

Национальный исследовательский Университет ИТМО
Мегафакультет информационных и трансляционных технологий
Факультет инфокоммуникационных технологий

Базы данных

"Создание БД PostgreSQL в pgAdmin. Резервное копирование и восстановление БД"

Лабораторная работа №1

Работу
выполнил:
Нестеров В.А.
Группа: К3243
Преподаватель:
Говорова М.М.

Санкт-Петербург
2022

Содержание

1. Цель работы	3
2. Практическое задание	3
3. Выполнение	3
3.1. Наименование БД :	3
3.2. Схема логической модели базы данных, сгенерированная в Generate ERD	4
3.3. dump, содержащий скрипты работы с БД	4
4. Выводы	14
Заключение	14

1. Цель работы

Овладеть практическими навыками создания таблиц базы данных PostgreSQL 1X, заполнения их рабочими данными, резервного копирования и восстановления БД.

2. Практическое задание

- Создать базу данных с использованием pgAdmin 4 (согласно индивидуальному заданию).
- Создать схему в составе базы данных.
- Создать таблицы базы данных.
- Установить ограничения на данные: Primary Key, Unique, Check, Foreign Key.
- Заполнить таблицы БД рабочими данными.
- Создать резервную копию БД.
Указание: Создать две резервные копии:
 - с расширением CUSTOM для восстановления БД;
 - с расширением PLAIN для листинга (в отчете);при создании резервных копий БД настроить параметры Dump options для Type of objects и Queries.
- Восстановить БД.

3. Выполнение

3.1. Наименование БД :

Base

3.2. Схема логической модели базы данных, сгенерированная в Generate ERD

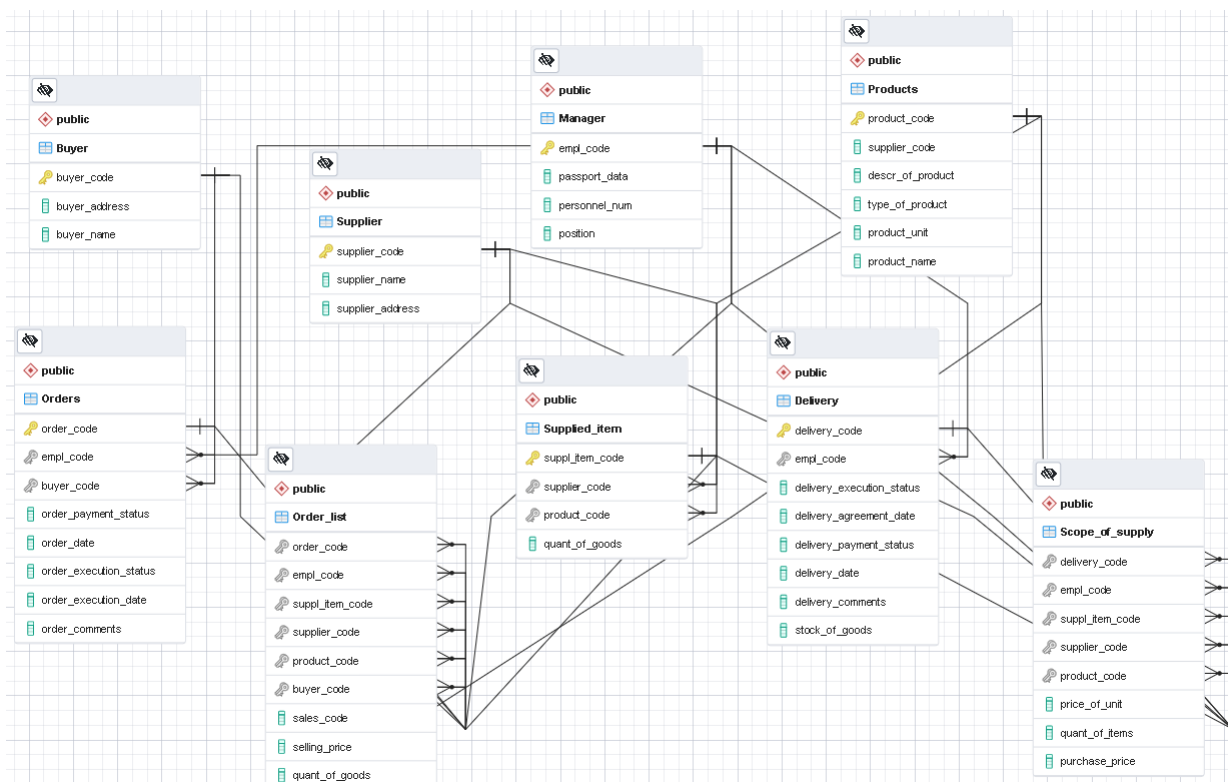


Рисунок 3.1. Модель базы данных

3.3. dump, содержащий скрипты работы с БД

```
--
-- PostgreSQL database dump
--

-- Dumped from database version 14.2
-- Dumped by pg_dump version 14.2

-- Started on 2022-06-19 17:06:10

SET statement_timeout = 0;
SET lock_timeout = 0;
SET idle_in_transaction_session_timeout = 0;
SET client_encoding = 'UTF8';
SET standard_conforming_strings = on;
SELECT pg_catalog.set_config('search_path', '', false);
SET check_function_bodies = false;
SET xmloption = content;
SET client_min_messages = warning;
SET row_security = off;

SET default_tablespace = '';
```

```

SET default_table_access_method = heap;

--
-- TOC entry 211 (class 1259 OID 16408)
-- Name: Buyer; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public."Buyer" (
    buyer_code character varying NOT NULL,
    buyer_address character varying NOT NULL,
    buyer_name character varying NOT NULL
);

ALTER TABLE public."Buyer" OWNER TO postgres;

--
-- TOC entry 212 (class 1259 OID 16413)
-- Name: Delivery; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public."Delivery" (
    delivery_code character varying NOT NULL,
    empl_code character varying NOT NULL,
    delivery_execution_status character varying NOT NULL,
    delivery_agreement_date date NOT NULL,
    delivery_payment_status character varying NOT NULL,
    delivery_date date NOT NULL,
    delivery_comments character varying,
    stock_of_goods integer NOT NULL
);

ALTER TABLE public."Delivery" OWNER TO postgres;

--
-- TOC entry 209 (class 1259 OID 16396)
-- Name: Manager; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public."Manager" (
    empl_code character varying NOT NULL,
    passport_data text NOT NULL,
    personnel_num character varying NOT NULL,
    "position" character varying
);

ALTER TABLE public."Manager" OWNER TO postgres;

```

```
--  
-- TOC entry 217 (class 1259 OID 16434)  
-- Name: Order_list; Type: TABLE; Schema: public; Owner: postgres  
--
```

```
CREATE TABLE public."Order_list" (  
    order_code "char" NOT NULL,  
    empl_code "char" NOT NULL,  
    suppl_item_code "char" NOT NULL,  
    supplier_code "char" NOT NULL,  
    product_code "char" NOT NULL,  
    buyer_code "char" NOT NULL,  
    sales_code "char" NOT NULL,  
    selling_price money NOT NULL,  
    quant_of_goods integer NOT NULL  
);
```

```
ALTER TABLE public."Order_list" OWNER TO postgres;
```

```
--  
-- TOC entry 210 (class 1259 OID 16403)  
-- Name: Orders; Type: TABLE; Schema: public; Owner: postgres  
--
```

```
CREATE TABLE public."Orders" (  
    order_code character varying NOT NULL,  
    empl_code character varying NOT NULL,  
    buyer_code character varying NOT NULL,  
    order_payment_status character varying NOT NULL,  
    order_date date NOT NULL,  
    order_execution_status character varying NOT NULL,  
    order_execution_date date NOT NULL,  
    order_comments character varying,  
    CONSTRAINT "Проверка Даты заказа" CHECK ((order_date > '2022-02-27'::date))  
);
```

```
ALTER TABLE public."Orders" OWNER TO postgres;
```

```
--  
-- TOC entry 214 (class 1259 OID 16419)  
-- Name: Products; Type: TABLE; Schema: public; Owner: postgres  
--
```

```
CREATE TABLE public."Products" (  
    product_code character varying NOT NULL,  
    supplier_code character varying NOT NULL,  
    descr_of_product character varying NOT NULL,
```

```

    type_of_product character varying NOT NULL,
    product_unit character varying NOT NULL,
    product_name character varying NOT NULL
);

ALTER TABLE public."Products" OWNER TO postgres;

--
-- TOC entry 213 (class 1259 OID 16416)
-- Name: Scope_of_supply; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public."Scope_of_supply" (
    delivery_code character varying NOT NULL,
    empl_code character varying NOT NULL,
    suppl_item_code character varying NOT NULL,
    supplier_code character varying NOT NULL,
    product_code character varying NOT NULL,
    price_of_unit money NOT NULL,
    quant_of_items integer NOT NULL,
    purchase_price integer NOT NULL
);

ALTER TABLE public."Scope_of_supply" OWNER TO postgres;

--
-- TOC entry 215 (class 1259 OID 16424)
-- Name: Supplied_item; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public."Supplied_item" (
    suppl_item_code character varying NOT NULL,
    supplier_code character varying NOT NULL,
    product_code character varying NOT NULL,
    quant_of_goods integer NOT NULL
);

ALTER TABLE public."Supplied_item" OWNER TO postgres;

--
-- TOC entry 216 (class 1259 OID 16429)
-- Name: Supplier; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public."Supplier" (
    supplier_code character varying NOT NULL,
    supplier_name character varying NOT NULL,

```

```
supplier_address character varying NOT NULL
);
```

```
ALTER TABLE public."Supplier" OWNER TO postgres;
```

```
--
-- TOC entry 3367 (class 0 OID 16408)
-- Dependencies: 211
-- Data for Name: Buyer; Type: TABLE DATA; Schema: public; Owner: postgres
--
```

```
COPY public."Buyer" (buyer_code, buyer_address, buyer_name) FROM stdin;
1 1 1
2 S 0
3 Saint-Petersburg 000 Goods
\.
```

```
--
-- TOC entry 3368 (class 0 OID 16413)
-- Dependencies: 212
-- Data for Name: Delivery; Type: TABLE DATA; Schema: public; Owner: postgres
--
```

```
COPY public."Delivery" (delivery_code, empl_code, delivery_execution_status, delivery_ag
1 1 Done 2022-05-26 Done 2022-05-27 No comments 10
2 2 Done 2022-06-26 Done 2022-06-27 No comments 20
3 3 Done 2022-06-26 Done 2022-06-27 No comments 30
\.
```

```
--
-- TOC entry 3365 (class 0 OID 16396)
-- Dependencies: 209
-- Data for Name: Manager; Type: TABLE DATA; Schema: public; Owner: postgres
--
```

```
COPY public."Manager" (empl_code, passport_data, personnel_num, "position") FROM stdin;
1 1234 567890 1 Junior Manager
2 0987 654321 2 Middle Manager
3 0987 654320 3 Senior Manager
\.
```

```
--
-- TOC entry 3373 (class 0 OID 16434)
-- Dependencies: 217
-- Data for Name: Order_list; Type: TABLE DATA; Schema: public; Owner: postgres
--
```



```

COPY public."Order_list" (order_code, empl_code, suppl_item_code, supplier_code, product
1 1 1 1 1 1 1 100,00 ? 10
2 2 2 2 2 2 2 200,00 ? 20
3 3 3 3 3 3 3 300,00 ? 30
\.
```

```

--
-- TOC entry 3366 (class 0 OID 16403)
-- Dependencies: 210
-- Data for Name: Orders; Type: TABLE DATA; Schema: public; Owner: postgres
--
```

```

COPY public."Orders" (order_code, empl_code, buyer_code, order_payment_status, order_dat
1 1 1 Done 2022-05-26 Done 2022-05-27 Order delivered successfully!
2 2 2 Done 2022-06-26 Done 2022-06-27 Order delivered successfully!
3 3 3 Done 2022-06-26 Done 2022-06-27 Order delivered successfully!
\.
```

```

--
-- TOC entry 3370 (class 0 OID 16419)
-- Dependencies: 214
-- Data for Name: Products; Type: TABLE DATA; Schema: public; Owner: postgres
--
```

```

COPY public."Products" (product_code, supplier_code, descr_of_product, type_of_product,
1 1 Just a usual product usual product piece Product1
2 2 Just another usual product usual product2 piece Product2
3 3 Yet another usual product usual product3 piece Product3
\.
```

```

--
-- TOC entry 3369 (class 0 OID 16416)
-- Dependencies: 213
-- Data for Name: Scope_of_supply; Type: TABLE DATA; Schema: public; Owner: postgres
--
```

```

COPY public."Scope_of_supply" (delivery_code, empl_code, suppl_item_code, supplier_code,
1 1 1 1 1 100,00 ? 10 50
2 2 2 2 2 200,00 ? 20 75
3 3 3 3 3 300,00 ? 30 100
\.
```

```

--
-- TOC entry 3371 (class 0 OID 16424)
-- Dependencies: 215
```

```

-- Data for Name: Supplied_item; Type: TABLE DATA; Schema: public; Owner: postgres
--

COPY public."Supplied_item" (suppl_item_code, supplier_code, product_code, quant_of_good
1 1 1 10
2 2 2 20
3 3 3 30
\.
```

```

--
-- TOC entry 3372 (class 0 OID 16429)
-- Dependencies: 216
-- Data for Name: Supplier; Type: TABLE DATA; Schema: public; Owner: postgres
--

COPY public."Supplier" (supplier_code, supplier_name, supplier_address) FROM stdin;
1 000 Supplying Goods Saint-Petersburg
2 000 Supplying Products Moscow
3 000 Supplying Items London
\.
```

```

--
-- TOC entry 3197 (class 2606 OID 24632)
-- Name: Manager Manager_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Manager"
    ADD CONSTRAINT "Manager_pkey" PRIMARY KEY (empl_code);

--
-- TOC entry 3199 (class 2606 OID 24727)
-- Name: Orders Заказ_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Orders"
    ADD CONSTRAINT "Заказ_pkey" PRIMARY KEY (order_code);

--
-- TOC entry 3201 (class 2606 OID 24600)
-- Name: Buyer Покупатель_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Buyer"
    ADD CONSTRAINT "Покупатель_pkey" PRIMARY KEY (buyer_code);

```

```

--
-- TOC entry 3203 (class 2606 OID 24682)
-- Name: Delivery Поставка_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Delivery"
    ADD CONSTRAINT "Поставка_pkey" PRIMARY KEY (delivery_code);

--
-- TOC entry 3207 (class 2606 OID 24875)
-- Name: Supplied_item Поставляемый товар_pkey; Type: CONSTRAINT; Schema: public; Owner:
--

ALTER TABLE ONLY public."Supplied_item"
    ADD CONSTRAINT "Поставляемый товар_pkey" PRIMARY KEY (suppl_item_code);

--
-- TOC entry 3209 (class 2606 OID 24838)
-- Name: Supplier Поставщик_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Supplier"
    ADD CONSTRAINT "Поставщик_pkey" PRIMARY KEY (supplier_code);

--
-- TOC entry 3205 (class 2606 OID 24782)
-- Name: Products Товары_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Products"
    ADD CONSTRAINT "Товары_pkey" PRIMARY KEY (product_code);

--
-- TOC entry 3222 (class 2606 OID 24728)
-- Name: Order_list Код заказа; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Order_list"
    ADD CONSTRAINT "Код заказа" FOREIGN KEY (order_code) REFERENCES public."Orders"(order_code);

--
-- TOC entry 3220 (class 2606 OID 24606)
-- Name: Order_list Код покупателя; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

```

```

ALTER TABLE ONLY public."Order_list"
    ADD CONSTRAINT "Код покупателя" FOREIGN KEY (buyer_code) REFERENCES public."Buyer"(b

--
-- TOC entry 3211 (class 2606 OID 24752)
-- Name: Orders Код покупателя; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Orders"
    ADD CONSTRAINT "Код покупателя" FOREIGN KEY (buyer_code) REFERENCES public."Buyer"(b

--
-- TOC entry 3213 (class 2606 OID 24916)
-- Name: Scope_of_supply Код поставки; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Scope_of_supply"
    ADD CONSTRAINT "Код поставки" FOREIGN KEY (delivery_code) REFERENCES public."Delivery"

--
-- TOC entry 3225 (class 2606 OID 24876)
-- Name: Order_list Код поставляемого товара; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Order_list"
    ADD CONSTRAINT "Код поставляемого товара" FOREIGN KEY (suppl_item_code) REFERENCES p

--
-- TOC entry 3215 (class 2606 OID 24938)
-- Name: Scope_of_supply Код поставляемого товара; Type: FK CONSTRAINT; Schema: public;
--

ALTER TABLE ONLY public."Scope_of_supply"
    ADD CONSTRAINT "Код поставляемого товара" FOREIGN KEY (suppl_item_code) REFERENCES p

--
-- TOC entry 3224 (class 2606 OID 24844)
-- Name: Order_list Код поставщика; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Order_list"
    ADD CONSTRAINT "Код поставщика" FOREIGN KEY (supplier_code) REFERENCES public."Suppl
--

```

```

-- TOC entry 3218 (class 2606 OID 24894)
-- Name: Supplied_item Код поставщика; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Supplied_item"
    ADD CONSTRAINT "Код поставщика" FOREIGN KEY (supplier_code) REFERENCES public."Suppl

--
-- TOC entry 3216 (class 2606 OID 24948)
-- Name: Scope_of_supply Код поставщика; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Scope_of_supply"
    ADD CONSTRAINT "Код поставщика" FOREIGN KEY (supplier_code) REFERENCES public."Suppl

--
-- TOC entry 3221 (class 2606 OID 24643)
-- Name: Order_list Код сотрудника; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Order_list"
    ADD CONSTRAINT "Код сотрудника" FOREIGN KEY (empl_code) REFERENCES public."Manager"(

--
-- TOC entry 3212 (class 2606 OID 24696)
-- Name: Delivery Код сотрудника; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Delivery"
    ADD CONSTRAINT "Код сотрудника" FOREIGN KEY (empl_code) REFERENCES public."Manager"(

--
-- TOC entry 3210 (class 2606 OID 24741)
-- Name: Orders Код сотрудника; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Orders"
    ADD CONSTRAINT "Код сотрудника" FOREIGN KEY (empl_code) REFERENCES public."Manager"(

--
-- TOC entry 3214 (class 2606 OID 24928)
-- Name: Scope_of_supply Код сотрудника; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Scope_of_supply"

```

```

        ADD CONSTRAINT "Код сотрудника" FOREIGN KEY (empl_code) REFERENCES public."Manager"(

--
-- TOC entry 3223 (class 2606 OID 24788)
-- Name: Order_list Код товара; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Order_list"
    ADD CONSTRAINT "Код товара" FOREIGN KEY (product_code) REFERENCES public."Products"(

--
-- TOC entry 3219 (class 2606 OID 24905)
-- Name: Supplied_item Код товара; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Supplied_item"
    ADD CONSTRAINT "Код товара" FOREIGN KEY (product_code) REFERENCES public."Products"(

--
-- TOC entry 3217 (class 2606 OID 24958)
-- Name: Scope_of_supply Код товара; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."Scope_of_supply"
    ADD CONSTRAINT "Код товара" FOREIGN KEY (product_code) REFERENCES public."Products"(

--
-- TOC entry 3379 (class 0 OID 0)
-- Dependencies: 3
-- Name: SCHEMA public; Type: ACL; Schema: -; Owner: postgres
--

GRANT ALL ON SCHEMA public TO pg_database_owner;

-- Completed on 2022-06-19 17:06:10

--
-- PostgreSQL database dump complete
--

```

4. Выводы

В данной работе мы овладели практическими навыками по созданию, заполнению рабочими данными и восстановлению базы данных PostgreSQL с использованием pgAdmin4.