MySQL на вашу вычислительную машину”

- Подключить дополнительный репозиторий MySQL и установить один из пакетов из этого репозитория.

```
test@test:~$ sudo apt install mysql-server
```

```
test@test:~$ systemctl status mysql
● mysql.service - MySQL Community Server
   Loaded: loaded (/lib/systemd/system/mysql.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2023-10-25 14:16:14 UTC; 3min 0s ago
     Process: 2471 ExecStartPre=/usr/share/mysql/mysql-systemd-start pre (code=exited, status=0/SUCCESS)
    Main PID: 2481 (mysqld)
      Status: "Server is operational"
     Tasks: 37 (limit: 2219)
    Memory: 365.3M
       CPU: 1.328s
    CGroup: /system.slice/mysql.service
            └─2481 /usr/sbin/mysqld
```

7.2 - В ранее подключенном MySQL создать базу данных с названием "Human Friends".

```
mysql> CREATE DATABASE HumanFriends;
Query OK, 1 row affected (0.01 sec)
```

- Создать таблицы, соответствующие иерархии из вашей диаграммы классов.

```
mysql> CREATE TABLE Dogs(
  -> ID INT AUTO_INCREMENT NOT NULL PRIMARY KEY,
  -> Name VARCHAR(50) NOT NULL,
  -> Type VARCHAR(50) NOT NULL,
  -> BirthDate DATE NOT NULL,
  -> Commands VARCHAR(200)
  -> );
Query OK, 0 rows affected (0.09 sec)

mysql> DESCRIBE Dogs;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra           |
+-----+-----+-----+-----+-----+-----+
| ID         | int           | NO   | PRI | NULL    | auto_increment |
| Name       | varchar(50)   | NO   |     | NULL    |                 |
| Type       | varchar(50)   | NO   |     | NULL    |                 |
| BirthDate  | date          | NO   |     | NULL    |                 |
| Commands   | varchar(200)  | YES  |     | NULL    |                 |
+-----+-----+-----+-----+-----+-----+
```

```
mysql> CREATE TABLE Cats(  
  -> ID INT AUTO_INCREMENT NOT NULL PRIMARY KEY,  
  -> Name VARCHAR(50) NOT NULL,  
  -> Type VARCHAR(50) NOT NULL,  
  -> BirthDate DATE NOT NULL,  
  -> Commands VARCHAR(200)  
  -> );  
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> CREATE TABLE Hamsters(  
  -> ID INT AUTO_INCREMENT NOT NULL PRIMARY KEY,  
  -> Name VARCHAR(50) NOT NULL,  
  -> Type VARCHAR(50) NOT NULL,  
  -> BirthDate DATE NOT NULL,  
  -> Commands VARCHAR(200)  
);  
  -> );  
Query OK, 0 rows affected (0.07 sec)
```

```
mysql> CREATE TABLE Horses(  
  -> ID INT AUTO_INCREMENT NOT NULL PRIMARY KEY,  
  -> Name VARCHAR(50) NOT NULL,  
  -> Type VARCHAR(50) NOT NULL,  
  -> BirthDate DATE NOT NULL,  
  -> Commands VARCHAR(200)  
  -> );  
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> CREATE TABLE Camels(  
  -> ID INT AUTO_INCREMENT NOT NULL PRIMARY KEY,  
  -> Name VARCHAR(50) NOT NULL,  
  -> Type VARCHAR(50) NOT NULL,  
  -> BirthDate DATE NOT NULL,  
  -> Commands VARCHAR(200)  
  -> );  
Query OK, 0 rows affected (0.06 sec)
```

```
mysql> CREATE TABLE Donkeys(  
  -> ID INT AUTO_INCREMENT NOT NULL PRIMARY KEY,  
  -> Name VARCHAR(50) NOT NULL,  
  -> Type VARCHAR(50) NOT NULL,  
  -> BirthDate DATE NOT NULL,  
  -> Commands VARCHAR(200)  
  -> );
```

- Заполнить таблицы данными о животных, их командах и датами рождения.

```
mysql> INSERT INTO Dogs (Name, Type, BirthDate, Commands)
-> VALUES
-> ('Fido', 'PetsAnimal', '2020-01-01', 'Sit, Stay, Fetch'),
-> ('Buddy', 'PetsAnimal', '2018-12-10', 'Sit, Paw, Bark'),
-> ('Bella', 'PetsAnimal', '2019-11-11', 'Sit, Stay, Roll');
Query OK, 3 rows affected (0.00 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

```
mysql> SELECT * FROM Dogs;
+-----+-----+-----+-----+-----+
| ID | Name | Type | BirthDate | Commands |
+-----+-----+-----+-----+-----+
| 1 | Fido | PetsAnimal | 2020-01-01 | Sit, Stay, Fetch |
| 2 | Buddy | PetsAnimal | 2018-12-10 | Sit, Paw, Bark |
| 3 | Bella | PetsAnimal | 2019-11-11 | Sit, Stay, Roll |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

```
mysql> INSERT INTO Cats (Name, Type, BirthDate, Commands)
-> VALUES
-> ('Whiskers', 'PetsAnimal', '2019-05-15', 'Sit, Pounce'),
-> ('Smudge', 'PetsAnimal', '2020-02-20', 'Sit, Pounce, Scratch'),
-> ('Oliver', 'PetsAnimal', '2020-06-30', 'Meow, Scratch, Jump');
Query OK, 3 rows affected (0.01 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

```
mysql> INSERT INTO Hamsters (Name, Type, BirthDate, Commands)
-> VALUES
-> ('Hammy', 'PetsAnimal', '2021-03-10', 'Roll, Hide'),
-> ('Peanut', 'PetsAnimal', '2021-08-01', 'Roll, Spin');
Query OK, 2 rows affected (0.02 sec)
Records: 2 Duplicates: 0 Warnings: 0
```

```
mysql> INSERT INTO Horses (Name, Type, BirthDate, Commands)
-> VALUES
-> ('Thunder', 'PackAnimal', '2015-07-21', 'Trot, Canter, Gallop'),
-> ('Storm', 'PackAnimal', '2014-05-05', 'Trot, Canter'),
-> ('Blaze', 'PackAnimal', '2016-02-29', 'Trot, Jump, Gallop');
Query OK, 3 rows affected (0.32 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

```
mysql> INSERT INTO Camels (Name, Type, BirthDate, Commands)
-> VALUES
-> ('Sandy', 'PackAnimal', '2016-11-03', 'Walk, Carry Load'),
-> ('Dune', 'PackAnimal', '2018-12-12', 'Walk, Sit'),
-> ('Sahara', 'PackAnimal', '2015-08-14', 'Walk, Run');
Query OK, 3 rows affected (0.01 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

```
mysql> INSERT INTO Donkeys (Name, Type, BirthDate, Commands)
-> VALUES
-> ('Eeyore', 'PackAnimal', '2017-09-18', 'Walk, Carry Load, Bray'),
-> ('BurroDonkey', 'PackAnimal', '2019-01-23', 'Walk, Bray, Kick');
Query OK, 2 rows affected (0.01 sec)
Records: 2 Duplicates: 0 Warnings: 0
```

- Удалить записи о верблюдах и объединить таблицы лошадей и ослов.

```
mysql> SELECT * FROM Camels;
+-----+-----+-----+-----+-----+
| ID | Name | Type | BirthDate | Commands |
+-----+-----+-----+-----+-----+
| 1 | Sandy | PackAnimal | 2016-11-03 | Walk, Carry Load |
| 2 | Dune | PackAnimal | 2018-12-12 | Walk, Sit |
| 3 | Sahara | PackAnimal | 2015-08-14 | Walk, Run |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> DELETE FROM Camels;
Query OK, 3 rows affected (0.02 sec)

mysql> SELECT * FROM Camels;
Empty set (0.00 sec)
```

```
mysql> SELECT * FROM Horses
-> UNION SELECT * FROM Donkeys;
+-----+-----+-----+-----+-----+
| ID | Name | Type | BirthDate | Commands |
+-----+-----+-----+-----+-----+
| 1 | Thunder | PackAnimal | 2015-07-21 | Trot, Canter, Gallop |
| 2 | Storm | PackAnimal | 2014-05-05 | Trot, Canter |
| 3 | Blaze | PackAnimal | 2016-02-29 | Trot, Jump, Gallop |
| 1 | Eeyore | PackAnimal | 2017-09-18 | Walk, Carry Load, Bray |
| 2 | BurroDonkey | PackAnimal | 2019-01-23 | Walk, Bray, Kick |
+-----+-----+-----+-----+-----+
5 rows in set (0.04 sec)
```

- Создать новую таблицу для животных в возрасте от 1 до 3 лет и вычислить их возраст с точностью до месяца.

```
mysql> CREATE TEMPORARY TABLE Animals AS
-> SELECT * FROM Dogs WHERE BirthDate BETWEEN ADDDATE(CURDATE(), INTERVAL -3 YEAR) AND ADDDATE(CURDATE(), INTERVAL -1 YEAR)
-> UNION SELECT * FROM Cats WHERE BirthDate BETWEEN ADDDATE(CURDATE(), INTERVAL -3 YEAR) AND ADDDATE(CURDATE(), INTERVAL -1 YEAR)
-> UNION SELECT * FROM Hamsters WHERE BirthDate BETWEEN ADDDATE(CURDATE(), INTERVAL -3 YEAR) AND ADDDATE(CURDATE(), INTERVAL -1 YEAR)
-> UNION SELECT * FROM Camels WHERE BirthDate BETWEEN ADDDATE(CURDATE(), INTERVAL -3 YEAR) AND ADDDATE(CURDATE(), INTERVAL -1 YEAR)
-> UNION SELECT * FROM Donkeys WHERE BirthDate BETWEEN ADDDATE(CURDATE(), INTERVAL -3 YEAR) AND ADDDATE(CURDATE(), INTERVAL -1 YEAR);
Query OK, 2 rows affected (0.00 sec)
Records: 2 Duplicates: 0 Warnings: 0

mysql> SELECT *,
-> TIMESTAMPDIFF(MONTH, BirthDate, CURDATE()) AS age_months
-> FROM Animals;
+-----+-----+-----+-----+-----+-----+
| ID | Name | Type | BirthDate | Commands | age_months |
+-----+-----+-----+-----+-----+-----+
| 1 | Hammy | PetsAnimal | 2021-03-10 | Roll, Hide | 31 |
| 2 | Peanut | PetsAnimal | 2021-08-01 | Roll, Spin | 26 |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

- Объединить все созданные таблицы в одну, сохраняя информацию о принадлежности к исходным таблицам.

```
mysql> SELECT *, 'Dogs' FROM Dogs
-> UNION SELECT *, 'Cats' FROM Cats
-> UNION SELECT *, 'Hamsters' FROM Hamsters
-> UNION SELECT *, 'Horses' FROM Horses
-> UNION SELECT *, 'Camels' FROM Camels
-> UNION SELECT *, 'Donkeys' FROM Donkeys;
```

ID	Name	Type	BirthDate	Commands	Dogs
1	Fido	PetsAnimal	2020-01-01	Sit, Stay, Fetch	Dogs
2	Buddy	PetsAnimal	2018-12-10	Sit, Paw, Bark	Dogs
3	Bella	PetsAnimal	2019-11-11	Sit, Stay, Roll	Dogs
1	Whiskers	PetsAnimal	2019-05-15	Sit, Pounce	Cats
2	Smudge	PetsAnimal	2020-02-20	Sit, Pounce, Scratch	Cats
3	Oliver	PetsAnimal	2020-06-30	Meow, Scratch, Jump	Cats
1	Hammy	PetsAnimal	2021-03-10	Roll, Hide	Hamsters
2	Peanut	PetsAnimal	2021-08-01	Roll, Spin	Hamsters
1	Thunder	PackAnimal	2015-07-21	Trot, Canter, Gallop	Horses
2	Storm	PackAnimal	2014-05-05	Trot, Canter	Horses
3	Blaze	PackAnimal	2016-02-29	Trot, Jump, Gallop	Horses
1	Eeyore	PackAnimal	2017-09-18	Walk, Carry Load, Bray	Donkeys
2	BurroDonkey	PackAnimal	2019-01-23	Walk, Bray, Kick	Donkeys

13 rows in set (0.00 sec)

Пример заполненной таблицы для теста:

Лист "Pets"

ID	Name	Type	BirthDate	Commands
1	Fido	Dog	2020-01-01	Sit, Stay, Fetch
2	Whiskers	Cat	2019-05-15	Sit, Pounce
3	Hammy	Hamster	2021-03-10	Roll, Hide
4	Buddy	Dog	2018-12-10	Sit, Paw, Bark
5	Smudge	Cat	2020-02-20	Sit, Pounce, Scratch
6	Peanut	Hamster	2021-08-01	Roll, Spin
7	Bella	Dog	2019-11-11	Sit, Stay, Roll

ID	Name	Type	BirthDate	Commands
8	Oliver	Cat	2020-06-30	Meow, Scratch, Jump

Лист "PackAnimals"

ID	Name	Type	BirthDate	Commands
1	Thunder	Horse	2015-07-21	Trot, Canter, Gallop
2	Sandy	Camel	2016-11-03	Walk, Carry Load
3	Eeyore	Donkey	2017-09-18	Walk, Carry Load, Bray
4	Storm	Horse	2014-05-05	Trot, Canter
5	Dune	Camel	2018-12-12	Walk, Sit
6	Burro	Donkey	2019-01-23	Walk, Bray, Kick
7	Blaze	Horse	2016-02-29	Trot, Jump, Gallop
8	Sahara	Camel	2015-08-14	Walk, Run