

Практические работы 1-3

1. Устанавливаем PostgreSQL

```
Get:21 http://security.ubuntu.com/ubuntu focal-security/universe i386 Packages [727 kB]
Get:22 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [1,019 kB]
Get:23 http://archive.ubuntu.com/ubuntu focal/universe amd64 Packages [11.3 MB]
Get:24 http://security.ubuntu.com/ubuntu focal-security/universe Translation-en [219 kB]
Get:25 http://security.ubuntu.com/ubuntu focal-security/universe amd64 c-n-f Metadata [17.5 kB]
Get:26 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 Packages [28.5 kB]
Get:27 http://security.ubuntu.com/ubuntu focal-security/multiverse i386 Packages [8,131 B]
Get:28 http://security.ubuntu.com/ubuntu focal-security/multiverse Translation-en [5,880 B]
Get:29 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 c-n-f Metadata [516 B]
Get:30 http://archive.ubuntu.com/ubuntu focal/universe i386 Packages [5,999 kB]
Get:31 http://archive.ubuntu.com/ubuntu focal/universe Translation-en [7,220 kB]
Get:32 http://archive.ubuntu.com/ubuntu focal/universe amd64 c-n-f Metadata [265 kB]
Get:33 http://archive.ubuntu.com/ubuntu focal/multiverse i386 Packages [88.9 kB]
Get:34 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 Packages [177 kB]
Get:35 http://archive.ubuntu.com/ubuntu focal/multiverse Translation-en [128 kB]
Get:36 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 c-n-f Metadata [9,136 B]
Get:37 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [3,027 kB]
Get:38 http://archive.ubuntu.com/ubuntu focal-updates/main i386 Packages [991 kB]
Get:39 http://archive.ubuntu.com/ubuntu focal-updates/main Translation-en [605 kB]
Get:40 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [16.4 kB]
Get:41 http://archive.ubuntu.com/ubuntu focal-updates/restricted i386 Packages [37.1 kB]
Get:42 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [2,141 kB]
Get:43 http://archive.ubuntu.com/ubuntu focal-updates/restricted Translation-en [301 kB]
Get:44 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 c-n-f Metadata [620 B]
Get:45 http://archive.ubuntu.com/ubuntu focal-updates/universe i386 Packages [892 kB]
Get:46 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1,314 kB]
Get:47 http://archive.ubuntu.com/ubuntu focal-updates/universe Translation-en [339 kB]
Get:48 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 c-n-f Metadata [24.0 kB]
Get:49 http://archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 Packages [31.2 kB]
Get:50 http://archive.ubuntu.com/ubuntu focal-updates/multiverse i386 Packages [9,567 B]
Get:51 http://archive.ubuntu.com/ubuntu focal-updates/multiverse Translation-en [7,973 B]
Get:52 http://archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 c-n-f Metadata [592 B]
Get:53 http://archive.ubuntu.com/ubuntu focal-backports/main i386 Packages [43.4 kB]
Get:54 http://archive.ubuntu.com/ubuntu focal-backports/main amd64 Packages [55.2 kB]
Get:55 http://archive.ubuntu.com/ubuntu focal-backports/main Translation-en [18.8 kB]
Get:56 http://archive.ubuntu.com/ubuntu focal-backports/main amd64 c-n-f Metadata [1,420 B]
Get:57 http://archive.ubuntu.com/ubuntu focal-backports/restricted amd64 c-n-f Metadata [116 B]
Get:58 http://archive.ubuntu.com/ubuntu focal-backports/universe i386 Packages [15.5 kB]
Get:59 http://archive.ubuntu.com/ubuntu focal-backports/universe amd64 Packages [28.6 kB]
Get:60 http://archive.ubuntu.com/ubuntu focal-backports/universe Translation-en [17.6 kB]
Get:61 http://archive.ubuntu.com/ubuntu focal-backports/universe amd64 c-n-f Metadata [880 B]
Get:62 http://archive.ubuntu.com/ubuntu focal-backports/multiverse amd64 c-n-f Metadata [116 B]
Fetched 46.8 MB in 3s (18.0 MB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
All packages are up to date.
root@95-163-237-225:~# sudo apt install postgresql postgresql-contrib
```

2. Переходим в учётную запись postgres и входим в командную строку

```
root@95-163-237-225:~# sudo -i -u postgres
postgres@95-163-237-225:~$ psql
psql (12.14 (Ubuntu 12.14-0ubuntu0.20.04.1))
Type "help" for help.

postgres=#
```

3. Создадим свою собственную учётную запись

```
postgres@95-163-237-225:~$ createuser --interactive
Enter name of role to add: Dmitriy
Shall the new role be a superuser? (y/n) y
postgres@95-163-237-225:~$ _
```

4. Создадим базу данных и подключимся к нашей БД

```
postgres=# CREATE DATABASE "AvtoBaza";
CREATE DATABASE
postgres=# \c "AvtoBaza";
You are now connected to database "AvtoBaza" as user "postgres".
5. AvtoBaza=# _
```

6. Создадим таблицу “Автомобили” и заполним её

```
AvtoBaza=# CREATE TABLE avtomobili( id SERIAL PRIMARY KEY,  
MARKA VARCHAR(50) NOT NULL,  
MODEL VARCHAR(50) NOT NULL,  
GOD_VYPUSKA INTEGER NOT NULL,  
NOMER_AVTOMOBILYA VARCHAR(10) UNIQUE NOT NULL);  
CREATE TABLE
```

7. Поле "id" – первичный ключ, "nomer_avtomobilya" должно быть уникальным, а все поля, кроме "otchestvo", являются обязательными для заполнения.(Не равны нулю)

8. Создадим таблицу “Водители” и заполним её

```
AvtoBaza=# CREATE TABLE voditeli(  
id SERIAL PRIMARY KEY,  
familiya varchar(50) NOT NULL,  
imya varchar(50) NOT NULL,  
otchestvo varchar(50),  
nomer_prav varchar(20) UNIQUE NOT NULL,  
telephone varchar(12) NOT NULL,  
f varchar(1) NOT NULL);  
CREATE TABLE
```

9. Поле "id" является первичным ключом, "nomer_prav" должно быть уникальным, а все поля являются обязательными для заполнения.(Не равны нулю)

10. Создадим таблицу “Рейсы” и заполним её

```
AvtoBaza=# CREATE TABLE reysi (  
AvtoBaza(# id SERIAL PRIMARY KEY,  
AvtoBaza(# nomer_reysa varchar(20) UNIQUE NOT NULL,  
AvtoBaza(# data_vyezda date NOT NULL,  
AvtoBaza(# vremya_vyezda time NOT NULL,  
AvtoBaza(# mesto_otpravleniya varchar(50) NOT NULL,  
AvtoBaza(# mesto_naznacheniya varchar(50) NOT NULL,  
AvtoBaza(# kolichество_passazhirov integer NOT NULL,  
AvtoBaza(# id_avtomobilya integer NOT NULL,  
AvtoBaza(# id_voditelya integer NOT NULL,  
AvtoBaza(# FOREIGN KEY (id_avtomobilya) REFERENCES avtomobili(id),  
AvtoBaza(# FOREIGN KEY (id_voditelya) REFERENCES voditeli(id));  
CREATE TABLE
```

11. Поле "id" является первичным ключом, "nomer_reysa" должно быть уникальным, а все поля, кроме "id_voditelya" и "id_avtomobilya", являются обязательными для заполнения. Поля "id_avtomobilya" и "id_voditelya" связаны с таблицами "avtomobili" и "voditeli" через внешние ключи.

12. Создадим таблицу “Журнал рейсов”

```
AvtoBaza=# CREATE TABLE zhurnal_vyezda_mashin_na_reysi (  
AvtoBaza(# id SERIAL PRIMARY KEY,  
AvtoBaza(# id_avtomobilya integer NOT NULL,  
AvtoBaza(# id_voditelya integer NOT NULL,  
AvtoBaza(# data_vyezda date NOT NULL,  
AvtoBaza(# vremya_vyezda time NOT NULL,  
AvtoBaza(# FOREIGN KEY (id_avtomobilya) REFERENCES avtomobili(id)  
AvtoBaza(# FOREIGN KEY (id_voditelya) REFERENCES voditeli(id));  
CREATE TABLE
```

13. Поле "id" является первичным ключом, а поля "id_avtomobilya" и "id_voditelya" связаны с таблицами "avtomobili" и "voditeli" через внешние ключи.

14. База данных создана

List of databases					
Name	Owner	Encoding	Collate	Ctype	Access privileges
AvtoBaza	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	
avtobaza	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	
postgres	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	
template0	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	=c/postgres +
template1	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	postgres=CTc/postgres +
Автобаза	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	=c/postgres +
(6 rows)					

AvtoBaza=# \dt

List of relations			
Schema	Name	Type	Owner
public	avtomobili	table	postgres
public	reysi	table	postgres
public	voditeli	table	postgres
public	zhurnal_vyezda_mashin_na_reysi	table	postgres
(4 rows)			

СХЕМА

