Министерство науки и высшего образования Российской Федерации
Федеральное государственное автономное образовательное
учреждение высшего образования
«НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИТМО»
Факультет инфокоммуникационных технологий

ОТЧЕТ
ПО ЛАБОРАТОРНОЙ РАБОТЕ № 1.2

по теме: Создание таблиц базы данных postgresql. Заполнение таблиц рабочими данными.
по дисциплине: Проектирование и реализация баз данных

Специальность:
09.03.03 Мобильные и сетевые технологии

Проверил:
Говорова М.М._____
Дата: «__»_____20__г.
Оценка _____

Выполнил:
студент группы К3241
Кондратьев
А.А

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ЦЕЛЬ РАБОТЫ

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

ПРАКТИЧЕСКОЕ ЗАДАНИЕ

Оборудование: компьютерный класс.
Программное обеспечение: СУБД PostgreSQL 1X, pgAdmin 4.
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. Установить ограничения на данные: *Primary Key, Unique, Check, Foreign Key*.
5. Заполнить таблицы БД рабочими данными.
6. 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.*

1. Восстановить БД.

Вариант 11. БД «Автомастерская»

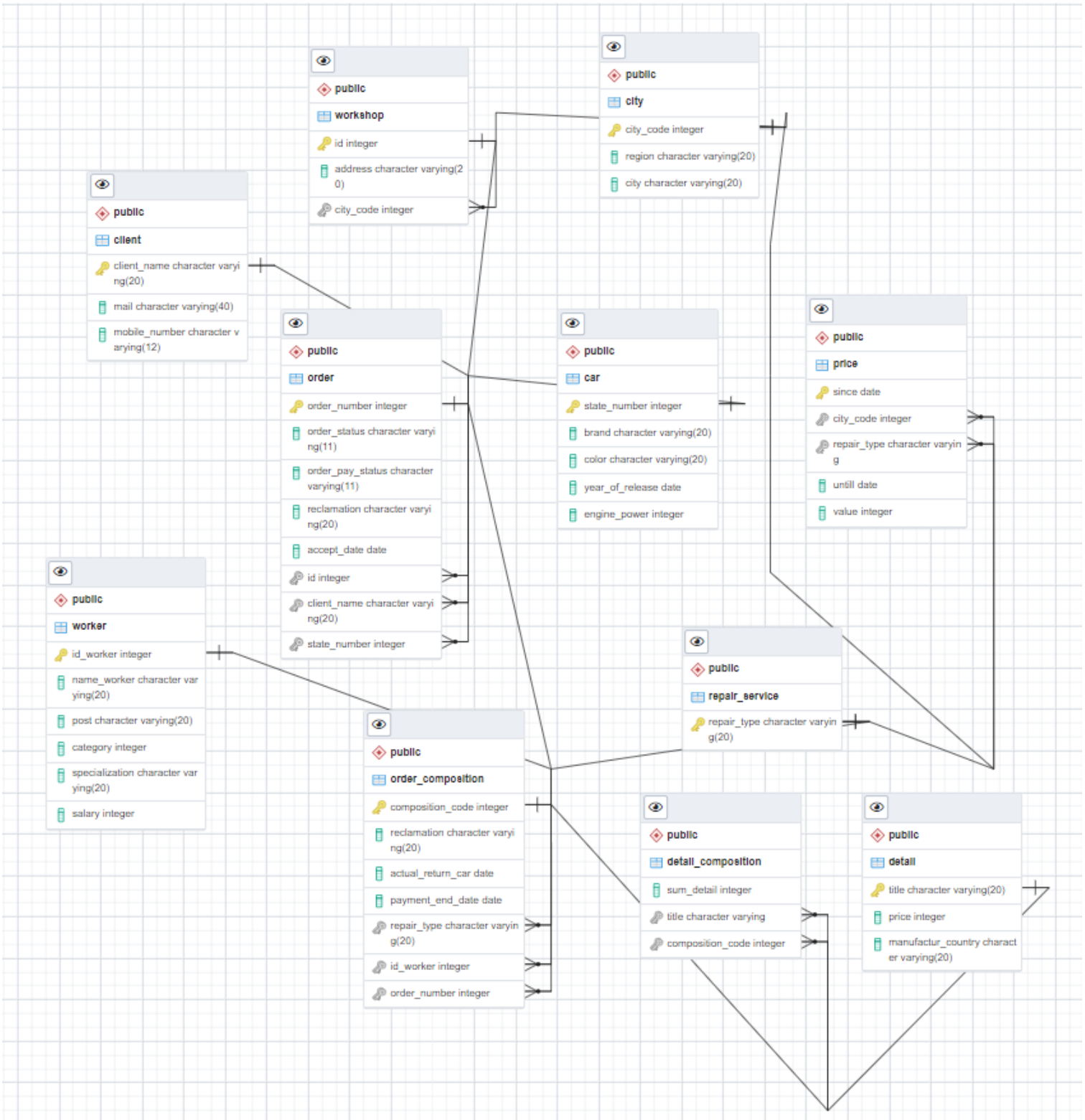
Описание предметной области: Сеть автомастерских осуществляет ремонт автомашин, используя для этих целей штат мастеров и свои мастерские. Стоимость ремонта включает цену деталей и стоимость работы. Заработная плата мастеров составляет 50% стоимости работы.

БД должна содержать следующий минимальный набор сведений: Табельный номер сотрудника. ФИО сотрудника. Должность. Разряд мастера. Специализация. Адрес автомастерской. Дата заказа. Гос. Номер автомобиля. Марка. Мощность автомобиля. Год выпуска. Цвет автомобиля. Дата принятия в ремонт. Плановая дата окончания ремонта. Фактическая дата окончания ремонта. Вид ремонта. Стоимость вида ремонта. Название детали. Цена детали. Марка и модель автомобиля. Страна производителя. Госномер автомобиля. ФИО владельца. Номер телефона владельца. E-mail владельца.

ХОД РАБОТЫ

1) Наименование БД:
Car service

2) Схема логической модели:



3) Dump, содержащий скрипты работы с БД.

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

-- Dumped from database version 13.6
-- Dumped by pg_dump version 13.6
```

```
-- Started on 2022-03-03 13:06:10

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;

DROP DATABASE car_service;
--
-- TOC entry 3087 (class 1262 OID 16477)
-- Name: car_service; Type: DATABASE; Schema: -; Owner: postgres
--

CREATE DATABASE car_service WITH TEMPLATE = template0 ENCODING = 'UTF8'
LOCALE = 'Russian_Russia.1251';


ALTER DATABASE car_service OWNER TO postgres;

\connect car_service

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 200 (class 1259 OID 16478)
-- Name: car; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.car (
```

```
    state_number integer NOT NULL,
    brand character varying(20) NOT NULL,
    color character varying(20) NOT NULL,
    year_of_release date NOT NULL,
    engine_power integer NOT NULL
);


ALTER TABLE public.car OWNER TO postgres;

--
-- TOC entry 201 (class 1259 OID 16492)
-- Name: city; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.city (
    city_code integer NOT NULL,
    region character varying(20) NOT NULL,
    city character varying(20) NOT NULL
);


ALTER TABLE public.city OWNER TO postgres;

--
-- TOC entry 210 (class 1259 OID 16603)
-- Name: client; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.client (
    client_name character varying(20) NOT NULL,
    mail character varying(40) NOT NULL,
    mobile_number character varying(12) NOT NULL
);


ALTER TABLE public.client OWNER TO postgres;

--
-- TOC entry 208 (class 1259 OID 16577)
-- Name: detail; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.detail (
    title character varying(20) NOT NULL,
    price integer NOT NULL,
    manufactur_country character varying(20) NOT NULL
);
```

```
ALTER TABLE public.detail OWNER TO postgres;

--
-- TOC entry 209 (class 1259 OID 16582)
-- Name: detail_composition; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.detail_composition (
    sum_detail integer,
    title character varying NOT NULL,
    composition_code integer NOT NULL
);


ALTER TABLE public.detail_composition OWNER TO postgres;

--
-- TOC entry 203 (class 1259 OID 16507)
-- Name: order; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public."order" (
    order_number integer NOT NULL,
    order_status character varying(11) NOT NULL,
    order_pay_status character varying(11) NOT NULL,
    reclamation character varying(20),
    accept_date date NOT NULL,
    id integer NOT NULL,
    client_name character varying(20) NOT NULL,
    state_number integer NOT NULL
);


ALTER TABLE public."order" OWNER TO postgres;

--
-- TOC entry 207 (class 1259 OID 16555)
-- Name: order_composition; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.order_composition (
    composition_code integer NOT NULL,
    reclamation character varying(20),
    actual_return_car date NOT NULL,
    payment_end_date date NOT NULL,
    repair_type character varying(20) NOT NULL,
```

```
    id_worker integer NOT NULL,
    order_number integer NOT NULL
);


ALTER TABLE public.order_composition OWNER TO postgres;

--
-- TOC entry 205 (class 1259 OID 16532)
-- Name: price; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.price (
    since date NOT NULL,
    city_code integer NOT NULL,
    repair_type character varying NOT NULL,
    untill date,
    value integer NOT NULL
);


ALTER TABLE public.price OWNER TO postgres;

--
-- TOC entry 204 (class 1259 OID 16527)
-- Name: repair_service; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.repair_service (
    repair_type character varying(20) NOT NULL
);


ALTER TABLE public.repair_service OWNER TO postgres;

--
-- TOC entry 206 (class 1259 OID 16550)
-- Name: worker; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.worker (
    id_worker integer NOT NULL,
    name_worker character varying(20) NOT NULL,
    post character varying(20) NOT NULL,
    category integer NOT NULL,
    specialization character varying(20) NOT NULL,
    salary integer NOT NULL
);
```

```
ALTER TABLE public.worker OWNER TO postgres;

--
-- TOC entry 202 (class 1259 OID 16497)
-- Name: workshop; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.workshop (
    id integer NOT NULL,
    address character varying(20) NOT NULL,
    city_code integer NOT NULL
);


ALTER TABLE public.workshop OWNER TO postgres;

--
-- TOC entry 3071 (class 0 OID 16478)
-- Dependencies: 200
-- Data for Name: car; Type: TABLE DATA; Schema: public; Owner: postgres
--

INSERT INTO public.car (state_number, brand, color, year_of_release, engine_power)
VALUES (1, 'bmw', 'black', '2014-05-24', 250);
INSERT INTO public.car (state_number, brand, color, year_of_release, engine_power)
VALUES (2, 'audi', 'white', '2015-04-14', 20);
INSERT INTO public.car (state_number, brand, color, year_of_release, engine_power)
VALUES (3, 'mercedes', 'grey', '2017-05-14', 230);



--
-- TOC entry 3072 (class 0 OID 16492)
-- Dependencies: 201
-- Data for Name: city; Type: TABLE DATA; Schema: public; Owner: postgres
--

INSERT INTO public.city (city_code, region, city) VALUES (1, 'Moskov obl', 'Moscow');
INSERT INTO public.city (city_code, region, city) VALUES (2, 'Tver obl', 'Tver');
INSERT INTO public.city (city_code, region, city) VALUES (3, 'Tver obl', 'Udomlya');



--
-- TOC entry 3081 (class 0 OID 16603)
-- Dependencies: 210
-- Data for Name: client; Type: TABLE DATA; Schema: public; Owner: postgres
--
```

INSERT INTO public.client (client_name, mail, mobile_number) VALUES ('Kondratev Aleksey', 'kondratev-alesha69@mail.ru', '+79108405702');
INSERT INTO public.client (client_name, mail, mobile_number) VALUES ('Mironova Elizaveta', 'mironova-elizaveta@mail.ru', '+79227223232');
INSERT INTO public.client (client_name, mail, mobile_number) VALUES ('Kirillov Kirill', 'kirill-kirillov@mail.ru', '+79223334455');

--
-- TOC entry 3079 (class 0 OID 16577)
-- Dependencies: 208
-- Data for Name: detail; Type: TABLE DATA; Schema: public; Owner: postgres
--

INSERT INTO public.detail (title, price, manufactur_country) VALUES ('bolt', 10000, 'China');
INSERT INTO public.detail (title, price, manufactur_country) VALUES ('screw', 5000, 'France');
INSERT INTO public.detail (title, price, manufactur_country) VALUES ('tire', 17000, 'Japan');

--
-- TOC entry 3080 (class 0 OID 16582)
-- Dependencies: 209
-- Data for Name: detail_composition; Type: TABLE DATA; Schema: public; Owner: postgres
--

INSERT INTO public.detail_composition (sum_detail, title, composition_code) VALUES (8, 'bolt', 1);
INSERT INTO public.detail_composition (sum_detail, title, composition_code) VALUES (10, 'screw', 2);
INSERT INTO public.detail_composition (sum_detail, title, composition_code) VALUES (2, 'tire', 3);

--
-- TOC entry 3074 (class 0 OID 16507)
-- Dependencies: 203
-- Data for Name: order; Type: TABLE DATA; Schema: public; Owner: postgres
--

INSERT INTO public."order" (order_number, order_status, order_pay_status, reclamation, accept_date, id, client_name, state_number) VALUES (1, 'accept', 'paid_for', NULL, '2018-07-14', 1, 'Kondratev Aleksey', 1);
INSERT INTO public."order" (order_number, order_status, order_pay_status, reclamation,

accept_date, id, client_name, state_number) VALUES (2, 'accept', 'paid_for', NULL, '2017-09-24', 2, 'Kondratev Aleksey', 2);
INSERT INTO public.''order'' (order_number, order_status, order_pay_status, reclamation, accept_date, id, client_name, state_number) VALUES (3, 'accept', 'paid_for', NULL, '2019-10-05', 3, 'Mironova Elizaveta', 3);

--
-- TOC entry 3078 (class 0 OID 16555)
-- Dependencies: 207
-- Data for Name: order_composition; Type: TABLE DATA; Schema: public; Owner: postgres
--

INSERT INTO public.order_composition (composition_code, reclamation, actual_return_car, payment_end_date, repair_type, id_worker, order_number) VALUES (1, NULL, '2020-02-20', '2019-12-21', 'tire_replacement', 1, 1);
INSERT INTO public.order_composition (composition_code, reclamation, actual_return_car, payment_end_date, repair_type, id_worker, order_number) VALUES (2, NULL, '2018-03-10', '2017-10-17', 'polishing', 2, 2);
INSERT INTO public.order_composition (composition_code, reclamation, actual_return_car, payment_end_date, repair_type, id_worker, order_number) VALUES (3, NULL, '2019-09-17', '2019-09-16', 'oil_change', 3, 3);

--
-- TOC entry 3076 (class 0 OID 16532)
-- Dependencies: 205
-- Data for Name: price; Type: TABLE DATA; Schema: public; Owner: postgres
--

INSERT INTO public.price (since, city_code, repair_type, untill, value) VALUES ('2014-05-24', 1, 'tire_replacement', '2019-05-24', 5000);
INSERT INTO public.price (since, city_code, repair_type, untill, value) VALUES ('2016-07-13', 3, 'oil_change', '2020-07-13', 6000);
INSERT INTO public.price (since, city_code, repair_type, untill, value) VALUES ('2017-03-22', 2, 'polishing', '2021-03-22', 8000);

--
-- TOC entry 3075 (class 0 OID 16527)
-- Dependencies: 204
-- Data for Name: repair_service; Type: TABLE DATA; Schema: public; Owner: postgres
--

INSERT INTO public.repair_service (repair_type) VALUES ('tire_replacement');
INSERT INTO public.repair_service (repair_type) VALUES ('polishing');
INSERT INTO public.repair_service (repair_type) VALUES ('oil_change');

```
--
-- TOC entry 3077 (class 0 OID 16550)
-- Dependencies: 206
-- Data for Name: worker; Type: TABLE DATA; Schema: public; Owner: postgres
--

INSERT INTO public.worker (id_worker, name_worker, post, category, specialization,
salary) VALUES (1, 'Ivanov Ivan', 'worker', 2, 'tire_fitter', 40000);
INSERT INTO public.worker (id_worker, name_worker, post, category, specialization,
salary) VALUES (2, 'Vladov Vlad', 'worker', 2, 'tire_fitter', 40000);
INSERT INTO public.worker (id_worker, name_worker, post, category, specialization,
salary) VALUES (3, 'Olegov Oleg', 'worker', 1, 'polisher', 40000);



--
-- TOC entry 3073 (class 0 OID 16497)
-- Dependencies: 202
-- Data for Name: workshop; Type: TABLE DATA; Schema: public; Owner: postgres
--

INSERT INTO public.workshop (id, address, city_code) VALUES (1, 'Batynskaya', 1);
INSERT INTO public.workshop (id, address, city_code) VALUES (2, 'Elizarovsk', 2);
INSERT INTO public.workshop (id, address, city_code) VALUES (3, 'Dachnaya', 3);



--
-- TOC entry 2890 (class 2606 OID 16633)
-- Name: car car_engine_power_check; Type: CHECK CONSTRAINT; Schema: public;
Owner: postgres
--

ALTER TABLE public.car
    ADD CONSTRAINT car_engine_power_check CHECK ((engine_power > 0)) NOT
VALID;



--
-- TOC entry 2895 (class 2606 OID 16482)
-- Name: car car_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.car
    ADD CONSTRAINT car_pkey PRIMARY KEY (state_number);



--
```

```
-- TOC entry 2897 (class 2606 OID 16484)
-- Name: car car_state_number_key; Type: CONSTRAINT; Schema: public; Owner:
postgres
--

ALTER TABLE ONLY public.car
    ADD CONSTRAINT car_state_number_key UNIQUE (state_number);



--
-- TOC entry 2899 (class 2606 OID 16641)
-- Name: city city_city_code_key; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.city
    ADD CONSTRAINT city_city_code_key UNIQUE (city_code);



--
-- TOC entry 2901 (class 2606 OID 16496)
-- Name: city city_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.city
    ADD CONSTRAINT city_pkey PRIMARY KEY (city_code);



--
-- TOC entry 2892 (class 2606 OID 16652)
-- Name: client client_mail_check; Type: CHECK CONSTRAINT; Schema: public; Owner:
postgres
--

ALTER TABLE public.client
    ADD CONSTRAINT client_mail_check CHECK (((mail)::text ~~ '%@%'::text)) NOT
VALID;



--
-- TOC entry 2925 (class 2606 OID 16646)
-- Name: client client_mail_key; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.client
    ADD CONSTRAINT client_mail_key UNIQUE (mail);



--
```

```
-- TOC entry 2893 (class 2606 OID 16653)
-- Name: client client_mobile_number_check; Type: CHECK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE public.client
    ADD CONSTRAINT client_mobile_number_check CHECK (((mobile_number)::text ~~ '+7%'::text)) NOT VALID;


--
-- TOC entry 2927 (class 2606 OID 16651)
-- Name: client client_mobile_number_key; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.client
    ADD CONSTRAINT client_mobile_number_key UNIQUE (mobile_number);


--
-- TOC entry 2929 (class 2606 OID 16607)
-- Name: client client_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.client
    ADD CONSTRAINT client_pkey PRIMARY KEY (client_name);


--
-- TOC entry 2923 (class 2606 OID 16581)
-- Name: detail detail_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.detail
    ADD CONSTRAINT detail_pkey PRIMARY KEY (title);


--
-- TOC entry 2891 (class 2606 OID 16635)
-- Name: detail detail_price_check; Type: CHECK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE public.detail
    ADD CONSTRAINT detail_price_check CHECK ((price > 0)) NOT VALID;
```

```
--
-- TOC entry 2919 (class 2606 OID 16561)
-- Name: order_composition order_composition_composition_code_key; Type:
CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.order_composition
    ADD CONSTRAINT order_composition_composition_code_key UNIQUE
(composition_code);



--
-- TOC entry 2921 (class 2606 OID 16559)
-- Name: order_composition order_composition_pkey; Type: CONSTRAINT; Schema:
public; Owner: postgres
--

ALTER TABLE ONLY public.order_composition
    ADD CONSTRAINT order_composition_pkey PRIMARY KEY (composition_code);



--
-- TOC entry 2907 (class 2606 OID 16639)
-- Name: order order_order_number_key; Type: CONSTRAINT; Schema: public; Owner:
postgres
--

ALTER TABLE ONLY public."order"
    ADD CONSTRAINT order_order_number_key UNIQUE (order_number);



--
-- TOC entry 2909 (class 2606 OID 16511)
-- Name: order order_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."order"
    ADD CONSTRAINT order_pkey PRIMARY KEY (order_number);



--
-- TOC entry 2913 (class 2606 OID 16539)
-- Name: price price_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.price
    ADD CONSTRAINT price_pkey PRIMARY KEY (since);
```

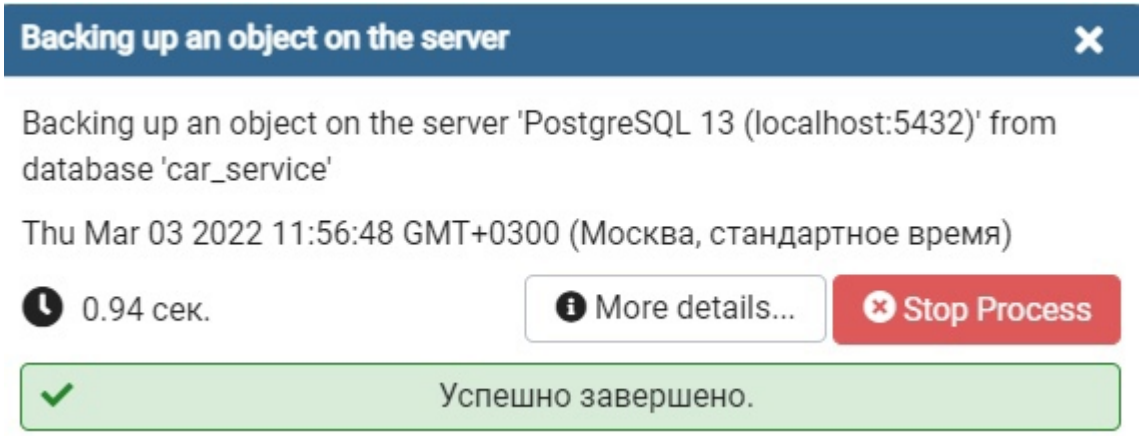
```
--
-- TOC entry 2911 (class 2606 OID 16531)
-- Name: repair_service repair_service_pkey; Type: CONSTRAINT; Schema: public;
Owner: postgres
--

ALTER TABLE ONLY public.repair_service
    ADD CONSTRAINT repair_service_pkey PRIMARY KEY (repair_type);



--
-- TOC entry 2915 (class 2606 OID 16637)
-- Name: worker worker_id_key; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.worker
    ADD CONSTRAINT worker_id_key UNIQUE (id_worker);



--
-- TOC entry 2917 (class 2606 OID 16554)
-- Name: worker worker_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.worker
    ADD CONSTRAINT worker_pkey PRIMARY KEY (id_worker);



--
-- TOC entry 2903 (class 2606 OID 16643)
-- Name: workshop workshop_id_key; Type: CONSTRAINT; Schema: public; Owner:
postgres
--

ALTER TABLE ONLY public.workshop
    ADD CONSTRAINT workshop_id_key UNIQUE (id);



--
-- TOC entry 2905 (class 2606 OID 16501)
-- Name: workshop workshop_pkey; Type: CONSTRAINT; Schema: public; Owner:
postgres
--

ALTER TABLE ONLY public.workshop
    ADD CONSTRAINT workshop_pkey PRIMARY KEY (id);
```

```
--
-- TOC entry 2939 (class 2606 OID 16588)
-- Name: detail_composition detail_composition_composition_code_fkey; Type: FK
CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.detail_composition
    ADD CONSTRAINT detail_composition_composition_code_fkey FOREIGN KEY
(composition_code) REFERENCES public.order_composition(composition_code) NOT
VALID;


--
-- TOC entry 2940 (class 2606 OID 16593)
-- Name: detail_composition detail_composition_title_fkey; Type: FK CONSTRAINT;
Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.detail_composition
    ADD CONSTRAINT detail_composition_title_fkey FOREIGN KEY (title)
REFERENCES public.detail(title) NOT VALID;


--
-- TOC entry 2931 (class 2606 OID 16608)
-- Name: order order_client_name_fkey; Type: FK CONSTRAINT; Schema: public; Owner:
postgres
--

ALTER TABLE ONLY public."order"
    ADD CONSTRAINT order_client_name_fkey FOREIGN KEY (client_name)
REFERENCES public.client(client_name) NOT VALID;


--
-- TOC entry 2938 (class 2606 OID 16628)
-- Name: order_composition order_composition_id_fkey; Type: FK CONSTRAINT;
Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.order_composition
    ADD CONSTRAINT order_composition_id_fkey FOREIGN KEY (id_worker)
REFERENCES public.worker(id_worker) NOT VALID;


--
-- TOC entry 2937 (class 2606 OID 16623)
```

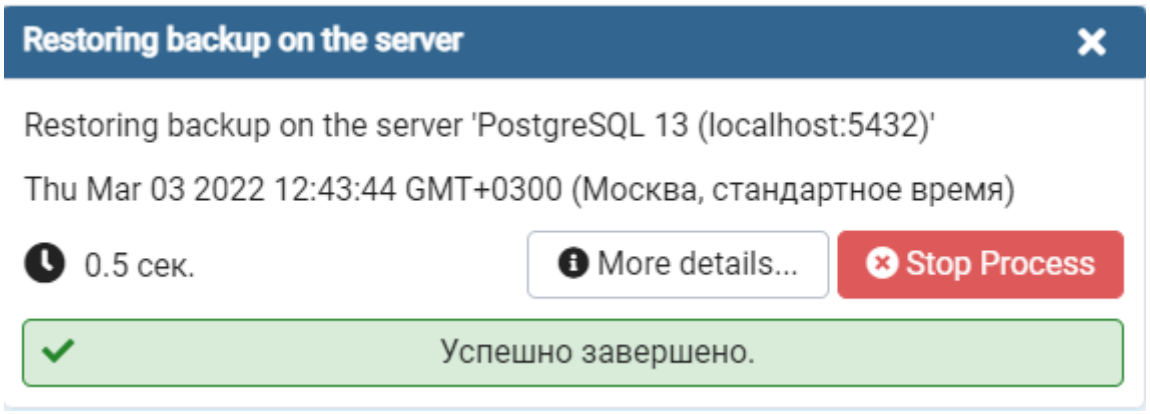
```
-- Name: order_composition order_composition_order_number_fkey; Type: FK
CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.order_composition
    ADD CONSTRAINT order_composition_order_number_fkey FOREIGN KEY
(order_number) REFERENCES public."order"(order_number) NOT VALID;



--
-- TOC entry 2936 (class 2606 OID 16572)
-- Name: order_composition order_composition_repair_type_fkey; Type: FK
CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.order_composition
    ADD CONSTRAINT order_composition_repair_type_fkey FOREIGN KEY (repair_type)
REFERENCES public.repair_service(repair_type) NOT VALID;



--
-- TOC entry 2933 (class 2606 OID 16618)
-- Name: order order_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public."order"
    ADD CONSTRAINT order_id_fkey FOREIGN KEY (id) REFERENCES
public.workshop(id) NOT VALID;



--
-- TOC entry 2932 (class 2606 OID 16613)
-- Name: order order_state_number_fkey; Type: FK CONSTRAINT; Schema: public;
Owner: postgres
--

ALTER TABLE ONLY public."order"
    ADD CONSTRAINT order_state_number_fkey FOREIGN KEY (state_number)
REFERENCES public.car(state_number) NOT VALID;



--
-- TOC entry 2935 (class 2606 OID 16545)
-- Name: price price_city_code_fkey; Type: FK CONSTRAINT; Schema: public; Owner:
postgres
--

ALTER TABLE ONLY public.price
```

```
    ADD CONSTRAINT price_city_code_fkey FOREIGN KEY (city_code) REFERENCES
public.city(city_code) NOT VALID;


--
-- TOC entry 2934 (class 2606 OID 16540)
-- Name: price price_repair_type_fkey; Type: FK CONSTRAINT; Schema: public; Owner:
postgres
--

ALTER TABLE ONLY public.price
    ADD CONSTRAINT price_repair_type_fkey FOREIGN KEY (repair_type)
REFERENCES public.repair_service(repair_type) NOT VALID;


--
-- TOC entry 2930 (class 2606 OID 16598)
-- Name: workshop workshop_city_code_fkey; Type: FK CONSTRAINT; Schema: public;
Owner: postgres
--

ALTER TABLE ONLY public.workshop
    ADD CONSTRAINT workshop_city_code_fkey FOREIGN KEY (city_code)
REFERENCES public.city(city_code) NOT VALID;


-- Completed on 2022-03-03 13:06:11

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

4) Резервное копирование данных



5) Восстановление базы данных



Вывод:

В ходе выполнения работы была создана база данных в PostgreSQL, созданы таблицы и ограничения на значение столбцов, в базу данных были занесены рабочие данные, а также была создана логическая модель базы данных и dump. Программа pgAdmin позволяет создавать базы данных: либо напрямую посредством взаимодействия с ее GUI, или же через работу на встроенном генераторе ER диаграмм. Однако, каким способом диаграмма не была создана, всегда сохраняется возможность увидеть SQL код командами была создана диаграмма. Видеть код, создаваемый нажатием кнопки в интерфейсе, оказалось полезным для нахождения ошибок и общего понимания работы программы.