

**Министерство образования и науки РФ
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«Норильский государственный индустриальный институт»
Кафедра Информационных систем и технологий**

Отчет: Лабораторная работа №5

Тема: Проектирование реляционной базы данных PostgreSQL

По предмету: Базы данных

Выполнил:

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Группы:

ИС – 21

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Цель задания: Получение практических навыков работы с СУБД и языком SQL (операторы create index, create view, alter view, drop index, drop view).

Задание №5

- 1) Разработать представления к базе данных, созданной и заполненной на предыдущих лабораторных работах, следующих видов:
 - a. простое не материализованное;
 - b. материализованное неизменяемое;
 - c. простое изменяемое (невозможно изменить неотображаемые в представлении строки);
 - d. простое изменяемое (можно изменить неотображаемые в представлении строки).
- 2) Выполнить изменение данных в базовых таблицах через изменяемые представления (три разных оператора модификации).
- 3) Обновить данные в материализованном представлении.
- 4) Разработать индексы к базе данных, созданной и заполненной на предыдущих лабораторных работах, следующих видов:
 - a. простой в целой таблице;
 - b. составной частичный к таблице;
 - c. уникальный к материализованному представлению;
 - d. с заданной сортировкой составной к таблице.
- 5) Переименовать одно из представлений.
- 6) Удалить один из индексов и одно представление.

1)

a) CREATE VIEW UserView AS
SELECT * FROM users
WHERE first_name = 'Stefanie';

```
1 CREATE VIEW UserView AS
2 SELECT * FROM users
3 WHERE first_name = 'Stefanie';
```

Data Output Messages Notifications

CREATE VIEW

Query returned successfully in 150 msec.

SELECT * FROM UserView

1

SELECT * FROM UserView

Data Output

Messages

Notifications

| | <div>id_user</div> <div>bigint</div> <div></div> | <div>fk_1site_fewusers</div> <div>bigint</div> <div></div> | <div>first_name</div> <div>character varying</div> <div></div> | <div>second_name</div> <div>character varying</div> <div></div> | <div>third_name</div> <div>character varying</div> <div></div> | <div>age</div> <div>integer</div> <div></div> | <div>sex</div> <div>character (1)</div> <div></div> |
|---|--|--|--|---|--|---|---|
| 1 | 192825568 | 1921122551 | Stefanie | Joosten | | 34 | F |

b) CREATE MATERIALIZED VIEW CMV AS
SELECT first_name, second_name FROM users
UNION
ALL SELECT first_name, second_name FROM employees;

```
1 CREATE MATERIALIZED VIEW CMV AS
2 SELECT first_name, second_name FROM users
3 UNION
4 ALL SELECT first_name, second_name FROM employees;
```

Data Output Messages Notifications

SELECT 7

Query returned successfully in 44 msec.

| | | | | |
|---|--|---|--|--|
| 1 | SELECT * FROM CMV | | | |
| Data Output Messages Notifications | | | | |
|         | | | | |
| | first_name character varying | second_name character varying | | |
| 1 | Dmitry | Puchkov | | |
| 2 | Stefanie | Joosten | | |
| 3 | Norman | Mark | | |
| 4 | Hideo | Kojima | | |
| 5 | Dmitry | Puchkov | | |
| 6 | Stefanie | Joosten | | |
| 7 | Norman | Mark | | |

```
SELECT first_name, second_name FROM employees
```

d) CREATE VIEW CV AS SELECT * FROM services

```
SELECT * FROM CV
```

SELECT FROM CV

1

SELECT * FROM CV

Data Output

Messages

Notifications

| | <div>id_services</div> <div>integer</div> <div></div> | <div>fk_1prov_fewserv</div> <div>integer</div> <div></div> | <div>name_services</div> <div>character varying</div> <div></div> | <div>price_of_services</div> <div>text</div> <div></div> | <div>speed_of_internet</div> <div>text</div> <div></div> | <div>limit_of_internet</div> <div>text</div> <div></div> | <div>if_yes_limit_gb</div> <div>text</div> <div></div> |
|---|---|--|---|--|--|--|--|
| 1 | 10111 | 2 | Packet for family | 2500 RUB | 20 MB/s | No | |
| 2 | 10112 | 1 | Speed packet | 2000 RUB | 30 MB/s | YES | 60 GB |
| 3 | 10123 | 3 | Cheap packet | 1250 RUB | 10 MB/s | YES | 30 GB |

2)

```
UPDATE CV SET name_services = 'Low coast packet' WHERE
name_services = 'Cheap packet'
```

```
1 UPDATE CV SET name_services = 'Low coast packet' WHERE name_services = 'Cheap packet'
```

Data Output Messages Notifications

UPDATE 1

Query returned successfully in 176 msec.

```
1 SELECT * FROM CV
```

Data Output Messages Notifications

| | id_services integer | fk_1prov_fewserv integer | name_services character varying | price_of_services text | speed_of_internet text | limit_of_internet text | if_yes_limit_gb text |
|---|------------------------|-----------------------------|------------------------------------|---------------------------|---------------------------|---------------------------|-------------------------|
| 1 | 10111 | 2 | Packet for family | 2500 RUB | 20 MB/s | No | |
| 2 | 10112 | 1 | Speed packet | 2000 RUB | 30 MB/s | YES | 60 GB |
| 3 | 10123 | 3 | Low coast packet | 1250 RUB | 10 MB/s | YES | 30 GB |

```
INSERT INTO CV VALUES (11111,3,'Special packet','5000 RUB','100
MB/s','YES','UNLIMITED')
```

```
1 INSERT INTO CV VALUES (11111,3,'Special packet','5000 RUB','100 MB/s','YES','UNLIMITED')

Data Output Messages Notifications

INSERT 0 1

Query returned successfully in 57 msec.

1 SELECT * FROM CV

Data Output Messages Notifications
```

| | id_services integer | fk_1prov_fewserv integer | name_services character varying | price_of_services text | speed_of_internet text | limit_of_internet text | if_yes_limit_gb text |
|---|------------------------|-----------------------------|------------------------------------|---------------------------|---------------------------|---------------------------|-------------------------|
| 1 | 10111 | 2 | Packet for family | 2500 RUB | 20 MB/s | No | |
| 2 | 10112 | 1 | Speed packet | 2000 RUB | 30 MB/s | YES | 60 GB |
| 3 | 10123 | 3 | Low coast packet | 1250 RUB | 10 MB/s | YES | 30 GB |
| 4 | 11111 | 3 | Special packet | 5000 RUB | 100 MB/s | YES | UNLIMITED |

```
UPDATE CV SET price_of_services = price_of_services * 0.5
```

```
1 UPDATE CV SET price_of_services = price_of_services * 0.5
```

Data Output Messages Notifications

UPDATE 3

Query returned successfully in 37 msec.

1

SELECT * FROM cv|

Data Output

Messages

Notifications

| | id_services integer | fk_1prov_fewserv integer | name_services character varying | price_of_services integer | speed_of_Internet text | limit_of_Internet text | if_yes_limit_gb text |
|---|------------------------|-----------------------------|------------------------------------|------------------------------|---------------------------|---------------------------|-------------------------|
| 1 | 10111 | 2 | Packet for family | 1250 | 20 MB/s | No | |
| 2 | 10112 | 1 | Speed packet | 1000 | 30 MB/s | YES | 60 GB |
| 3 | 10123 | 3 | Cheap packet | 625 | 10 MB/s | YES | 30 GB |

3)

REFRESH MATERIALIZED VIEW CMV

| | |
|--|-------------------------------|
| 1 | REFRESH MATERIALIZED VIEW CMV |
| Data Output Messages Notifications | |
| REFRESH MATERIALIZED VIEW | |
| Query returned successfully in 102 msec. | |

4)

a) CREATE INDEX indx ON providers(name_company);

| | |
|---|---|
| 1 | CREATE INDEX indx ON providers(name_company); |
| Data Output Messages Notifications | |
| CREATE INDEX | |
| Query returned successfully in 38 msec. | |

6) CREATE INDEX indx2 ON services(name_services, price_of_services)
WHERE price_of_services > 900

| | |
|---|--|
| 1 | CREATE INDEX indx2 ON services(name_services, price_of_services) |
| 2 | WHERE price_of_services > 900 |
| Data Output Messages Notifications | |
| CREATE INDEX | |
| Query returned successfully in 43 msec. | |

B) CREATE UNIQUE INDEX indx3 ON CMV (first_name, second_name)

| | |
|---|--|
| 1 | CREATE UNIQUE INDEX indx3 ON CMV (first_name, second_name) |
| Data Output Messages Notifications | |
| CREATE INDEX | |
| Query returned successfully in 40 msec. | |

r) CREATE INDEX indx4 ON services (name_services, price_of_services DESC)

```
1 CREATE INDEX indx4 ON services (name_services, price_of_services DESC)

Data Output Messages Notifications

CREATE INDEX

Query returned successfully in 43 msec.
```

5)

ALTER VIEW CV RENAME TO CREATED_VIEW

```
1 ALTER VIEW CV RENAME TO CREATED_VIEW

Data Output Messages Notifications

ALTER VIEW

Query returned successfully in 115 msec.
```

6)

DROP INDEX indx

```
1 DROP INDEX indx

Data Output Messages Notifications

DROP INDEX

Query returned successfully in 59 msec.
```

DROP VIEW CREATED_VIEW

```
1 DROP VIEW CREATED_VIEW

Data Output Messages Notifications

DROP VIEW

Query returned successfully in 41 msec.
```