Министерство образования и науки Российской Федерации
федеральное государственное автономное образовательное учреждение высшего образования
«САНКТ-ПЕТЕРБУРГСКИЙ НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИТМО»
Факультет среднего профессионального образования

ОТЧЁТ
ПО ПРАКТИЧЕСКОЙ РАБОТЕ № 6

по теме: Создание таблиц БД POSTGRESQL. Заполнение таблиц рабочими данными

по дисциплине: Основы проектирования баз данных

Специальность 09.02.07 Информационные системы и программирование

Проверил:
_____ Говоров А. И.
Дата: «____» _____ 2020г.
Оценка _____

Выполнил:
студент группы Y2336
_____ Наумов М.А.

Санкт-Петербург 2020

ЦЕЛЬ РАБОТЫ

Цель практической работы №6: овладеть практическими навыками создания таблиц базы данных PostgreSQL 10 (11), заполнения их рабочими данными, резервного копирования и восстановления БД.

ПРАКТИЧЕСКОЕ ЗАДАНИЕ

1. Создать базу данных с использованием pgadmin 4 (согласно индивидуальному

заданию).

2. Создать схему в составе базы данных.

3. Создать таблицы базы данных.

4. Заполнить таблицы БД рабочими данными.

5. Создать резервную копию БД.

6. Восстановить БД на другом ПК..

DUMP, СОДЕРЖАЩИЙ СКРИПТЫ РАБОТЫ С БД

СОЗДАНИЕ СТРУКТУРЫ ТАБЛИЦ

```
CREATE DATABASE "NAUMOV" WITH TEMPLATE = TEMPLATE0 ENCODING = 'UTF8' LC_COLLATE = 'RUS-
SIAN_RUSSIA.1251' LC_CTYPE = 'RUSSIAN_RUSSIA.1251';
```

```
CREATE TABLE PUBLIC.CICERONE (
    ID_CICERONE INTEGER NOT NULL,
    NAME_CICERONE "CHAR"[],
    WORK_EXPERIENCE INTERVAL,
    CONTACT_CICERONE "CHAR"[],
    PORTFOLIO TEXT
);
```

```
CREATE TABLE PUBLIC.CLIMBER (
    ID_CLIMBER INTEGER NOT NULL,
    NAME_CLIMBER "CHAR"[] NOT NULL,
    ID_CLUB INTEGER NOT NULL,
    CONTACT_CLIMBER "CHAR"[] NOT NULL,
    ADDRESS_CLIMED "CHAR"[] NOT NULL
);
```

```
CREATE TABLE PUBLIC.CLIMBING (
    ID_CLIMBING INTEGER NOT NULL,
    ID_GROUP INTEGER NOT NULL,
    START_PLAN_CLIMBING DATE NOT NULL,
    START_FACT_CLIMBING DATE NOT NULL,
    END_PLAN_CLIMBING DATE NOT NULL,
```

```
    END_FACT_CLIMBING DATE NOT NULL,
    DURATION_CLIMBING INTERVAL NOT NULL,
    BRIEF_INFORMATION_CLIMBING TEXT NOT NULL,
    ID_ROUTE INTEGER
);
```

```
CREATE TABLE PUBLIC.CLUB (
    "ID_CLUB" INTEGER NOT NULL,
    CITY_CLUB "CHAR"[] NOT NULL,
    CONTACT_CLUB_NAME "CHAR"[] NOT NULL,
    COUNTRY_CLUB "CHAR"[] NOT NULL,
    EMAIL_CLUB "CHAR"[] NOT NULL,
    NAME_CLUB "CHAR"[] NOT NULL,
    PHONE_NUMBER_CLUB INTEGER NOT NULL
);
```

```
CREATE TABLE PUBLIC.CONTRACT_CICERONE (
    ID_AGENCY INTEGER NOT NULL,
    ID_CICERONE INTEGER NOT NULL,
    TERMS_CONTRACT_CICERONE TEXT NOT NULL,
    ID_CONTRACT_CICERONE INTEGER NOT NULL
);
```

```
CREATE TABLE PUBLIC.CONTRACT_CLIMBER (
    ID_CLIMBER INTEGER NOT NULL,
    ID_CICERONE INTEGER NOT NULL,
```

```
    ID_GROUP INTEGER NOT NULL,
    ID_AGENCY INTEGER NOT NULL,
    TERMS_CONTRACT_CLIMBER TEXT NOT NULL,
    ID_CONTRACT_CLIMBER INTEGER NOT NULL
);
```

```
CREATE TABLE PUBLIC.EMERGANCY_SITUATION (
    "ID_SITUATION" INTEGER NOT NULL,
    TYPE_SITUATION "CHAR"[] NOT NULL,
    ID_CLIMBER INTEGER NOT NULL,
    ID_CLIMBING INTEGER NOT NULL,
    TIME_SITUATION TIME WITH TIME ZONE NOT NULL
);
```

```
CREATE TABLE PUBLIC."GROUP" (
    ID_GROUP INTEGER NOT NULL,
    QUANTITY_MEMBER INTEGER
);
```

```
CREATE TABLE PUBLIC.INSURANCE_CASE (
    ID_INSURANCE_CASE INTEGER NOT NULL,
    ID_SITUATION INTEGER NOT NULL,
    SUM_REIMBURSEMENT INTEGER NOT NULL,
    DATE_REIMBURSEMENT DATE NOT NULL,
    ID_INSURANCE_CONTRACT INTEGER NOT NULL
);
```

```
CREATE TABLE PUBLIC.INSURANCE_CONTRACT (
```

```
    ID_AGENCY INTEGER NOT NULL,
    ID_CLIMBER INTEGER NOT NULL,
    INSURANCE_CONTRACT_TERMS TEXT NOT NULL,
    ID_INSURANCE_CONTRACT INTEGER NOT NULL
);
```

```
CREATE TABLE PUBLIC.MOUNTAIN (
    COUNTRY_MOUNTAIN "CHAR"[] NOT NULL,
    AREA_MOUNTAIN "CHAR"[] NOT NULL,
    ID_MOUNTAIN INTEGER NOT NULL,
    NAME_MOUNTAIN "CHAR" NOT NULL
);
```

```
CREATE TABLE PUBLIC.PEAK (
    NAME_PEAK "CHAR"[] NOT NULL,
    COUNTRY_PEAK "CHAR"[] NOT NULL,
    AREA_PEAK "CHAR"[] NOT NULL,
    HIGHT_PEAK INTEGER NOT NULL,
    ID_MOUNTAIN INTEGER NOT NULL,
    ID_PEAK INTEGER NOT NULL
);
```

```
CREATE TABLE PUBLIC.TRAVEL_AGENCY (
    ID_AGENCY INTEGER NOT NULL,
    NUMBER_OF_CICERONE INTEGER NOT NULL,
    NAME_AGENCY "CHAR"[] NOT NULL
);
```

```
CREATE TABLE PUBLIC.ROUTE (
    ID_ROUTE INTEGER NOT NULL,
    DESCRIPTION_ROUTE TEXT NOT NULL,
    NAME_ROUTE "CHAR"[] NOT NULL,
    "ID_PEAK" INTEGER NOT NULL
);
```

СОЗДАНИЕ ПЕРВИЧНЫХ КЛЮЧЕЙ

```
ALTER TABLE ONLY PUBLIC.CLUB
   ADD CONSTRAINT "CLUB_PKEY" PRIMARY KEY ("ID_CLUB");
```

```
ALTER TABLE ONLY PUBLIC.CICERONE
   ADD CONSTRAINT CICERONE_PKEY PRIMARY KEY (ID_CICERONE);
```

```
ALTER TABLE ONLY PUBLIC."ALLOWANCE"
   ADD CONSTRAINT "ALLOWANCE_PKEY" PRIMARY KEY ("ID_ALLOWANCE");
   ALTER TABLE ONLY PUBLIC."ALLOWANCE" DROP CONSTRAINT "ALLOWANCE_PKEY";
```

```
ALTER TABLE ONLY PUBLIC.CLIMBER
   ADD CONSTRAINT CLIMBER_PKEY PRIMARY KEY (ID_CLIMBER);
```

```
ALTER TABLE ONLY PUBLIC.CLIMBING
   ADD CONSTRAINT CLIMBING_PKEY PRIMARY KEY (ID_CLIMBING);
```

```
AALTER TABLE ONLY PUBLIC.CONTRACT_CICERONE
   ADD CONSTRAINT CONTRACT_CICERONE_PKEY PRIMARY KEY (ID_CONTRACT_CICERONE);
```

```
ALTER TABLE ONLY PUBLIC.CONTRACT_CLIMBER
   ADD CONSTRAINT CONTRACT_CLIMBER_PKEY PRIMARY KEY (ID_CONTRACT_CLIMBER);
```

```
ALTER TABLE ONLY PUBLIC.EMERGANCY_SITUATION
   ADD CONSTRAINT EMERGANCY_SITUATION_PKEY PRIMARY KEY ("ID_SITUATION");
```

```
ALTER TABLE ONLY PUBLIC."GROUP"
ADD CONSTRAINT GROUP_PKEY PRIMARY KEY (ID_GROUP);
```

```
ALTER TABLE ONLY PUBLIC.INSURANCE_CASE
ADD CONSTRAINT INSURANCE_CASE_PKEY PRIMARY KEY (ID_INSURANCE_CASE);
```

```
ALTER TABLE ONLY PUBLIC.INSURANCE_CONTRACT
ADD CONSTRAINT INSURANCE_CONTRACT_PKEY PRIMARY KEY (ID_INSURANCE_CONTRACT);
```

```
ALTER TABLE ONLY PUBLIC.MOUNTAIN
ADD CONSTRAINT MOUNTAIN_PKEY PRIMARY KEY (ID_MOUNTAIN);
```

```
ALTER TABLE ONLY PUBLIC.PEAK
ADD CONSTRAINT PEAK_PKEY PRIMARY KEY (ID_PEAK);
```

```
ALTER TABLE ONLY PUBLIC.ROUTE
ADD CONSTRAINT ROUTE_NAME_ROUTE_KEY UNIQUE (NAME_ROUTE);
```

```
ALTER TABLE ONLY PUBLIC.ROUTE
ADD CONSTRAINT ROUTE_PKEY PRIMARY KEY (ID_ROUTE);
```

```
ALTER TABLE ONLY PUBLIC.TRAVEL_AGENCY
ADD CONSTRAINT TRAVEL_AGENCY_PKEY PRIMARY KEY (ID_AGENCY)
```

СОЗДАНИЕ ВНЕШНИХ КЛЮЧЕЙ

```
ALTER TABLE ONLY PUBLIC.CLIMBING
ADD CONSTRAINT CLIMBING_ID_GROUP_FKEY FOREIGN KEY (ID_GROUP) REFERENCES PUB-
LIC."GROUP"(ID_GROUP);
```

```
ALTER TABLE ONLY PUBLIC.CLIMBING
ADD CONSTRAINT CLIMBING_ID_ROUTE_FKEY FOREIGN KEY (ID_ROUTE) REFERENCES PUB-
LIC.ROUTE(ID_ROUTE) ON UPDATE CASCADE ON DELETE CASCADE;
```

```
ALTER TABLE ONLY PUBLIC.EMERGANCY_SITUATION
ADD CONSTRAINT EMERGANCY_SITUATION_ID_CLIMBER_FKEY FOREIGN KEY (ID_CLIMBER) REFER-
ENCES PUBLIC.CLIMBER(ID_CLIMBER);
```

```
ALTER TABLE ONLY PUBLIC.EMERGANCY_SITUATION
ADD CONSTRAINT EMERGANCY_SITUATION_ID_CLIMBING_FKEY FOREIGN KEY (ID_CLIMBING) REFER-
ENCES PUBLIC.CLIMBING(ID_CLIMBING);
```

```
ALTER TABLE ONLY PUBLIC.INSURANCE_CONTRACT
  ADD CONSTRAINT ID_AGENCY FOREIGN KEY (ID_AGENCY) REFERENCES PUB-
LIC.TRAVEL_AGENCY(ID_AGENCY);
```

```
ALTER TABLE ONLY PUBLIC.CONTRACT_CICERONE
    ADD CONSTRAINT ID_AGENCY FOREIGN KEY (ID_AGENCY) REFERENCES PUB-
LIC.TRAVEL_AGENCY(ID_AGENCY);
```

```
ALTER TABLE ONLY PUBLIC.CONTRACT_CLIMBER
    ADD CONSTRAINT ID_AGENCY FOREIGN KEY (ID_AGENCY) REFERENCES PUB-
LIC.TRAVEL_AGENCY(ID_AGENCY);
```

```
ALTER TABLE ONLY PUBLIC.CONTRACT_CICERONE
    ADD CONSTRAINT ID_CICERONE FOREIGN KEY (ID_CICERONE) REFERENCES PUB-
LIC.CICERONE(ID_CICERONE);
```

```
ALTER TABLE ONLY PUBLIC.CONTRACT_CLIMBER
    ADD CONSTRAINT ID_CICERONE FOREIGN KEY (ID_CICERONE) REFERENCES PUB-
LIC.CICERONE(ID_CICERONE);
```

```
ALTER TABLE ONLY PUBLIC.INSURANCE_CONTRACT
    ADD CONSTRAINT ID_CLIMBER FOREIGN KEY (ID_CLIMBER) REFERENCES PUB-
LIC.CLIMBER(ID_CLIMBER);
```

```
ALTER TABLE ONLY PUBLIC.CONTRACT_CLIMBER
```

ADD CONSTRAINT ID_CLIMBER FOREIGN KEY (ID_CLIMBER) REFERENCES PUBLIC.CLIMBER(ID_CLIMBER);

ALTER TABLE ONLY PUBLIC.CLIMBER
ADD CONSTRAINT ID_CLUB FOREIGN KEY (ID_CLUB) REFERENCES PUBLIC.CLUB("ID_CLUB");

ALTER TABLE ONLY PUBLIC.CONTRACT_CLIMBER
ADD CONSTRAINT ID_GROUP FOREIGN KEY (ID_GROUP) REFERENCES PUBLIC."GROUP"(ID_GROUP);

ALTER TABLE ONLY PUBLIC.INSURANCE_CASE
ADD CONSTRAINT ID_INSURANCE_CONTRACT FOREIGN KEY (ID_INSURANCE_CONTRACT) REFERENCES PUBLIC.INSURANCE_CONTRACT(ID_INSURANCE_CONTRACT);

ALTER TABLE ONLY PUBLIC.INSURANCE_CASE
ADD CONSTRAINT ID_SITUATION FOREIGN KEY (ID_SITUATION) REFERENCES PUBLIC.EMERGANCY_SITUATION("ID_SITUATION");

ALTER TABLE ONLY PUBLIC.PEAK
ADD CONSTRAINT PEAK_ID_MOUNTAIN_FKEY FOREIGN KEY (ID_MOUNTAIN) REFERENCES PUBLIC.MOUNTAIN(ID_MOUNTAIN);

ALTER TABLE ONLY PUBLIC.ROUTE

ADD CONSTRAINT "ROUTE_ID_PEAK_FKEY" FOREIGN KEY ("ID_PEAK") REFERENCES PUBLIC.PEAK(ID_PEAK);

ЗАПОЛНЕНИЕ ТАБЛИЦ

COPY PUBLIC.CICERONE (ID_CICERONE, NAME_CICERONE, WORK_EXPERIENCE, CONTACT_CICERONE, PORTFOLIO) FROM STDIN;

1 {A} 00:00:05 {A} КАКОЙ-ТО ТЕКСТ
2 {B} 00:00:06 {B} КАКОЙ-ТО ТЕКСТ
3 {C} 00:00:04 {C} КАКОЙ-ТО ТЕКСТ
4 {D} 00:00:06 {D} КАКОЙ-ТО ТЕКСТ
5 {E} 00:00:07 {E} КАКОЙ-ТО ТЕКСТ
\.

COPY PUBLIC.CLIMBER (ID_CLIMBER, NAME_CLIMBER, ID_CLUB, CONTACT_CLIMBER, ADDRESS_CLIMED) FROM STDIN;

1 {M} 1 {M} {P}
2 {M} 2 {M} {A}
3 {A} 3 {A} {S}
4 {A} 4 {A} {O}
5 {J} 5 {A} {B}
\.

COPY PUBLIC.CLIMBING (ID_CLIMBING, ID_GROUP, START_PLAN_CLIMBING, START_FACT_CLIMBING, END_PLAN_CLIMBING, END_FACT_CLIMBING, DURATION_CLIMBING, BRIEF_INFORMATION_CLIMBING, ID_ROUTE) FROM STDIN;

1 1 2020-02-02 2020-02-02 2020-02-05 2020-02-06 00:00:03 КАКОЙ-ТО ТЕКСТ 1

```
2	2	2020-03-04	2020-03-04	2020-03-11	2020-03-11	00:00:07	КАКОЙ-ТО ТЕКСТ	2
3	3	2020-01-03	2020-01-05	2020-01-15	2020-01-14	00:00:12	КАКОЙ-ТО ТЕКСТ	3
4	4	2020-01-05	2020-01-03	2020-03-21	2020-03-21	00:01:16	КАКОЙ-ТО ТЕКСТ	4
5	5	2019-03-08	2019-03-08	2019-04-05	2019-04-10	00:00:28	КАКОЙ-ТО ТЕКСТ	5
\.

COPY PUBLIC.CLUB ("ID_CLUB", CITY_CLUB, CONTACT_CLUB_NAME, COUNTRY_CLUB, EMAIL_CLUB, NAME_CLUB, PHONE_NUMBER_CLUB) FROM STDIN;

1	{S}	{I}	{R}	{T}	{T}	5353535
2	{S}	{M}	{R}	{M}	{M}	5362182
3	{M}	{J}	{R}	{G}	{G}	4525314
4	{M}	{M}	{R}	{P}	{T}	5462134
5	{I}	{N}	{R}	{I}	{H}	4589561
\.

COPY PUBLIC.CONTRACT_CICERONE (ID_AGENCY, ID_CICERONE, TERMS_CONTRACT_CICERONE, ID_CONTRACT_CICERONE) FROM STDIN;

1	1	УСЛОВИЯ 1
2	2	УСЛОВИЯ 2
3	3	УСЛОВИЯ 3
4	4	УСЛОВИЯ 4
5	5	УСЛОВИЯ 5
\.

COPY PUBLIC.CONTRACT_CLIMBER (ID_CLIMBER, ID_CICERONE, ID_GROUP, ID_AGENCY, TERMS_CONTRACT_CLIMBER, ID_CONTRACT_CLIMBER) FROM STDIN;
```

```
1	1	1	1	УСЛОВИЯ 1
2	2	2	2	УСЛОВИЯ 2
3	3	3	3	УСЛОВИЯ 3
4	4	4	4	УСЛОВИЯ 4
5	5	5	5	УСЛОВИЯ 5
\.

COPY PUBLIC.EMERGANCY_SITUATION ("ID_SITUATION", TYPE_SITUATION, ID_CLIMBER, ID_CLIMBING, TIME_SITUATION) FROM STDIN;

1	{A}	1	1	15:15:00+14:59
2	{B}	2	2	15:00:00+03
3	{C}	3	3	10:31:00+03
4	{D}	4	4	08:03:00+04
5	{E}	5	5	03:17:00+02
\.

COPY PUBLIC."GROUP" (ID_GROUP, QUANTITY_MEMBER) FROM STDIN;

1	15
2	12
3	13
4	15
5	16
\.
```

COPY PUBLIC.INSURANCE_CASE (ID_INSURANCE_CASE, ID_SITUATION, SUM_REIMBURSEMENT, DATE_REIMBURSEMENT, ID_INSURANCE_CONTRACT) FROM STDIN;

1 1 55000 2020-05-30 1
2 2 31500 2020-06-15 2
3 3 90000 2020-09-01 3
4 4 38000 2020-06-01 4
5 5 70000 2019-05-01 5
\.

COPY PUBLIC.INSURANCE_CONTRACT (ID_AGENCY, ID_CLIMBER, INSURANCE_CONTRACT_TERMS, ID_INSURANCE_CONTRACT) FROM STDIN;

1 1 УСЛОВИЯ 1
2 2 УСЛОВИЯ\N 2
3 3 УСЛОВИЯ 3
4 4 УСЛОВИЯ 4
5 5 УСЛОВИЯ 5
\.

COPY PUBLIC.MOUNTAIN (COUNTRY_MOUNTAIN, AREA_MOUNTAIN, ID_MOUNTAIN, NAME_MOUNTAIN) FROM STDIN;

{R} {C} 2 {
{F} {S} 3 {
{U} {W} 4 {
{E} {N} 5 {
{R} {S} 1 {

```
\.

COPY PUBLIC.PEAK (NAME_PEAK, COUNTRY_PEAK, AREA_PEAK, HIGHT_PEAK, ID_MOUNTAIN, ID_PEAK)
FROM STDIN;

{K}    {R}    {1}    5134 1      1
{R}    {R}    {1}    1234 2      2
{R}    {F}    {1}    1567 3      3
{R}    {U}    {1}    1894 4      4
{R}    {E}    {1}    5423 5      5
\.

COPY PUBLIC.ROUTE (ID_ROUTE, DESCRIPTION_ROUTE, NAME_ROUTE, "ID_PEAK") FROM STDIN;

1      КАКОЙ-ТО ТЕКСТ     {A}    1
2      КАКОЙ-ТО ТЕКСТ     {B}    2
3      КАКОЙ-ТО ТЕКСТ     {C}    3
4      КАКОЙ-ТО ТЕКСТ     {D}    4
5      КАКОЙ-ТО ТЕКСТ     {E}    5
\.

COPY PUBLIC.TRAVEL_AGENCY (ID_AGENCY, NUMBER_OF_CICERONE, NAME_AGENCY) FROM STDIN;

1      1      {A}
2      1      {B}
3      1      {C}
4      1      {D}
5      1      {E}
```

\.

ВЫВОД

В практической работе №6 были получены практические навыки создания таблиц базы данных PostgreSQL 10 (11), заполнения их рабочими данными, резервного копирования и восстановления БД.