Министерство науки и высшего образования Российской Федерации

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«Национальный исследовательский университет ИТМО»

Факультет инфокоммуникационных технологий

Создание таблиц базы данных POSTGRESQL. Заполнение таблиц рабочими данными

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

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 .*
7. Восстановить БД.

Выполнение:
- Наименование БД – «БД Автомастерская»;
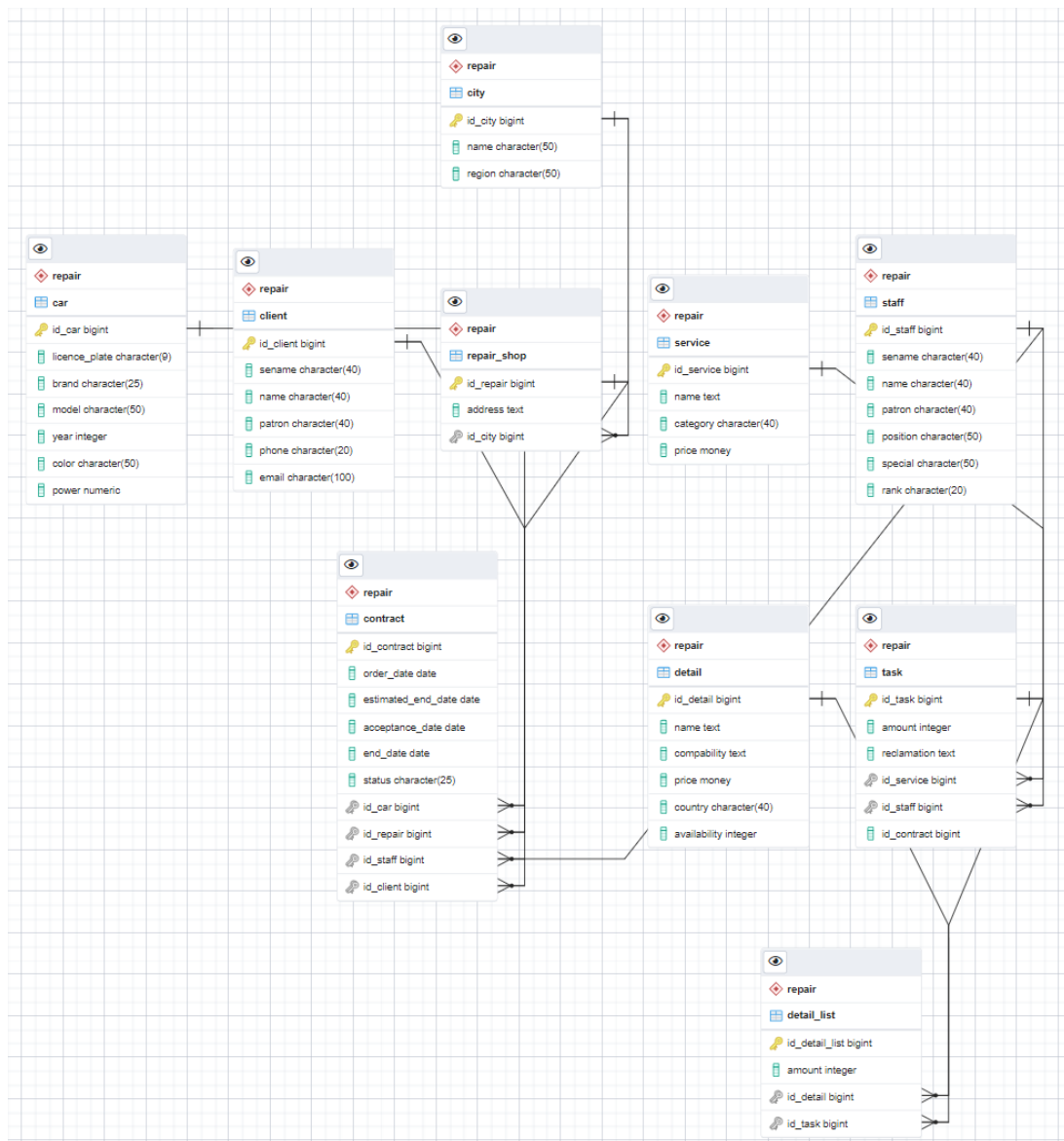- схема логической модели базы данных, сгенерированная в Generate ERD (см. рисунок 1);

Рисунок 1 - Generate ERD.

- dump, содержащий скрипты работы с БД (см. листинг 1);

Листинг 1 – Скрипт работы с бд.

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


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


-- Started on 2022-03-03 22:36:07


SET statement_timeout = 0;
SET lock_timeout = 0;
SET idle_in_transaction_session_timeout = 0;
```

```sql
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;


--
-- TOC entry 5 (class 2615 OID 16395)
-- Name: repair; Type: SCHEMA; Schema: -; Owner: postgres
--


CREATE SCHEMA repair;


ALTER SCHEMA repair OWNER TO postgres;

SET default_tablespace = '';

SET default_table_access_method = heap;

--
-- TOC entry 213 (class 1259 OID 16419)
-- Name: car; Type: TABLE; Schema: repair; Owner: postgres
--


CREATE TABLE repair.car (
    id_car bigint NOT NULL,
    licence_plate character varying(9) NOT NULL,
    brand character varying(25) NOT NULL,
    model character varying(50) NOT NULL,
    year integer NOT NULL,
    color character varying(50),
    power numeric NOT NULL
);


ALTER TABLE repair.car OWNER TO postgres;

--
-- TOC entry 221 (class 1259 OID 16614)
```

```sql
-- Name: car_id_car_seq; Type: SEQUENCE; Schema: repair; Owner:
postgres
--

ALTER TABLE repair.car ALTER COLUMN id_car ADD GENERATED ALWAYS
AS IDENTITY (
    SEQUENCE NAME repair.car_id_car_seq
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1
);


--
-- TOC entry 212 (class 1259 OID 16408)
-- Name: city; Type: TABLE; Schema: repair; Owner: postgres
--

CREATE TABLE repair.city (
    id_city bigint NOT NULL,
    name character varying(50) NOT NULL,
    region character varying(50) NOT NULL
);


ALTER TABLE repair.city OWNER TO postgres;

--
-- TOC entry 222 (class 1259 OID 16615)
-- Name: city_id_city_seq; Type: SEQUENCE; Schema: repair; Owner:
postgres
--

ALTER TABLE repair.city ALTER COLUMN id_city ADD GENERATED ALWAYS
AS IDENTITY (
    SEQUENCE NAME repair.city_id_city_seq
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
```

```sql
    CACHE 1
);


--
-- TOC entry 210 (class 1259 OID 16396)
-- Name: client; Type: TABLE; Schema: repair; Owner: postgres
--

CREATE TABLE repair.client (
    id_client bigint NOT NULL,
    sename character varying(40) NOT NULL,
    name character varying(40) NOT NULL,
    patron character varying(40),
    phone character varying(20) NOT NULL,
    email character varying(100)
);


ALTER TABLE repair.client OWNER TO postgres;

--
-- TOC entry 223 (class 1259 OID 16616)
-- Name: client_id_client_seq; Type: SEQUENCE; Schema: repair;
Owner: postgres
--

ALTER TABLE repair.client ALTER COLUMN id_client ADD GENERATED
ALWAYS AS IDENTITY (
    SEQUENCE NAME repair.client_id_client_seq
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1
);



--
-- TOC entry 215 (class 1259 OID 16431)
-- Name: contract; Type: TABLE; Schema: repair; Owner: postgres
--
```

```sql
CREATE TABLE repair.contract (
    id_contract bigint NOT NULL,
    order_date date NOT NULL,
    estimated_end_date date,
    acceptance_date date NOT NULL,
    end_date date NOT NULL,
    status character varying(25) NOT NULL,
    id_car bigint NOT NULL,
    id_repair bigint NOT NULL,
    id_staff bigint NOT NULL,
    id_client bigint NOT NULL
);


ALTER TABLE repair.contract OWNER TO postgres;

--
-- TOC entry 224 (class 1259 OID 16617)
-- Name: contract_id_contract_seq; Type: SEQUENCE; Schema:
repair; Owner: postgres
--

ALTER TABLE repair.contract ALTER COLUMN id_contract ADD
GENERATED ALWAYS AS IDENTITY (
    SEQUENCE NAME repair.contract_id_contract_seq
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1
);



--
-- TOC entry 218 (class 1259 OID 16448)
-- Name: detail; Type: TABLE; Schema: repair; Owner: postgres
--

CREATE TABLE repair.detail (
    id_detail bigint NOT NULL,
    name text NOT NULL,
```

```sql
    compability text NOT NULL,
    price money NOT NULL,
    country character varying(40) NOT NULL,
    availability integer NOT NULL
);


ALTER TABLE repair.detail OWNER TO postgres;


--
-- TOC entry 220 (class 1259 OID 16613)
-- Name: detail_id_detail_seq; Type: SEQUENCE; Schema: repair;
Owner: postgres
--

ALTER TABLE repair.detail ALTER COLUMN id_detail ADD GENERATED
ALWAYS AS IDENTITY (
    SEQUENCE NAME repair.detail_id_detail_seq
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1
);



--
-- TOC entry 217 (class 1259 OID 16443)
-- Name: detail_list; Type: TABLE; Schema: repair; Owner:
postgres
--

CREATE TABLE repair.detail_list (
    id_detail_list bigint NOT NULL,
    amount integer NOT NULL,
    id_detail bigint NOT NULL,
    id_task bigint NOT NULL
);


ALTER TABLE repair.detail_list OWNER TO postgres;
```

```sql
--
-- TOC entry 225 (class 1259 OID 16618)
-- Name: detail_list_id_detail_list_seq; Type: SEQUENCE; Schema:
repair; Owner: postgres
--

ALTER TABLE repair.detail_list ALTER COLUMN id_detail_list ADD
GENERATED ALWAYS AS IDENTITY (
    SEQUENCE NAME repair.detail_list_id_detail_list_seq
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1
);


--
-- TOC entry 211 (class 1259 OID 16401)
-- Name: repair_shop; Type: TABLE; Schema: repair; Owner:
postgres
--

CREATE TABLE repair.repair_shop (
    id_repair bigint NOT NULL,
    address text NOT NULL,
    id_city bigint NOT NULL
);


ALTER TABLE repair.repair_shop OWNER TO postgres;

--
-- TOC entry 226 (class 1259 OID 16619)
-- Name: repair_shop_id_repair_seq; Type: SEQUENCE; Schema:
repair; Owner: postgres
--

ALTER TABLE repair.repair_shop ALTER COLUMN id_repair ADD
GENERATED ALWAYS AS IDENTITY (
    SEQUENCE NAME repair.repair_shop_id_repair_seq
    START WITH 1
```

```sql
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1
);


--
-- TOC entry 219 (class 1259 OID 16455)
-- Name: service; Type: TABLE; Schema: repair; Owner: postgres
--

CREATE TABLE repair.service (
    id_service bigint NOT NULL,
    name text NOT NULL,
    category character varying(40) NOT NULL,
    price money NOT NULL
);


ALTER TABLE repair.service OWNER TO postgres;

--
-- TOC entry 227 (class 1259 OID 16620)
-- Name: service_id_service_seq; Type: SEQUENCE; Schema: repair;
Owner: postgres
--

ALTER TABLE repair.service ALTER COLUMN id_service ADD GENERATED
ALWAYS AS IDENTITY (
    SEQUENCE NAME repair.service_id_service_seq
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1
);


--
-- TOC entry 214 (class 1259 OID 16426)
-- Name: staff; Type: TABLE; Schema: repair; Owner: postgres
```

```sql
--

CREATE TABLE repair.staff (
    id_staff bigint NOT NULL,
    sename character varying(40) NOT NULL,
    name character varying(40) NOT NULL,
    patron character varying(40),
    "position" character varying(50) NOT NULL,
    special character varying(50) NOT NULL,
    rank character varying(20) NOT NULL
);


ALTER TABLE repair.staff OWNER TO postgres;

--
-- TOC entry 228 (class 1259 OID 16621)
-- Name: staff_id_staff_seq; Type: SEQUENCE; Schema: repair;
Owner: postgres
--

ALTER TABLE repair.staff ALTER COLUMN id_staff ADD GENERATED
ALWAYS AS IDENTITY (
    SEQUENCE NAME repair.staff_id_staff_seq
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1
);


--
-- TOC entry 216 (class 1259 OID 16436)
-- Name: task; Type: TABLE; Schema: repair; Owner: postgres
--

CREATE TABLE repair.task (
    id_task bigint NOT NULL,
    amount integer NOT NULL,
    reclamation text,
    id_service bigint NOT NULL,
```

```sql
    id_staff bigint NOT NULL,
    id_contract bigint NOT NULL
);


ALTER TABLE repair.task OWNER TO postgres;

--
-- TOC entry 229 (class 1259 OID 16623)
-- Name: task_id_task_seq; Type: SEQUENCE; Schema: repair; Owner:
postgres
--

ALTER TABLE repair.task ALTER COLUMN id_task ADD GENERATED ALWAYS
AS IDENTITY (
    SEQUENCE NAME repair.task_id_task_seq
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1
);


--
-- TOC entry 3396 (class 0 OID 16419)
-- Dependencies: 213
-- Data for Name: car; Type: TABLE DATA; Schema: repair; Owner:
postgres
--

COPY repair.car (id_car, licence_plate, brand, model, year,
color, power) FROM stdin;
1    a213dk192    bmw x6    2019    black    1.34
2    a213dk192    bmw x6    2019    black    1.34
3    f123kk183    audi    a7  2011    black    1.34
4    l195ld98    hendai    solaris 2010    black    1.34
5    o373dh716    bmw 8    2017    black    1.34
6    f393ks71    kia rio 2014    black    1.34
7    l134kf1 mazda    m7    2020    black    1.34
8    f154ld8 mazda    m8    2014    black    1.34
9    d431dg34    lada    pomoika 1998    black    1.34
```

```
\.


--
-- TOC entry 3395 (class 0 OID 16408)
-- Dependencies: 212
-- Data for Name: city; Type: TABLE DATA; Schema: repair; Owner:
postgres
--

COPY repair.city (id_city, name, region) FROM stdin;
1    Москва   Центральный
2    Санкт-Петербург Северо-западный
3    Краснодар    Южный
4    Новосибирск Сибирский
5    Томск    Сибирский
\.



--
-- TOC entry 3393 (class 0 OID 16396)
-- Dependencies: 210
-- Data for Name: client; Type: TABLE DATA; Schema: repair;
Owner: postgres
--

COPY repair.client (id_client, sename, name, patron, phone,
email) FROM stdin;
1    Смирнов Тимур    Олегович     89392827474
2    Григоревич   Иван         87773336215
3    Горохов Павел        81924931919
4    Ерохин  Егор         81934818312
5    Дмитриев     Дмитрий      82734636272
6    Алексеев     Павел        89381731243
\.



--
-- TOC entry 3398 (class 0 OID 16431)
-- Dependencies: 215
-- Data for Name: contract; Type: TABLE DATA; Schema: repair;
Owner: postgres
```

```
--

COPY repair.contract (id_contract, order_date,
estimated_end_date, acceptance_date, end_date, status, id_car,
id_repair, id_staff, id_client) FROM stdin;
2	2003-03-10	2003-03-10	2003-03-10	2003-03-
10	Готово	1	5	1	1
3	2004-03-13	2004-03-13	2004-03-13	2004-03-
13	Готово	2	7	2	2
4	2004-04-20	2004-04-20	2004-04-20	2004-04-
20	Готово	3	3	3	3
5	2004-05-04	2004-05-04	2004-05-04	2004-05-
04	Готово	4	1	4	4
6	2020-10-30	2020-10-30	2020-10-30	2020-10-
30	Готово	5	2	5	5
\.


--
-- TOC entry 3401 (class 0 OID 16448)
-- Dependencies: 218
-- Data for Name: detail; Type: TABLE DATA; Schema: repair;
Owner: postgres
--

COPY repair.detail (id_detail, name, compability, price, country,
availability) FROM stdin;
1	dkde34df	bmw	2 311,00 ?	germany	2
2	sfgoo4	audi	13 434,00 ?	germany	134
3	adlkn43	kia	34 134,00 ?	korea	34
4	dkd3	bugatti	12 454,00 ?	italy	0
5	parasha	lada	10 453,00 ?	russia	3453
6	timur	itmo	3 944,00 ?	russia	1
\.


--
-- TOC entry 3400 (class 0 OID 16443)
-- Dependencies: 217
-- Data for Name: detail_list; Type: TABLE DATA; Schema: repair;
Owner: postgres
--
```

```sql
COPY repair.detail_list (id_detail_list, amount, id_detail,
id_task) FROM stdin;
1    1    5    4
2    2    4    3
3    1    3    2
4    4    1    1
5    1    6    5
\.


--
-- TOC entry 3394 (class 0 OID 16401)
-- Dependencies: 211
-- Data for Name: repair_shop; Type: TABLE DATA; Schema: repair;
Owner: postgres
--

COPY repair.repair_shop (id_repair, address, id_city) FROM stdin;
1    Пушкинская 12    2
2    Горьковская 34   4
3    Владимирская 1   2
4    Арбат 83         5
5    Мира 32 3
6    Ленина 12        3
7    Сталина 8        1
\.


--
-- TOC entry 3402 (class 0 OID 16455)
-- Dependencies: 219
-- Data for Name: service; Type: TABLE DATA; Schema: repair;
Owner: postgres
--

COPY repair.service (id_service, name, category, price) FROM
stdin;
1    Чистка   Внешнее 1 324,00 ?
2    Замена двигателя     Внутреннее  2 342,00 ?
3    Покраска     Внешнее 123 134,00 ?
4    Замена фар   Внешнее 4 534,00 ?
```

```
5    Починка двигателя    Внутреннее    23 421,00  ?
6    Пересобрать корбюратор  Внутреннее   3 422,00  ?
\.
```

```
COPY repair.staff (id_staff, sename, name, patron, "position",
special, rank) FROM stdin;
1    Григорян    Александр        помогите    Чистка  Первый
2    Масковская  Мария   Ивановна    мне Починка Первый
3    Григорян    Арина   Кришкина    я   Менеджмент  Второй
4    Рускоид Даниил      устал   Починка Восьмой
5    Петросян    Анна        это Хз  Пятый
6    Иванов  Иван    Иванович    заполнять   я устал Третий
\.
```

```
COPY repair.task (id_task, amount, reclamation, id_service,
id_staff, id_contract) FROM stdin;
1   1   \N  1   4   1
2   12  \N  2   2   2
3   32  \N  5   1   3
4   2   \N  6   1   4
5   5   \N  3   5   5
\.
```

```sql
-- Dependencies: 221
-- Name: car_id_car_seq; Type: SEQUENCE SET; Schema: repair;
Owner: postgres
--

SELECT pg_catalog.setval('repair.car_id_car_seq', 9, true);


--
-- TOC entry 3419 (class 0 OID 0)
-- Dependencies: 222
-- Name: city_id_city_seq; Type: SEQUENCE SET; Schema: repair;
Owner: postgres
--

SELECT pg_catalog.setval('repair.city_id_city_seq', 5, true);


--
-- TOC entry 3420 (class 0 OID 0)
-- Dependencies: 223
-- Name: client_id_client_seq; Type: SEQUENCE SET; Schema:
repair; Owner: postgres
--

SELECT pg_catalog.setval('repair.client_id_client_seq', 6, true);


--
-- TOC entry 3421 (class 0 OID 0)
-- Dependencies: 224
-- Name: contract_id_contract_seq; Type: SEQUENCE SET; Schema:
repair; Owner: postgres
--

SELECT pg_catalog.setval('repair.contract_id_contract_seq', 6,
true);


--
-- TOC entry 3422 (class 0 OID 0)
-- Dependencies: 220
```

```sql
-- Name: detail_id_detail_seq; Type: SEQUENCE SET; Schema:
repair; Owner: postgres
--

SELECT pg_catalog.setval('repair.detail_id_detail_seq', 6, true);


--
-- TOC entry 3423 (class 0 OID 0)
-- Dependencies: 225
-- Name: detail_list_id_detail_list_seq; Type: SEQUENCE SET;
Schema: repair; Owner: postgres
--

SELECT pg_catalog.setval('repair.detail_list_id_detail_list_seq',
5, true);


--
-- TOC entry 3424 (class 0 OID 0)
-- Dependencies: 226
-- Name: repair_shop_id_repair_seq; Type: SEQUENCE SET; Schema:
repair; Owner: postgres
--

SELECT pg_catalog.setval('repair.repair_shop_id_repair_seq', 7,
true);


--
-- TOC entry 3425 (class 0 OID 0)
-- Dependencies: 227
-- Name: service_id_service_seq; Type: SEQUENCE SET; Schema:
repair; Owner: postgres
--

SELECT pg_catalog.setval('repair.service_id_service_seq', 6,
true);


--
-- TOC entry 3426 (class 0 OID 0)
-- Dependencies: 228
```

```sql
-- Name: staff_id_staff_seq; Type: SEQUENCE SET; Schema: repair;
Owner: postgres
--

SELECT pg_catalog.setval('repair.staff_id_staff_seq', 6, true);


--
-- TOC entry 3427 (class 0 OID 0)
-- Dependencies: 229
-- Name: task_id_task_seq; Type: SEQUENCE SET; Schema: repair;
Owner: postgres
--

SELECT pg_catalog.setval('repair.task_id_task_seq', 5, true);


--
-- TOC entry 3225 (class 2606 OID 16425)
-- Name: car car_pkey; Type: CONSTRAINT; Schema: repair; Owner:
postgres
--

ALTER TABLE ONLY repair.car
    ADD CONSTRAINT car_pkey PRIMARY KEY (id_car);


--
-- TOC entry 3211 (class 2606 OID 16608)
-- Name: contract check_acceptance_date; Type: CHECK CONSTRAINT;
Schema: repair; Owner: postgres
--

ALTER TABLE repair.contract
    ADD CONSTRAINT check_acceptance_date CHECK ((acceptance_date
>= order_date)) NOT VALID;


--
-- TOC entry 3214 (class 2606 OID 16610)
-- Name: task check_amount; Type: CHECK CONSTRAINT; Schema:
repair; Owner: postgres
--
```

```sql
ALTER TABLE repair.task
    ADD CONSTRAINT check_amount CHECK ((amount >= 0)) NOT VALID;


--
-- TOC entry 3215 (class 2606 OID 16611)
-- Name: detail_list check_amount; Type: CHECK CONSTRAINT;
Schema: repair; Owner: postgres
--

ALTER TABLE repair.detail_list
    ADD CONSTRAINT check_amount CHECK ((amount >= 0)) NOT VALID;


--
-- TOC entry 3216 (class 2606 OID 16612)
-- Name: detail check_amount; Type: CHECK CONSTRAINT; Schema:
repair; Owner: postgres
--

ALTER TABLE repair.detail
    ADD CONSTRAINT check_amount CHECK ((availability >= 0)) NOT
VALID;


--
-- TOC entry 3212 (class 2606 OID 16609)
-- Name: contract check_end_date; Type: CHECK CONSTRAINT; Schema:
repair; Owner: postgres
--

ALTER TABLE repair.contract
    ADD CONSTRAINT check_end_date CHECK ((end_date >=
order_date)) NOT VALID;


--
-- TOC entry 3213 (class 2606 OID 16607)
-- Name: contract check_estimated_end_date; Type: CHECK
CONSTRAINT; Schema: repair; Owner: postgres
--
```

```sql
ALTER TABLE repair.contract
    ADD CONSTRAINT check_estimated_end_date CHECK
((estimated_end_date >= order_date)) NOT VALID;


--
-- TOC entry 3210 (class 2606 OID 16606)
-- Name: car check_licence; Type: CHECK CONSTRAINT; Schema:
repair; Owner: postgres
--

ALTER TABLE repair.car
    ADD CONSTRAINT check_licence CHECK
(((length((licence_plate)::text) >= 7) AND
(length((licence_plate)::text) <= 9))) NOT VALID;


--
-- TOC entry 3223 (class 2606 OID 16412)
-- Name: city city_pkey; Type: CONSTRAINT; Schema: repair; Owner:
postgres
--

ALTER TABLE ONLY repair.city
    ADD CONSTRAINT city_pkey PRIMARY KEY (id_city);


--
-- TOC entry 3218 (class 2606 OID 16400)
-- Name: client client_pkey; Type: CONSTRAINT; Schema: repair;
Owner: postgres
--

ALTER TABLE ONLY repair.client
    ADD CONSTRAINT client_pkey PRIMARY KEY (id_client);


--
-- TOC entry 3229 (class 2606 OID 16435)
-- Name: contract contract_pkey; Type: CONSTRAINT; Schema:
repair; Owner: postgres
--
```

```sql
ALTER TABLE ONLY repair.contract
    ADD CONSTRAINT contract_pkey PRIMARY KEY (id_contract);


--
-- TOC entry 3238 (class 2606 OID 16447)
-- Name: detail_list detail_list_pkey; Type: CONSTRAINT; Schema:
repair; Owner: postgres
--

ALTER TABLE ONLY repair.detail_list
    ADD CONSTRAINT detail_list_pkey PRIMARY KEY (id_detail_list);


--
-- TOC entry 3242 (class 2606 OID 16454)
-- Name: detail detail_pkey; Type: CONSTRAINT; Schema: repair;
Owner: postgres
--

ALTER TABLE ONLY repair.detail
    ADD CONSTRAINT detail_pkey PRIMARY KEY (id_detail);


--
-- TOC entry 3221 (class 2606 OID 16407)
-- Name: repair_shop repair_shop_pkey; Type: CONSTRAINT; Schema:
repair; Owner: postgres
--

ALTER TABLE ONLY repair.repair_shop
    ADD CONSTRAINT repair_shop_pkey PRIMARY KEY (id_repair);


--
-- TOC entry 3244 (class 2606 OID 16461)
-- Name: service service_pkey; Type: CONSTRAINT; Schema: repair;
Owner: postgres
--


ALTER TABLE ONLY repair.service
    ADD CONSTRAINT service_pkey PRIMARY KEY (id_service);
```

```sql
--
-- TOC entry 3227 (class 2606 OID 16430)
-- Name: staff staff_pkey; Type: CONSTRAINT; Schema: repair;
Owner: postgres
--

ALTER TABLE ONLY repair.staff
    ADD CONSTRAINT staff_pkey PRIMARY KEY (id_staff);


--
-- TOC entry 3236 (class 2606 OID 16442)
-- Name: task task_pkey; Type: CONSTRAINT; Schema: repair; Owner:
postgres
--

ALTER TABLE ONLY repair.task
    ADD CONSTRAINT task_pkey PRIMARY KEY (id_task);


--
-- TOC entry 3230 (class 1259 OID 16485)
-- Name: fki_fk_client; Type: INDEX; Schema: repair; Owner:
postgres
--

CREATE INDEX fki_fk_client ON repair.contract USING btree
(id_client);


--
-- TOC entry 3239 (class 1259 OID 16502)
-- Name: fki_fk_detail; Type: INDEX; Schema: repair; Owner:
postgres
--

CREATE INDEX fki_fk_detail ON repair.detail_list USING btree
(id_detail);


--
-- TOC entry 3234 (class 1259 OID 16491)
```

```sql
-- Name: fki_fk_service; Type: INDEX; Schema: repair; Owner:
postgres
--

CREATE INDEX fki_fk_service ON repair.task USING btree
(id_service);


--
-- TOC entry 3231 (class 1259 OID 16479)
-- Name: fki_fk_staff; Type: INDEX; Schema: repair; Owner:
postgres
--

CREATE INDEX fki_fk_staff ON repair.contract USING btree
(id_staff);


--
-- TOC entry 3232 (class 1259 OID 16467)
-- Name: fki_i; Type: INDEX; Schema: repair; Owner: postgres
--

CREATE INDEX fki_i ON repair.contract USING btree (id_car);


--
-- TOC entry 3219 (class 1259 OID 16418)
-- Name: fki_id_city; Type: INDEX; Schema: repair; Owner:
postgres
--

CREATE INDEX fki_id_city ON repair.repair_shop USING btree
(id_city);


--
-- TOC entry 3233 (class 1259 OID 16473)
-- Name: fki_k; Type: INDEX; Schema: repair; Owner: postgres
--

CREATE INDEX fki_k ON repair.contract USING btree (id_repair);
```

```sql
--
-- TOC entry 3240 (class 1259 OID 16508)
-- Name: fki_r; Type: INDEX; Schema: repair; Owner: postgres
--

CREATE INDEX fki_r ON repair.detail_list USING btree (id_task);


--
-- TOC entry 3247 (class 2606 OID 16462)
-- Name: contract fk_car; Type: FK CONSTRAINT; Schema: repair;
Owner: postgres
--

ALTER TABLE ONLY repair.contract
    ADD CONSTRAINT fk_car FOREIGN KEY (id_car) REFERENCES
repair.car(id_car) NOT VALID;


--
-- TOC entry 3249 (class 2606 OID 16480)
-- Name: contract fk_client; Type: FK CONSTRAINT; Schema: repair;
Owner: postgres
--

ALTER TABLE ONLY repair.contract
    ADD CONSTRAINT fk_client FOREIGN KEY (id_client) REFERENCES
repair.client(id_client) NOT VALID;


--
-- TOC entry 3252 (class 2606 OID 16497)
-- Name: detail_list fk_detail; Type: FK CONSTRAINT; Schema:
repair; Owner: postgres
--

ALTER TABLE ONLY repair.detail_list
    ADD CONSTRAINT fk_detail FOREIGN KEY (id_detail) REFERENCES
repair.detail(id_detail) NOT VALID;


--
-- TOC entry 3246 (class 2606 OID 16468)
```

```sql
-- Name: contract fk_repair; Type: FK CONSTRAINT; Schema: repair;
Owner: postgres
--

ALTER TABLE ONLY repair.contract
    ADD CONSTRAINT fk_repair FOREIGN KEY (id_repair) REFERENCES
repair.repair_shop(id_repair) NOT VALID;


--
-- TOC entry 3250 (class 2606 OID 16486)
-- Name: task fk_service; Type: FK CONSTRAINT; Schema: repair;
Owner: postgres
--

ALTER TABLE ONLY repair.task
    ADD CONSTRAINT fk_service FOREIGN KEY (id_service) REFERENCES
repair.service(id_service) NOT VALID;


--
-- TOC entry 3248 (class 2606 OID 16474)
-- Name: contract fk_staff; Type: FK CONSTRAINT; Schema: repair;
Owner: postgres
--

ALTER TABLE ONLY repair.contract
    ADD CONSTRAINT fk_staff FOREIGN KEY (id_staff) REFERENCES
repair.staff(id_staff) NOT VALID;


--
-- TOC entry 3251 (class 2606 OID 16492)
-- Name: task fk_staff; Type: FK CONSTRAINT; Schema: repair;
Owner: postgres
--

ALTER TABLE ONLY repair.task
    ADD CONSTRAINT fk_staff FOREIGN KEY (id_staff) REFERENCES
repair.staff(id_staff) NOT VALID;


--
```

```
-- TOC entry 3253 (class 2606 OID 16503)
-- Name: detail_list fk_task; Type: FK CONSTRAINT; Schema:
repair; Owner: postgres
--

ALTER TABLE ONLY repair.detail_list
    ADD CONSTRAINT fk_task FOREIGN KEY (id_task) REFERENCES
repair.task(id_task) NOT VALID;


--
-- TOC entry 3245 (class 2606 OID 16413)
-- Name: repair_shop id_city; Type: FK CONSTRAINT; Schema:
repair; Owner: postgres
--

ALTER TABLE ONLY repair.repair_shop
    ADD CONSTRAINT id_city FOREIGN KEY (id_city) REFERENCES
repair.city(id_city) NOT VALID;


-- Completed on 2022-03-03 22:36:08


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

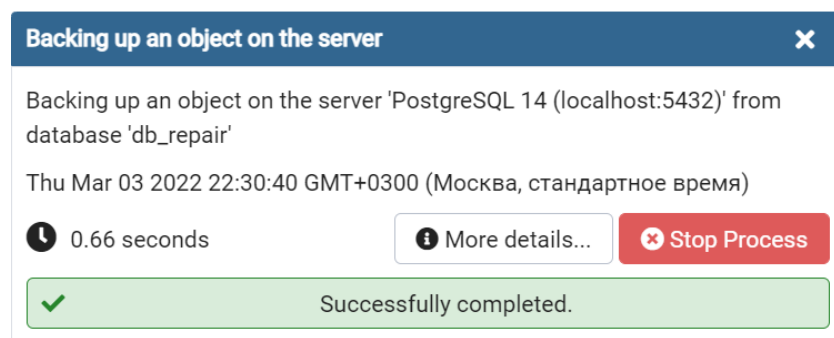- Резервная копия и восстановление (см. рисунок 2-4).
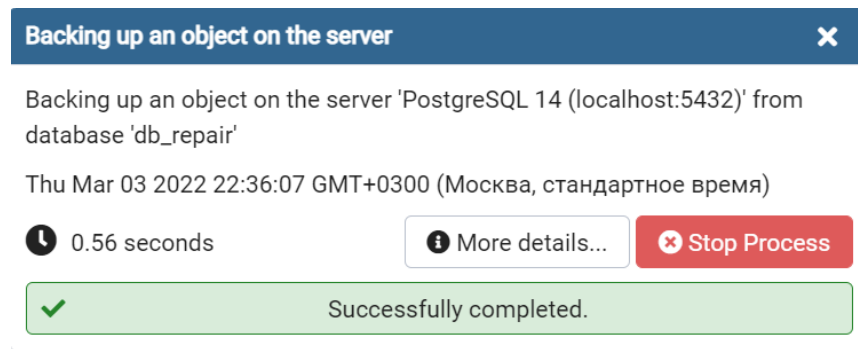

Рисунок 2 – Резервная копия.
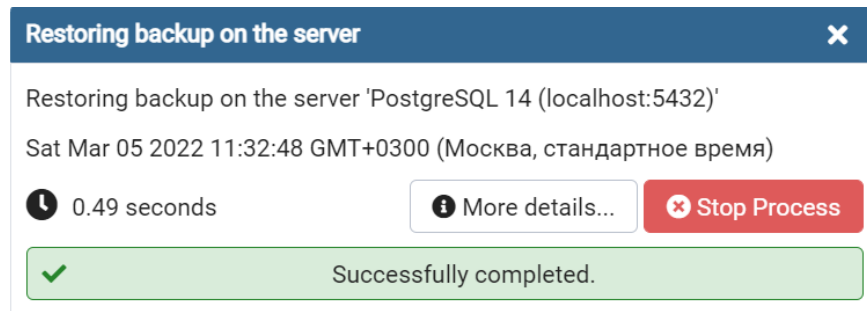
Рисунок 3 – Резервная копия plain.

Рисунок 4 – Восстановление.

Выводы:

Был изучен механизм создания базы данных с помощью утилиты pgAdmin. Были созданы таблицы и добавлены внешние и первичные ключи. Полученные таблицы были заполнены тестовыми данными. Построенная база данных аналогична инфологической модели в нотации IDEF1X.