

Учреждение образования
«БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ
ИНФОРМАТИКИ И РАДИОЭЛЕКТРОНИКИ»

Отчет по лабораторной работе №4
по дисциплине «Модели данных и системы управления базами данных»

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Запросы

1. Добавление имен и фамилий в таблицы

```
CREATE TABLE IF NOT EXISTS фамилия(  
    id MEDIUMINT NOT NULL,  
    surname VARCHAR(50) NULL,  
    PRIMARY KEY(id));
```

```
INSERT INTO фамилия VALUES
```

```
(1,'Аалферов'),(2,'Аалферова'),(3,'Ааль'),(4,'Ааман'),(5,'Аамана'),  
(6,'Ааманая'),(7,'Ааманий'),(8,'Аандреев')..
```

```
DROP TABLE IF EXISTS имя;
```

```
CREATE TABLE IF NOT EXISTS имя(  
    id MEDIUMINT NOT NULL,  
    name VARCHAR(50) NULL,  
    PRIMARY KEY(id));
```

```
INSERT INTO имя VALUES
```

```
(19903,'Аалия'),(19904,'Аанжелла'),(19905,'Аба'),(19906,'Абав'),(19907,'Абам');
```

```
TRUNCATE TABLE name1;
```

```
INSERT INTO name1 (surname)
```

```
    SELECT фамилия.name1
```

```
    FROM фамилия
```

```
    ORDER BY фамилия.name1;
```

```
DROP TABLE фамилия;
```

```
TRUNCATE TABLE name2;
```

INSERT INTO name2 (name)

SELECT имя.name

FROM имя

ORDER BY имя.name;

DROP TABLE имя;

```
mysql> source S1.sql
Query OK, 0 rows affected, 1 warning (0.01 sec)

Query OK, 0 rows affected (0.02 sec)

Query OK, 36519 rows affected (0.49 sec)
Records: 36519 Duplicates: 0 Warnings: 0

Query OK, 36348 rows affected (0.20 sec)
Records: 36348 Duplicates: 0 Warnings: 0

Query OK, 36255 rows affected (0.21 sec)
Records: 36255 Duplicates: 0 Warnings: 0

Query OK, 34652 rows affected (0.23 sec)
Records: 34652 Duplicates: 0 Warnings: 0

Query OK, 35426 rows affected (0.21 sec)
Records: 35426 Duplicates: 0 Warnings: 0

Query OK, 34544 rows affected (0.20 sec)
Records: 34544 Duplicates: 0 Warnings: 0

Query OK, 34977 rows affected (0.21 sec)
Records: 34977 Duplicates: 0 Warnings: 0

Query OK, 35375 rows affected (0.20 sec)
Records: 35375 Duplicates: 0 Warnings: 0

Query OK, 34378 rows affected (0.20 sec)
Records: 34378 Duplicates: 0 Warnings: 0

Query OK, 0 rows affected, 1 warning (0.00 sec)

Query OK, 0 rows affected (0.04 sec)

Query OK, 41860 rows affected (0.41 sec)
Records: 41860 Duplicates: 0 Warnings: 0

Query OK, 9669 rows affected (0.07 sec)
Records: 9669 Duplicates: 0 Warnings: 0

Query OK, 0 rows affected (0.04 sec)

Query OK, 318474 rows affected (2.19 sec)
Records: 318474 Duplicates: 0 Warnings: 0

Query OK, 0 rows affected (0.13 sec)

Query OK, 0 rows affected (0.18 sec)

Query OK, 51529 rows affected (1.10 sec)
Records: 51529 Duplicates: 0 Warnings: 0

Query OK, 0 rows affected (0.09 sec)
```

2.Добавление стран, регионов и городов в таблицы

```
CREATE TABLE IF NOT EXISTS город(
```

```
    id SMALLINT UNSIGNED NOT NULL,
```

```
    rid SMALLINT UNSIGNED ,
```

```
    name VARCHAR(45) NULL,
```

```
    PRIMARY KEY(id));
```

```
INSERT INTO город VALUES (1,0,'Москва'),(2,0,'Абрамцево'),(3,0,'Алабино'),  
(4,0,'Апрелевка')...;
```

```
CREATE TABLE IF NOT EXISTS страна(
```

```
    id TINYINT UNSIGNED NOT NULL,
```

```
    name VARCHAR(45) NULL,
```

```
    PRIMARY KEY(id));
```

```
INSERT INTO страна VALUES (0,'Россия'),(1,'Украина'),(2,'Абхазия'),  
(3,'Австралия'),(4,'Австрия');
```

```
CREATE TABLE IF NOT EXISTS регион(
```

```
    id MEDIUMINT UNSIGNED NOT NULL,
```

```
    cid MEDIUMINT UNSIGNED ,
```

```
    name VARCHAR(45) NULL,
```

```
    PRIMARY KEY(id));
```

```
INSERT INTO регион VALUES (0,0,'Москва и Московская обл.),(1,0,'Санкт-  
Петербург и область'),(2,0,'Адыгея')....;
```

```
TRUNCATE TABLE city;
```

```
INSERT INTO city(cname)
```

```
    SELECT name
```

```
    FROM город
```

```
    order by name;
```

```
DROP TABLE город;
```

```
TRUNCATE TABLE region;  
INSERT INTO region(name)  
    SELECT name  
    FROM регион  
    ORDER BY name;
```

```
DROP TABLE регион;
```

```
TRUNCATE TABLE county;
```

```
INSERT INTO country(name)  
    SELECT name  
    FROM страна  
    ORDER BY name;
```

```
DROP TABLE страна;
```

```
mysql> source S2.sql
Query OK, 0 rows affected, 1 warning (0.00 sec)

Query OK, 0 rows affected (0.04 sec)

Query OK, 16757 rows affected (0.36 sec)
Records: 16757  Duplicates: 0  Warnings: 0

Query OK, 0 rows affected, 1 warning (0.01 sec)

Query OK, 0 rows affected (0.03 sec)

Query OK, 218 rows affected (0.00 sec)
Records: 218  Duplicates: 0  Warnings: 0

Query OK, 0 rows affected, 1 warning (0.01 sec)

Query OK, 0 rows affected (0.03 sec)

Query OK, 1611 rows affected (0.03 sec)
Records: 1611  Duplicates: 0  Warnings: 0

Query OK, 0 rows affected (0.04 sec)

Query OK, 16757 rows affected (0.42 sec)
Records: 16757  Duplicates: 0  Warnings: 0

Query OK, 0 rows affected (0.04 sec)

Query OK, 0 rows affected (0.06 sec)

Query OK, 1611 rows affected (0.04 sec)
Records: 1611  Duplicates: 0  Warnings: 0

Query OK, 0 rows affected (0.02 sec)

Query OK, 0 rows affected (0.05 sec)

Query OK, 218 rows affected (0.01 sec)
Records: 218  Duplicates: 0  Warnings: 0

Query OK, 0 rows affected (0.02 sec)
```

3.Добавление университетов в таблицы

DROP TABLE IF EXISTS университет;

CREATE TABLE университет (
id TINYINT NOT NULL AUTO_INCREMENT,
name VARCHAR(120) NULL,
PRIMARY KEY (id));

```
INSERT INTO университет(name) VALUES('Барановичский государственный университет'),
```

```
('Брестский государственный технический университет')...
```

```
TRUNCATE TABLE univer;
```

```
INSERT INTO univer (uniname)
```

```
    SELECT name
```

```
    FROM университет
```

```
    ORDER BY name;
```

```
DROP TABLE университет;
```

```
mysql> source S3.sql
Query OK, 0 rows affected, 1 warning (0.00 sec)

Query OK, 0 rows affected (0.03 sec)

Query OK, 59 rows affected (0.01 sec)
Records: 59  Duplicates: 0  Warnings: 0

Query OK, 0 rows affected (0.04 sec)

Query OK, 59 rows affected (0.01 sec)
Records: 59  Duplicates: 0  Warnings: 0

Query OK, 0 rows affected (0.02 sec)
```

4.Поиск своего имени

```
SELECT name FROM name2 WHERE name='Кирилл';
```

```
SELECT surname FROM name1 WHERE surname='Акулич';
```

```
SELECT f.surname,s.name
```

```
    FROM name1 as f
```

```
    JOIN name2 as s
```

```
    WHERE f.surname="Акулич" AND s.name='Кирилл'
```

```
mysql> source S4.sql
+-----+
| name   |
+-----+
| Кирилл |
+-----+
1 row in set (0.02 sec)

+-----+
| surname |
+-----+
| Акулич  |
+-----+
1 row in set (0.07 sec)

+-----+-----+
| surname | name   |
+-----+-----+
| Акулич  | Кирилл |
+-----+-----+
1 row in set (0.08 sec)
```

5.Поиск похожих фамилий

```
SELECT COUNT(CASE
    WHEN surname Like CONCAT('%',LEFT("Акулич",CHAR_LENGTH("Акулич")-
1),'%') THEN surname
    ELSE null
    END) as 'One Letter',
COUNT(CASE
    WHEN surname Like CONCAT('%',LEFT("Акулич",CHAR_LENGTH("Акулич")-
2),'%') THEN surname
    ELSE null
    END) as 'Two Letter'
FROM name1;
```

```
mysql> source S5.sql
+-----+-----+
| One Letter | Two Letter |
+-----+-----+
|          82 |          203 |
+-----+-----+
1 row in set (0.39 sec)
```

6.Поиск похожих имен

```
SELECT COUNT(CASE
```



```

    WHEN name LIKE CONCAT('%',LEFT("Кирилл",CHAR_LENGTH("Кирилл")-
1),'%') THEN name
    ELSE null
    END) as 'One Letter',
COUNT(CASE
    WHEN name LIKE CONCAT('%',LEFT("Кирилл",CHAR_LENGTH("Кирилл")-
2),'%') THEN name
    ELSE null
    END) as 'Two Letter'
FROM name2;

```

```

mysql> source S6.sql
+-----+-----+
| One Letter | Two Letter |
+-----+-----+
|          8 |          36 |
+-----+-----+
1 row in set (0.05 sec)

```

7. Минимальные, максимальные, средние

```

SELECT MAX(LENGTH(surname)),MIN(LENGTH(surname)), AVG(LENGTH(surname))
FROM name1;

```

```

SELECT MAX(LENGTH(name)),MIN(LENGTH(name)), AVG(LENGTH(name)) FROM
name2;

```

```

SELECT MAX(LENGTH(cname)),MIN(LENGTH(cname)), AVG(LENGTH(cname))
FROM city;

```

```

SELECT MAX(LENGTH(name)),MIN(LENGTH(name)), AVG(LENGTH(name)) FROM
country;

```

```

SELECT MAX(LENGTH(uniname)),MIN(LENGTH(uniname)), AVG(LENGTH(uniname))
FROM univer;

```

```
SELECT MAX(LENGTH(name)),MIN(LENGTH(name)),
FLOOR(AVG(LENGTH(name))) FROM region;
```

```
mysql> source s7.sql
+-----+-----+-----+
| MAX(LENGTH(surname)) | MIN(LENGTH(surname)) | AVG(LENGTH(surname)) |
+-----+-----+-----+
| 41 | 4 | 16.7583 |
+-----+-----+-----+
1 row in set (0.12 sec)

+-----+-----+-----+
| MAX(LENGTH(name)) | MIN(LENGTH(name)) | AVG(LENGTH(name)) |
+-----+-----+-----+
| 42 | 6 | 12.7788 |
+-----+-----+-----+
1 row in set (0.01 sec)

+-----+-----+-----+
| MAX(LENGTH(cname)) | MIN(LENGTH(cname)) | AVG(LENGTH(cname)) |
+-----+-----+-----+
| 60 | 0 | 11.3409 |
+-----+-----+-----+
1 row in set (0.01 sec)

+-----+-----+-----+
| MAX(LENGTH(name)) | MIN(LENGTH(name)) | AVG(LENGTH(name)) |
+-----+-----+-----+
| 49 | 6 | 17.1147 |
+-----+-----+-----+
1 row in set (0.00 sec)

+-----+-----+-----+
| MAX(LENGTH(uniname)) | MIN(LENGTH(uniname)) | AVG(LENGTH(uniname)) |
+-----+-----+-----+
| 222 | 42 | 103.8644 |
+-----+-----+-----+
1 row in set (0.00 sec)

+-----+-----+-----+
| MAX(LENGTH(name)) | MIN(LENGTH(name)) | FLOOR(AVG(LENGTH(name))) |
+-----+-----+-----+
| 69 | 3 | 12 |
+-----+-----+-----+
1 row in set (0.00 sec)
```

8. Количество средних, минимальных и максимальных

```
SELECT min_val.min_arg,avg_val.avg_arg,max_val.max_arg FROM
(SELECT COUNT(surname) as min_arg FROM name1 WHERE
LENGTH(surname)=(SELECT MIN(LENGTH(surname)) FROM name1))as min_val,
(SELECT COUNT(surname) as avg_arg FROM name1 WHERE
LENGTH(surname)=(SELECT ROUND(AVG((LENGTH(surname)))) FROM name1))
as avg_val,
(SELECT COUNT(surname) as max_arg FROM name1 WHERE
LENGTH(surname)=(SELECT MAX(LENGTH(surname)) FROM name1)) as max_val;
```

```

SELECT min_val.min_arg,avg_val.avg_arg,max_val.max_arg FROM
(SELECT COUNT(name) as min_arg FROM name2 WHERE LENGTH(name)=(SELECT
MIN(LENGTH(name)) FROM name2))as min_val,
(SELECT COUNT(name) as avg_arg FROM name2 WHERE LENGTH(name)=(SELECT
ROUND(AVG((LENGTH(name)))) FROM name2)) as avg_val,
(SELECT COUNT(name) as max_arg FROM name2 WHERE LENGTH(name)=(SELECT
MAX(LENGTH(name)) FROM name2)) as max_val;

```

```

SELECT min_val.min_arg,avg_val.avg_arg,max_val.max_arg FROM
(SELECT COUNT(cname) as min_arg FROM city WHERE LENGTH(cname)=(SELECT
MIN(LENGTH(cname)) FROM city))as min_val,
(SELECT COUNT(cname) as avg_arg FROM city WHERE LENGTH(cname)=(SELECT
ROUND(AVG((LENGTH(cname)))) FROM city)) as avg_val,
(SELECT COUNT(cname) as max_arg FROM city WHERE LENGTH(cname)=(SELECT
MAX(LENGTH(cname)) FROM city)) as max_val;

```

```

SELECT min_val.min_arg,avg_val.avg_arg,max_val.max_arg FROM
(SELECT COUNT(name) as min_arg FROM country WHERE LENGTH(name)=(SELECT
MIN(LENGTH(name)) FROM country))as min_val,
(SELECT COUNT(name) as avg_arg FROM country WHERE LENGTH(name)=(SELECT
ROUND(AVG((LENGTH(name)))) FROM country)) as avg_val,
(SELECT COUNT(name) as max_arg FROM country WHERE LENGTH(name)=(SELECT
MAX(LENGTH(name)) FROM country)) as max_val;

```

```

SELECT min_val.min_arg,avg_val.avg_arg,max_val.max_arg FROM
(SELECT COUNT(name) as min_arg FROM region WHERE LENGTH(name)=(SELECT
MIN(LENGTH(name)) FROM region))as min_val,
(SELECT COUNT(name) as avg_arg FROM region WHERE LENGTH(name)=(SELECT
ROUND(AVG((LENGTH(name)))) FROM region)) as avg_val,
(SELECT COUNT(name) as max_arg FROM region WHERE LENGTH(name)=(SELECT
MAX(LENGTH(name)) FROM region)) as max_val;

```

```

SELECT min_val.min_arg,avg_val.avg_arg,max_val.max_arg FROM
(SELECT COUNT(uniname) as min_arg FROM univer WHERE
LENGTH(uniname)=(SELECT MIN(LENGTH(uniname)) FROM univer))as min_val,
(SELECT COUNT(uniname) as avg_arg FROM univer WHERE
LENGTH(uniname)=(SELECT ROUND(AVG((LENGTH(uniname)))) FROM univer)) as
avg_val,
(SELECT COUNT(uniname) as max_arg FROM univer WHERE
LENGTH(uniname)=(SELECT MAX(LENGTH(uniname)) FROM univer)) as max_val;

```

```

mysql> source S8.sql
+-----+-----+-----+
| min_arg | avg_arg | max_arg |
+-----+-----+-----+
|      45 |      94 |      43 |
+-----+-----+-----+
1 row in set (0.42 sec)

+-----+-----+-----+
| min_arg | avg_arg | max_arg |
+-----+-----+-----+
|     1149 |        0 |        1 |
+-----+-----+-----+
1 row in set (0.07 sec)

+-----+-----+-----+
| min_arg | avg_arg | max_arg |
+-----+-----+-----+
|        4 |     654 |        2 |
+-----+-----+-----+
1 row in set (0.02 sec)

+-----+-----+-----+
| min_arg | avg_arg | max_arg |
+-----+-----+-----+
|        3 |        1 |        1 |
+-----+-----+-----+
1 row in set (0.00 sec)

+-----+-----+-----+
| min_arg | avg_arg | max_arg |
+-----+-----+-----+
|       13 |       38 |        1 |
+-----+-----+-----+
1 row in set (0.00 sec)

+-----+-----+-----+
| min_arg | avg_arg | max_arg |
+-----+-----+-----+
|        1 |        0 |        1 |
+-----+-----+-----+
1 row in set (0.01 sec)

```

9.Добавление отчеств

```
TRUNCATE TABLE name3;
```

```
INSERT INTO name3(pname)
```

```
(SELECT distinct CASE
```

```
    WHEN name regexp "[жшчщц]" THEN CONCAT(name,'евич')
```

```
    ELSE      CONCAT(name,'ович')      END as name3 FROM name2 WHERE name  
REGEXP "[^ая]$") ORDER BY name3;
```

```
mysql> source S9.sql  
Query OK, 33780 rows affected (0.23 sec)  
  
Query OK, 33780 rows affected (0.34 sec)  
Records: 33780  Duplicates: 0  Warnings: 0
```