

# 1 Постановка задачи

Цели лабораторной работы:

1. Язык SQL. Операторы Insert. Update. Delete. Условная логика IF, CASE.
2. Язык SQL. Подзапросы. Несвязанные подзапросы. Связанные подзапросы. Размерность подзапроса.

# 2 Типы подзапросов

По месту нахождения:

1. В блоке SELECT
2. В блоке FROM
3. В блоке WHERE

По типу связанности с внешним запросом:

1. Связанные
2. Несвязанные

# 3 По месту нахождения

## 3.1 Подзапросы в блоке SELECT

Получить все фильмы и описания их жанров.

```
SELECT primaryTitle ,
        titleType ,
        (SELECT GROUP_CONCAT(genre) FROM title_genre inner_title_ge
FROM title
INNER JOIN title_rating ON title.titleID = title_rating.titleID
ORDER BY numVotes DESC, averageRating DESC
LIMIT 10;
```

primaryTitle	titleType	genres_description
The Shawshank Redemption	movie	Drama
The Dark Knight	movie	Action, Crime, Drama
Inception	movie	Action, Adventure, Sci-Fi
Fight Club	movie	Drama

Pulp Fiction	movie	Crime,Drama
Forrest Gump	movie	Drama,Romance
Game of Thrones	tvSeries	Action,Adventure,Drama
The Matrix	movie	Action,Sci-Fi
The Lord of the Rings: The Fellowship of the Ring	movie	Adventure,Drama,Fantasy
The Lord of the Rings: The Return of the King	movie	Adventure,Drama,Fantasy

10 rows in set (0.05 sec)

### 3.2 Подзапросы в блоке FROM

Получить все фильмы и описания их жанров.

```
SELECT title_genre_details.titleID , primaryTitle , genre_details , numVotes
FROM (SELECT titleID , GROUP_CONCAT(genre) as genre_details FROM imdb_d
INNER JOIN title ON title_genre_details.titleID = title.titleID
INNER JOIN title_rating ON title.titleID = title_rating.titleID
ORDER BY numVotes DESC, averageRating DESC
```

titleID	primaryTitle	genre_details	numVotes	averageRating
tt0111161	The Shawshank Redemption	Drama	2149031	9.3
tt0468569	The Dark Knight	Action,Crime,Drama	2118625	9
tt1375666	Inception	Action,Adventure,Sci-Fi	1883746	8.8
tt0137523	Fight Club	Drama	1716980	8.8
tt0110912	Pulp Fiction	Crime,Drama	1686388	8.9
tt0109830	Forrest Gump	Drama,Romance	1653584	8.8
tt0944947	Game of Thrones	Action,Adventure,Drama	1596735	9.4
tt0133093	The Matrix	Action,Sci-Fi	1546559	8.7
tt0120737	The Lord of the Rings: The Fellowship of the Ring	Adventure,Drama,Fantasy	1542044	8.8
tt0167260	The Lord of the Rings: The Return of the King	Adventure,Drama,Fantasy	1526805	8.9

10 rows in set (0.44 sec)

### 3.3 Подзапросы в блоке WHERE

Получить все фильмы у которых только 2 жанра.

```
SELECT title.titleID , primaryTitle , averageRating , numVotes FROM title
INNER JOIN title_rating ON title.titleID = title_rating.titleID
WHERE 2 = (SELECT COUNT(*) FROM title_genre WHERE title.titleID = title.titleID)
ORDER BY numVotes DESC, averageRating DESC
LIMIT 10
```

titleID	primaryTitle	averageRating	numVotes
tt0110912	Pulp Fiction	8.9	1686388
tt0109830	Forrest Gump	8.8	1653584
tt0133093	The Matrix	8.7	1546559

titleID	primaryTitle	averageRating	numVotes
tt0068646	The Godfather	9.2	1474927
tt1345836	The Dark Knight Rises	8.4	1415027
tt1853728	Django Unchained	8.4	1243326
tt0372784	Batman Begins	8.2	1219308
tt0120815	Saving Private Ryan	8.6	1138073
tt0209144	Memento	8.4	1048905
tt1130884	Shutter Island	8.1	1031033

10 rows in set (0.05 sec)

Получить все фильмы у которых жанр Comedy или Action.

```
SELECT title.titleID , primaryTitle , averageRating , numVotes FROM title
INNER JOIN title_rating ON title.titleID = title_rating.titleID
WHERE EXISTS (SELECT 1 FROM title_genre WHERE title_genre.genre IN ('Comedy', 'Action'))
ORDER BY numVotes DESC, averageRating DESC
LIMIT 10
```

titleID	primaryTitle	averageRating	numVotes
tt0468569	The Dark Knight	9	2118625
tt1375666	Inception	8.8	1883746
tt0944947	Game of Thrones	9.4	1596735
tt0133093	The Matrix	8.7	1546559
tt1345836	The Dark Knight Rises	8.4	1415027
tt0172495	Gladiator	8.5	1240337
tt0372784	Batman Begins	8.2	1219308
tt0848228	The Avengers	8	1203436
tt0076759	Star Wars: Episode IV - A New Hope	8.6	1142460
tt0080684	Star Wars: Episode V - The Empire Strikes Back	8.7	1073886

10 rows in set (0.05 sec)

## 4 По типу связи с внешним запросов

### 4.1 Связанные

Получить фильмы для которых нет информации о съемочной группе.

```
SELECT title.titleID , primaryTitle , numVotes , averageRating FROM title
INNER JOIN title_rating ON title.titleID = title_rating.titleID
WHERE NOT EXISTS (
    SELECT 1 FROM title_principals_profession
    WHERE title_principals_profession.titleID = title.titleID
) AND titleType = 'movie'
ORDER BY numVotes DESC, averageRating DESC
LIMIT 5
```

titleID	primaryTitle	numVotes	averageRating
tt5013056	Dunkirk	483948	7.9
tt5052448	Get Out	424443	7.7
tt5463162	Deadpool 2	419898	7.7
tt4972582	Split	377084	7.3
tt5027774	Three Billboards Outside Ebbing, Missouri	363790	8.2

5 rows in set (0.19 sec)

## 4.2 Несвязанные

Получить фильмы для которых нет информации о съемочной группе.

```
SELECT title.titleID , primaryTitle , numVotes , averageRating FROM title
INNER JOIN title_rating ON title.titleID = title_rating.titleID
WHERE title.titleID NOT IN (SELECT titleID FROM title_principals_professionals
ORDER BY numVotes DESC, averageRating DESC
LIMIT 5
```

titleID	primaryTitle	numVotes	averageRating
tt5013056	Dunkirk	483948	7.9
tt5052448	Get Out	424443	7.7
tt5463162	Deadpool 2	419898	7.7
tt4972582	Split	377084	7.3
tt5027774	Three Billboards Outside Ebbing, Missouri	363790	8.2

5 rows in set (0.18 sec)

## 5 Примеры запросов

Получить деятелей киноиндустрии отсортированных по количеству фильмов в которых они принимали участия и которые находятся в топ 100000 по рейтингу.

```
SELECT nameID, primaryName, (
    SELECT COUNT(*) FROM title_principals_professionals
    INNER JOIN (SELECT titleID FROM title_rating ORDER BY numVotes
    ON title_principals_professionals.titleID = title_rating_ordered.titleID
    WHERE title_principals_professionals.nameID = name.nameID
) as count_of_films
FROM name
ORDER BY count_of_films DESC
LIMIT 10
```

nameID	primaryName	count_of_films
nm0186505	Bryan Cranston	75
nm0000134	Robert De Niro	74
nm0666739	Aaron Paul	71
nm0319213	Vince Gilligan	68
nm1125275	David Benioff	68
nm0606487	Dean Norris	67
nm0000025	Jerry Goldsmith	65
nm0348152	Anna Gunn	63
nm0006133	James Newton Howard	61
nm0748784	Scott Rudin	61

10 rows in set (11.71 sec)

Получить сериалы и отсортированные по количеству серий.

```

SELECT title.titleID , primaryTitle , (
                                SELECT COUNT(*) FROM title_episode
                                WHERE parentTitleID = title.titleID
                                ) as episode_count
FROM title
INNER JOIN title_rating ON title.titleID = title_rating.titleID
WHERE titleType = 'tvSeries'
ORDER BY numVotes DESC, averageRating DESC
LIMIT 10

```

```

+-----+-----+-----+
| titleID | primaryTitle | episode_count |
+-----+-----+-----+
| tt0944947 | Game of Thrones | 73 |
| tt0903747 | Breaking Bad | 62 |
| tt1520211 | The Walking Dead | 133 |
| tt1475582 | Sherlock | 15 |
| tt0108778 | Friends | 236 |
| tt4574334 | Stranger Things | 25 |
| tt0898266 | The Big Bang Theory | 280 |
| tt0773262 | Dexter | 96 |
| tt0460649 | How I Met Your Mother | 208 |
| tt0411008 | Lost | 118 |
+-----+-----+-----+
10 rows in set (0.16 sec)

```

Аналог с использованием JOIN.

```

SELECT title.titleID , primaryTitle , COUNT(*) as episode_count FROM tit
INNER JOIN title_episode ON title.titleID = title_episode.parentTitleID
INNER JOIN title_rating ON title.titleID = title_rating.titleID
GROUP BY titleID
ORDER BY numVotes DESC, averageRating DESC
LIMIT 10

```

```

+-----+-----+-----+
| titleID | primaryTitle | episode_count |
+-----+-----+-----+
| tt0944947 | Game of Thrones | 73 |
| tt0903747 | Breaking Bad | 62 |
| tt1520211 | The Walking Dead | 133 |
| tt1475582 | Sherlock | 15 |
| tt0108778 | Friends | 236 |
| tt4574334 | Stranger Things | 25 |
| tt0898266 | The Big Bang Theory | 280 |
| tt0773262 | Dexter | 96 |
| tt0460649 | How I Met Your Mother | 208 |
| tt0411008 | Lost | 118 |
+-----+-----+-----+
10 rows in set (0.16 sec)

```

## 6 Используемые источники

1. <https://dev.mysql.com/doc/refman/8.0/en/select.html>
2. <https://dev.mysql.com/doc/refman/8.0/en/select-into.html>

3. <https://dev.mysql.com/doc/refman/8.0/en/join.html>
4. <https://dev.mysql.com/doc/refman/8.0/en/union.html>
5. <https://dev.mysql.com/doc/refman/8.0/en/subqueries.html>