

-- 1. Создание таблиц

```
CREATE TABLE IF NOT EXISTS `types` (  
id BIGINT UNSIGNED NOT NULL AUTO_INCREMENT PRIMARY KEY,  
`name` VARCHAR(45));
```

```
CREATE TABLE IF NOT EXISTS `groups` (  
id BIGINT UNSIGNED NOT NULL AUTO_INCREMENT PRIMARY KEY,  
`name` VARCHAR(45));
```

```
CREATE TABLE IF NOT EXISTS animals (  
id BIGINT UNSIGNED NOT NULL AUTO_INCREMENT PRIMARY KEY,  
birth DATE,  
group_id BIGINT UNSIGNED NOT NULL,  
type_id BIGINT UNSIGNED NOT NULL,  
`name` VARCHAR(45),  
FOREIGN KEY (group_id) REFERENCES `groups`(id) ON UPDATE CASCADE ON DELETE CASCADE,  
FOREIGN KEY (type_id) REFERENCES `types`(id) ON UPDATE CASCADE ON DELETE CASCADE  
);
```

```
CREATE TABLE IF NOT EXISTS commands (  
id BIGINT UNSIGNED NOT NULL AUTO_INCREMENT PRIMARY KEY,  
`name` VARCHAR(45),  
`text` VARCHAR(100));
```

```
CREATE TABLE animals_commands (  
    animal_id BIGINT UNSIGNED NOT NULL,  
    command_id BIGINT UNSIGNED NOT NULL,  
    PRIMARY KEY (animal_id, command_id),  
    FOREIGN KEY (animal_id) REFERENCES animals(id) ON UPDATE CASCADE ON DELETE CASCADE,  
    FOREIGN KEY (command_id) REFERENCES commands(id) ON UPDATE CASCADE ON DELETE CASCADE  
);
```

```
CREATE VIEW animals_commands_view AS  
WITH commands_concat (id, skills) AS (  
    SELECT animals.id AS id, c.name AS skills  
    FROM animals INNER JOIN animals_commands AS ac ON animals.id = ac.animal_id  
    INNER JOIN commands AS c ON c.id = ac.command_id  
)  
SELECT id, GROUP_CONCAT(skills ORDER BY skills ASC SEPARATOR ', ') AS commands_list  
FROM commands_concat GROUP BY id;
```

```
CREATE VIEW animals_list AS  
SELECT a.id, a.birth, a.name, t.name as `type`, g.name as `group`, acw.commands_list as commands  
FROM animals a  
JOIN `types` AS t  
ON t.id = a.type_id  
JOIN `groups` AS g  
ON g.id = a.group_id  
JOIN animals_commands_view AS acw  
ON acw.id = a.id;
```

-- 2. Заполнение таблиц данными о животных, их командах и датами рождения.

```
INSERT INTO `types` (name) VALUES  
("Dog"),  
("Cat"),  
("Hamster"),  
("Donkey"),  
("Camel"),  
("Horse");
```

```
INSERT INTO `groups` (name) VALUES
("Pet"),
("Pack animal");
```

```
INSERT INTO commands (name, text) VALUES
("Walk", "I'm walking"),
("CarryLoad", "I'm carrying a big load"),
("Sit", "I'm sitting"),
("Pounce", "I'm pounding the target"),
("Stay", "I'm standing"),
("Fetch", "I'm fetching a stick"),
("Bray", "I'm braying at dogs"),
("Roll", "I'm rolling the wheel"),
("Hide", "I'm hiding"),
("Canter", "I'm cantering"),
("Gallop", "I'm galloping"),
("Trot", "I'm trotting");
```

```
INSERT INTO animals (birth, group_id, type_id, `name`) VALUES
('2023-06-09', 2, 5, 'Buddy'), ('2024-01-28', 2, 5, 'Bear'),
('2019-02-12', 1, 2, 'Winston'), ('2021-06-23', 1, 2, 'Teddy'),
('2020-12-01', 1, 1, 'Tucker'), ('2023-03-07', 1, 1, 'Loki'),
('2021-04-15', 2, 4, 'Jack'), ('2021-01-31', 2, 4, 'Archie'),
('2024-02-22', 1, 3, 'Leo'), ('2022-06-08', 1, 3, 'Charlie'),
('2022-04-08', 2, 6, 'Duke'), ('2023-12-08', 2, 6, 'Lucy');
```

```
INSERT INTO animals_commands (animal_id, command_id) VALUES
(1, 1), (1, 2),
(2, 1), (2, 2),
(3, 3), (3, 4),
(4, 3), (4, 4),
(5, 3), (5, 5), (5, 6),
(6, 3), (6, 5), (6, 6),
(7, 1), (7, 2), (7, 7),
(8, 1), (8, 2), (8, 7),
(9, 8), (9, 9),
(10, 8), (10, 9),
(11, 10), (11, 11), (11, 12),
(12, 10), (12, 11), (12, 12);
```

```
SELECT * FROM animals_list;
```

```
mysql> SELECT * FROM animals_list;
```

id	birth	name	type	group	commands
3	2019-02-12	Winston	Cat	Pet	Pounce, Sit
4	2021-06-23	Teddy	Cat	Pet	Pounce, Sit
5	2020-12-01	Tucker	Dog	Pet	Fetch, Sit, Stay
6	2023-03-07	Loki	Dog	Pet	Fetch, Sit, Stay
9	2024-02-22	Leo	Hamster	Pet	Hide, Roll
10	2022-06-08	Charlie	Hamster	Pet	Hide, Roll
1	2023-06-09	Buddy	Camel	Pack animal	CarryLoad, Walk
2	2024-01-28	Bear	Camel	Pack animal	CarryLoad, Walk
7	2021-04-15	Jack	Donkey	Pack animal	Bray, CarryLoad, Walk
8	2021-01-31	Archie	Donkey	Pack animal	Bray, CarryLoad, Walk
11	2022-04-08	Duke	Horse	Pack animal	Canter, Gallop, Trot
12	2023-12-08	Lucy	Horse	Pack animal	Canter, Gallop, Trot

12 rows in set (0.01 sec)

-- 3. Удалить записи о верблюдах.

```
DELETE FROM animals WHERE type_id = (SELECT id FROM `types` WHERE `name` = 'Camel');
```

-- 4. Объединить таблицы лошадей и ослов.

```
SELECT * FROM animals_list WHERE `type` = 'Horse' OR `type` = 'Donkey';
```

```
mysql> -- 5. Объединить таблицы лошадей и ослов.
mysql> SELECT * FROM animals_list WHERE `type` = 'Horse' OR `type` = 'Donkey';
+----+-----+-----+-----+-----+-----+-----+
| id | birth      | name  | type  | group      | commands                |
+----+-----+-----+-----+-----+-----+-----+
| 7  | 2021-04-15 | Jack  | Donkey | Pack animal | Bray, CarryLoad, Walk  |
| 8  | 2021-01-31 | Archie | Donkey | Pack animal | Bray, CarryLoad, Walk  |
| 11 | 2022-04-08 | Duke  | Horse  | Pack animal | Canter, Gallop, Trot   |
| 12 | 2023-12-08 | Lucy  | Horse  | Pack animal | Canter, Gallop, Trot   |
+----+-----+-----+-----+-----+-----+-----+
4 rows in set (0,00 sec)
```

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

```
CREATE TABLE IF NOT EXISTS animals_2 (
id BIGINT UNSIGNED NOT NULL AUTO_INCREMENT PRIMARY KEY,
birth DATE,
`name` VARCHAR(45),
`type` VARCHAR(45),
`group` VARCHAR(45),
commands VARCHAR(100),
monts INT
);
```

```
INSERT INTO animals_2 (birth, `name`, `type`, `group`, commands, monts)
SELECT birth, `name`, `type`, `group`, commands, TIMESTAMPDIFF(MONTH, birth, CURDATE()) AS monts
FROM animals_list
WHERE
TIMESTAMPDIFF(MONTH, birth, CURDATE()) <= 36
AND TIMESTAMPDIFF(MONTH, birth, CURDATE()) >= 12
ORDER BY monts;
```

```
SELECT * FROM animals_2;
```

```
mysql> SELECT * FROM animals_2
-> ;
+----+-----+-----+-----+-----+-----+-----+
| id | birth      | name  | type  | group      | commands                | monts |
+----+-----+-----+-----+-----+-----+-----+
| 1  | 2023-03-07 | Loki  | Dog   | Pet        | Fetch, Sit, Stay       | 13    |
| 2  | 2022-06-08 | Charlie | Hamster | Pet        | Hide, Roll              | 22    |
| 3  | 2022-04-08 | Duke  | Horse | Pack animal | Canter, Gallop, Trot   | 24    |
| 4  | 2021-06-23 | Teddy | Cat   | Pet        | Pounce, Sit             | 33    |
| 5  | 2021-04-15 | Jack  | Donkey | Pack animal | Bray, CarryLoad, Walk  | 35    |
+----+-----+-----+-----+-----+-----+-----+
5 rows in set (0,01 sec)
```