**Министерство науки и высшего образования Российской Федерации**

федеральное государственное автономное образовательное учреждение высшего образования

**«НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИТМО»**

**Отчет**

по лабораторной работе №3.2 «Создание таблиц базы данных PostgreSQL. Заполнение таблиц рабочими данными**»**

по дисциплине **«Проектирование и реализация баз данных»**

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# Цель работы

Овладеть практическими навыками создания таблиц базы данных PostgreSQL 1Х, 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. 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.

# Выполнение

**Вариант 8. БД «Аэропорт»**

Схема логической модели базы данных, сгенерированная в Generate ERD указана на рисунке 1.

Изображение выглядит как текст, диаграмма, снимок экрана, План

Автоматически созданное описание

Рисунок 1 – Схема логической модели базы данных.

Листинг кода дампа приведен ниже в листинге 1:

Листинг 1 – Описание атрибутов сущностей

--  
-- PostgreSQL database dump  
--  
  
-- Dumped from database version 16.0  
-- Dumped by pg\_dump version 16.0  
  
-- Started on 2023-10-27 18:52:15  
  
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;  
  
--  
-- TOC entry 6 (class 2615 OID 16398)  
-- Name: schema; Type: SCHEMA; Schema: -; Owner: postgres  
--  
  
CREATE SCHEMA schema;  
  
  
ALTER SCHEMA schema OWNER TO postgres;  
  
SET default\_tablespace = '';  
  
SET default\_table\_access\_method = heap;  
  
--  
-- TOC entry 225 (class 1259 OID 16424)  
-- Name: seat; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.seat (  
 id\_seat integer NOT NULL,  
 number integer NOT NULL,  
 "row" integer NOT NULL,  
 status character varying(20),  
 id\_route integer,  
 CONSTRAINT check\_number CHECK ((number > 0)),  
 CONSTRAINT check\_row CHECK (("row" > 0)),  
 CONSTRAINT check\_status CHECK (((status)::text = ANY ((ARRAY['Available'::character varying, 'Booked'::character varying, 'Purchased'::character varying])::text[])))  
);  
  
  
ALTER TABLE schema.seat OWNER TO postgres;  
  
--  
-- TOC entry 224 (class 1259 OID 16423)  
-- Name: Seat\_id\_seat\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.seat ALTER COLUMN id\_seat ADD GENERATED BY DEFAULT AS IDENTITY (  
 SEQUENCE NAME schema."Seat\_id\_seat\_seq"  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 229 (class 1259 OID 16436)  
-- Name: airport; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.airport (  
 id\_airport integer NOT NULL,  
 name character varying(20) NOT NULL,  
 country character varying(20) NOT NULL,  
 city character varying(20) NOT NULL  
);  
  
  
ALTER TABLE schema.airport OWNER TO postgres;  
  
--  
-- TOC entry 228 (class 1259 OID 16435)  
-- Name: airport\_id\_airport\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.airport ALTER COLUMN id\_airport ADD GENERATED BY DEFAULT AS IDENTITY (  
 SEQUENCE NAME schema.airport\_id\_airport\_seq  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 239 (class 1259 OID 16469)  
-- Name: company; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.company (  
 id\_company integer NOT NULL,  
 name character varying(20) NOT NULL,  
 country character varying(20) NOT NULL  
);  
  
  
ALTER TABLE schema.company OWNER TO postgres;  
  
--  
-- TOC entry 238 (class 1259 OID 16468)  
-- Name: company\_id\_company\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.company ALTER COLUMN id\_company ADD GENERATED BY DEFAULT AS IDENTITY (  
 SEQUENCE NAME schema.company\_id\_company\_seq  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 241 (class 1259 OID 16475)  
-- Name: crew; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.crew (  
 id\_crew integer NOT NULL,  
 allowance character varying(20) NOT NULL,  
 "position" character varying(20),  
 id\_employee integer,  
 id\_route integer,  
 CONSTRAINT check\_allowance CHECK (((allowance)::text = ANY ((ARRAY['Yes'::character varying, 'No'::character varying])::text[])))  
);  
  
  
ALTER TABLE schema.crew OWNER TO postgres;  
  
--  
-- TOC entry 240 (class 1259 OID 16474)  
-- Name: crew\_id\_crew\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.crew ALTER COLUMN id\_crew ADD GENERATED BY DEFAULT AS IDENTITY (  
 SEQUENCE NAME schema.crew\_id\_crew\_seq  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 227 (class 1259 OID 16430)  
-- Name: employee; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.employee (  
 id\_employee integer NOT NULL,  
 surname character varying(20) NOT NULL,  
 name character varying(20) NOT NULL,  
 patronymic character varying(20),  
 passport\_series integer NOT NULL,  
 passport\_number integer NOT NULL,  
 passport\_date date NOT NULL,  
 passport\_who\_issued character varying(50) NOT NULL,  
 id\_company integer NOT NULL,  
 "position" character varying(20),  
 CONSTRAINT check\_passport\_number CHECK (((100000 <= passport\_number) AND (passport\_number <= 999999))),  
 CONSTRAINT check\_passport\_series CHECK (((1000 <= passport\_series) AND (passport\_series <= 9999)))  
);  
  
  
ALTER TABLE schema.employee OWNER TO postgres;  
  
--  
-- TOC entry 226 (class 1259 OID 16429)  
-- Name: employee\_id\_employee\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.employee ALTER COLUMN id\_employee ADD GENERATED BY DEFAULT AS IDENTITY (  
 SEQUENCE NAME schema.employee\_id\_employee\_seq  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 237 (class 1259 OID 16463)  
-- Name: model; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.model (  
 id\_model integer NOT NULL,  
 release\_date date NOT NULL,  
 fuel\_rate integer NOT NULL,  
 type\_of\_plane character varying(20) NOT NULL,  
 speed integer NOT NULL,  
 number\_of\_seats integer NOT NULL,  
 country character varying(20) NOT NULL,  
 producer character varying(20) NOT NULL,  
 purpose character varying(20) NOT NULL,  
 load\_capacity integer NOT NULL,  
 CONSTRAINT check\_fuel\_rate CHECK ((fuel\_rate > 0)),  
 CONSTRAINT check\_load\_capacity CHECK ((load\_capacity > 0)),  
 CONSTRAINT check\_number\_of\_seats CHECK ((number\_of\_seats > 0)),  
 CONSTRAINT check\_speed CHECK ((speed > 0))  
);  
  
  
ALTER TABLE schema.model OWNER TO postgres;  
  
--  
-- TOC entry 236 (class 1259 OID 16462)  
-- Name: model\_id\_model\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.model ALTER COLUMN id\_model ADD GENERATED BY DEFAULT AS IDENTITY (  
 SEQUENCE NAME schema.model\_id\_model\_seq  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 219 (class 1259 OID 16406)  
-- Name: passenger; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.passenger (  
 id\_passenger integer NOT NULL,  
 surname character varying(20) NOT NULL,  
 name character varying(20) NOT NULL,  
 patronymic character varying(20),  
 passport\_series integer NOT NULL,  
 passport\_number integer NOT NULL,  
 passport\_date date NOT NULL,  
 passport\_who\_issued character varying(50) NOT NULL,  
 CONSTRAINT check\_passport\_number CHECK (((100000 <= passport\_number) AND (passport\_number <= 999999))),  
 CONSTRAINT check\_passport\_series CHECK (((1000 <= passport\_series) AND (passport\_series <= 9999)))  
);  
  
  
ALTER TABLE schema.passenger OWNER TO postgres;  
  
--  
-- TOC entry 218 (class 1259 OID 16405)  
-- Name: passenger\_id\_passenger\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.passenger ALTER COLUMN id\_passenger ADD GENERATED BY DEFAULT AS IDENTITY (  
 SEQUENCE NAME schema.passenger\_id\_passenger\_seq  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 235 (class 1259 OID 16452)  
-- Name: plane; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.plane (  
 id\_plane integer NOT NULL,  
 tail\_number character varying(20) NOT NULL,  
 flight\_hours integer NOT NULL,  
 date\_last\_repair date NOT NULL,  
 id\_model integer NOT NULL,  
 id\_company integer NOT NULL,  
 CONSTRAINT check\_flight\_hours CHECK ((flight\_hours > 0))  
);  
  
  
ALTER TABLE schema.plane OWNER TO postgres;  
  
--  
-- TOC entry 234 (class 1259 OID 16451)  
-- Name: plane\_id\_plane\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.plane ALTER COLUMN id\_plane ADD GENERATED BY DEFAULT AS IDENTITY (  
 SEQUENCE NAME schema.plane\_id\_plane\_seq  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 223 (class 1259 OID 16418)  
-- Name: route; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.route (  
 id\_route integer NOT NULL,  
 type character varying(20) NOT NULL,  
 date\_departure date NOT NULL,  
 date\_arrival date NOT NULL,  
 id\_schedule integer NOT NULL,  
 id\_plane integer NOT NULL,  
 CONSTRAINT check\_type CHECK (((type)::text = ANY ((ARRAY['Domestic'::character varying, 'International'::character varying])::text[])))  
);  
  
  
ALTER TABLE schema.route OWNER TO postgres;  
  
--  
-- TOC entry 222 (class 1259 OID 16417)  
-- Name: route\_id\_route\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.route ALTER COLUMN id\_route ADD GENERATED BY DEFAULT AS IDENTITY (  
 SEQUENCE NAME schema.route\_id\_route\_seq  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 233 (class 1259 OID 16446)  
-- Name: schedule; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.schedule (  
 id\_schedule integer NOT NULL,  
 time\_arrival time with time zone NOT NULL,  
 time\_departure time with time zone NOT NULL,  
 regularity character varying(20) NOT NULL,  
 id\_airport\_arrival integer NOT NULL,  
 id\_airport\_departure integer NOT NULL  
);  
  
  
ALTER TABLE schema.schedule OWNER TO postgres;  
  
--  
-- TOC entry 232 (class 1259 OID 16445)  
-- Name: schedule\_id\_schedule\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.schedule ALTER COLUMN id\_schedule ADD GENERATED BY DEFAULT AS IDENTITY (  
 SEQUENCE NAME schema.schedule\_id\_schedule\_seq  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 221 (class 1259 OID 16412)  
-- Name: ticket; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.ticket (  
 id\_ticket integer NOT NULL,  
 status character varying(20) NOT NULL,  
 payment\_status character varying(20) NOT NULL,  
 service\_class character varying(20) NOT NULL,  
 baggage\_insurance character varying(20) NOT NULL,  
 baggage character varying(20) NOT NULL,  
 id\_ticket\_office integer NOT NULL,  
 id\_passenger integer NOT NULL,  
 id\_seat integer NOT NULL,  
 id\_route integer NOT NULL,  
 price real NOT NULL,  
 CONSTRAINT check\_baggage CHECK (((baggage)::text = ANY ((ARRAY['Yes'::character varying, 'No'::character varying])::text[]))),  
 CONSTRAINT check\_baggage\_insuranve CHECK (((baggage\_insurance)::text = ANY ((ARRAY['Yes'::character varying, 'No'::character varying])::text[]))),  
 CONSTRAINT check\_payment\_status CHECK (((payment\_status)::text = ANY ((ARRAY['Paid'::character varying, 'Not Paid'::character varying])::text[]))),  
 CONSTRAINT check\_price CHECK ((price > (0)::double precision)),  
 CONSTRAINT check\_service\_class CHECK (((service\_class)::text = ANY ((ARRAY['Business'::character varying, 'Economy'::character varying])::text[]))),  
 CONSTRAINT check\_status CHECK (((status)::text = ANY ((ARRAY['Purchased'::character varying, 'Available'::character varying, 'Booked'::character varying])::text[])))  
);  
  
  
ALTER TABLE schema.ticket OWNER TO postgres;  
  
--  
-- TOC entry 220 (class 1259 OID 16411)  
-- Name: ticket\_id\_ticket\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.ticket ALTER COLUMN id\_ticket ADD GENERATED BY DEFAULT AS IDENTITY (  
 SEQUENCE NAME schema.ticket\_id\_ticket\_seq  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 217 (class 1259 OID 16400)  
-- Name: ticket\_office; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.ticket\_office (  
 id\_ticket\_office integer NOT NULL,  
 city character varying(20) NOT NULL,  
 address character varying(50) NOT NULL  
);  
  
  
ALTER TABLE schema.ticket\_office OWNER TO postgres;  
  
--  
-- TOC entry 216 (class 1259 OID 16399)  
-- Name: ticket\_office\_id\_ticket\_office\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.ticket\_office ALTER COLUMN id\_ticket\_office ADD GENERATED ALWAYS AS IDENTITY (  
 SEQUENCE NAME schema.ticket\_office\_id\_ticket\_office\_seq  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 231 (class 1259 OID 16442)  
-- Name: transit; Type: TABLE; Schema: schema; Owner: postgres  
--  
  
CREATE TABLE schema.transit (  
 id\_transit integer NOT NULL,  
 time\_arrival time with time zone NOT NULL,  
 time\_departure time with time zone NOT NULL,  
 id\_schedule integer NOT NULL,  
 id\_airport integer NOT NULL,  
 CONSTRAINT check\_time CHECK ((time\_departure > time\_arrival))  
);  
  
  
ALTER TABLE schema.transit OWNER TO postgres;  
  
--  
-- TOC entry 230 (class 1259 OID 16441)  
-- Name: transit\_id\_transit\_seq; Type: SEQUENCE; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.transit ALTER COLUMN id\_transit ADD GENERATED ALWAYS AS IDENTITY (  
 SEQUENCE NAME schema.transit\_id\_transit\_seq  
 START WITH 1  
 INCREMENT BY 1  
 NO MINVALUE  
 MAXVALUE 99999999  
 CACHE 1  
);  
  
  
--  
-- TOC entry 4917 (class 0 OID 16436)  
-- Dependencies: 229  
-- Data for Name: airport; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.airport (id\_airport, name, country, city) FROM stdin;  
1 Airport 1 Country 1 City 1  
2 Airport 2 Country 2 City 2  
3 Airport 3 Country 3 City 3  
\.  
  
  
--  
-- TOC entry 4927 (class 0 OID 16469)  
-- Dependencies: 239  
-- Data for Name: company; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.company (id\_company, name, country) FROM stdin;  
1 Company 1 Country 1  
2 Company 2 Country 2  
3 Company 3 Country 3  
\.  
  
  
--  
-- TOC entry 4929 (class 0 OID 16475)  
-- Dependencies: 241  
-- Data for Name: crew; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.crew (id\_crew, allowance, "position", id\_employee, id\_route) FROM stdin;  
1 Yes pilot 2 1  
2 Yes steward 1 1  
3 Yes steward 3 1  
\.  
  
  
--  
-- TOC entry 4915 (class 0 OID 16430)  
-- Dependencies: 227  
-- Data for Name: employee; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.employee (id\_employee, surname, name, patronymic, passport\_series, passport\_number, passport\_date, passport\_who\_issued, id\_company, "position") FROM stdin;  
1 Surname 1 Name 1 Patronymic 1 1234 566789 2023-01-01 Issuer 1 1 steward  
2 Surname 2 Name 2 Patronymic 2 5678 987765 2023-02-01 Issuer 2 2 pilot  
3 Surname 3 Name 3 Patronymic 3 4321 123455 2023-03-01 Issuer 3 3 steward  
\.  
  
  
--  
-- TOC entry 4925 (class 0 OID 16463)  
-- Dependencies: 237  
-- Data for Name: model; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.model (id\_model, release\_date, fuel\_rate, type\_of\_plane, speed, number\_of\_seats, country, producer, purpose, load\_capacity) FROM stdin;  
1 2020-01-01 500 Type 1 800 200 Country 1 Producer 1 Purpose 1 10000  
2 2021-02-01 600 Type 2 900 250 Country 2 Producer 2 Purpose 2 12000  
3 2022-03-01 700 Type 3 1000 300 Country 3 Producer 3 Purpose 3 15000  
\.  
  
  
--  
-- TOC entry 4907 (class 0 OID 16406)  
-- Dependencies: 219  
-- Data for Name: passenger; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.passenger (id\_passenger, surname, name, patronymic, passport\_series, passport\_number, passport\_date, passport\_who\_issued) FROM stdin;  
1 Surname 1 Name 1 Patronymic 1 1111 222222 2023-01-01 Issuer 1  
2 Surname 2 Name 2 Patronymic 2 3333 444444 2023-02-01 Issuer 2  
3 Surname 3 Name 3 Patronymic 3 5555 666666 2023-03-01 Issuer 3  
\.  
  
  
--  
-- TOC entry 4923 (class 0 OID 16452)  
-- Dependencies: 235  
-- Data for Name: plane; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.plane (id\_plane, tail\_number, flight\_hours, date\_last\_repair, id\_model, id\_company) FROM stdin;  
1 AA001 1000 2023-01-01 1 1  
2 BB002 2000 2023-02-01 2 2  
\.  
  
  
--  
-- TOC entry 4911 (class 0 OID 16418)  
-- Dependencies: 223  
-- Data for Name: route; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.route (id\_route, type, date\_departure, date\_arrival, id\_schedule, id\_plane) FROM stdin;  
1 Domestic 2023-10-28 2023-10-28 1 1  
2 International 2023-10-29 2023-10-29 2 2  
3 Domestic 2023-10-30 2023-10-30 3 2  
\.  
  
  
--  
-- TOC entry 4921 (class 0 OID 16446)  
-- Dependencies: 233  
-- Data for Name: schedule; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.schedule (id\_schedule, time\_arrival, time\_departure, regularity, id\_airport\_arrival, id\_airport\_departure) FROM stdin;  
1 09:30:00+03 08:00:00+03 Daily 1 2  
2 11:30:00+03 10:00:00+03 Weekly 2 3  
3 15:30:00+03 14:00:00+03 Monthly 1 3  
\.  
  
  
--  
-- TOC entry 4913 (class 0 OID 16424)  
-- Dependencies: 225  
-- Data for Name: seat; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.seat (id\_seat, number, "row", status, id\_route) FROM stdin;  
1 1 1 Available 1  
2 2 1 Available 1  
3 1 2 Booked 2  
4 2 2 Available 2  
\.  
  
  
--  
-- TOC entry 4909 (class 0 OID 16412)  
-- Dependencies: 221  
-- Data for Name: ticket; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.ticket (id\_ticket, status, payment\_status, service\_class, baggage\_insurance, baggage, id\_ticket\_office, id\_passenger, id\_seat, id\_route, price) FROM stdin;  
1 Purchased Paid Business Yes Yes 1 1 1 1 100  
2 Purchased Paid Economy No No 1 1 2 1 50  
3 Available Not Paid Business Yes Yes 2 3 3 3 150  
\.  
  
  
--  
-- TOC entry 4905 (class 0 OID 16400)  
-- Dependencies: 217  
-- Data for Name: ticket\_office; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.ticket\_office (id\_ticket\_office, city, address) FROM stdin;  
1 City 1 Address 1  
2 City 2 Address 2  
3 City 3 Address 3  
\.  
  
  
--  
-- TOC entry 4919 (class 0 OID 16442)  
-- Dependencies: 231  
-- Data for Name: transit; Type: TABLE DATA; Schema: schema; Owner: postgres  
--  
  
COPY schema.transit (id\_transit, time\_arrival, time\_departure, id\_schedule, id\_airport) FROM stdin;  
1 08:30:00+03 09:00:00+03 1 1  
2 10:30:00+03 11:00:00+03 2 2  
3 14:30:00+03 15:00:00+03 3 3  
\.  
  
  
--  
-- TOC entry 4935 (class 0 OID 0)  
-- Dependencies: 224  
-- Name: Seat\_id\_seat\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema."Seat\_id\_seat\_seq"', 8, true);  
  
  
--  
-- TOC entry 4936 (class 0 OID 0)  
-- Dependencies: 228  
-- Name: airport\_id\_airport\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema.airport\_id\_airport\_seq', 36, true);  
  
  
--  
-- TOC entry 4937 (class 0 OID 0)  
-- Dependencies: 238  
-- Name: company\_id\_company\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema.company\_id\_company\_seq', 24, true);  
  
  
--  
-- TOC entry 4938 (class 0 OID 0)  
-- Dependencies: 240  
-- Name: crew\_id\_crew\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema.crew\_id\_crew\_seq', 15, true);  
  
  
--  
-- TOC entry 4939 (class 0 OID 0)  
-- Dependencies: 226  
-- Name: employee\_id\_employee\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema.employee\_id\_employee\_seq', 48, true);  
  
  
--  
-- TOC entry 4940 (class 0 OID 0)  
-- Dependencies: 236  
-- Name: model\_id\_model\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema.model\_id\_model\_seq', 6, true);  
  
  
--  
-- TOC entry 4941 (class 0 OID 0)  
-- Dependencies: 218  
-- Name: passenger\_id\_passenger\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema.passenger\_id\_passenger\_seq', 30, true);  
  
  
--  
-- TOC entry 4942 (class 0 OID 0)  
-- Dependencies: 234  
-- Name: plane\_id\_plane\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema.plane\_id\_plane\_seq', 14, true);  
  
  
--  
-- TOC entry 4943 (class 0 OID 0)  
-- Dependencies: 222  
-- Name: route\_id\_route\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema.route\_id\_route\_seq', 3, true);  
  
  
--  
-- TOC entry 4944 (class 0 OID 0)  
-- Dependencies: 232  
-- Name: schedule\_id\_schedule\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema.schedule\_id\_schedule\_seq', 12, true);  
  
  
--  
-- TOC entry 4945 (class 0 OID 0)  
-- Dependencies: 220  
-- Name: ticket\_id\_ticket\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema.ticket\_id\_ticket\_seq', 9, true);  
  
  
--  
-- TOC entry 4946 (class 0 OID 0)  
-- Dependencies: 216  
-- Name: ticket\_office\_id\_ticket\_office\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema.ticket\_office\_id\_ticket\_office\_seq', 3, true);  
  
  
--  
-- TOC entry 4947 (class 0 OID 0)  
-- Dependencies: 230  
-- Name: transit\_id\_transit\_seq; Type: SEQUENCE SET; Schema: schema; Owner: postgres  
--  
  
SELECT pg\_catalog.setval('schema.transit\_id\_transit\_seq', 3, true);  
  
  
--  
-- TOC entry 4730 (class 2606 OID 16440)  
-- Name: airport airport\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.airport  
 ADD CONSTRAINT airport\_pkey PRIMARY KEY (id\_airport);  
  
  
--  
-- TOC entry 4710 (class 2606 OID 16937)  
-- Name: schedule check\_time; Type: CHECK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE schema.schedule  
 ADD CONSTRAINT check\_time CHECK ((time\_arrival > time\_departure)) NOT VALID;  
  
  
--  
-- TOC entry 4740 (class 2606 OID 16473)  
-- Name: company company\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.company  
 ADD CONSTRAINT company\_pkey PRIMARY KEY (id\_company);  
  
  
--  
-- TOC entry 4742 (class 2606 OID 16479)  
-- Name: crew crew\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.crew  
 ADD CONSTRAINT crew\_pkey PRIMARY KEY (id\_crew);  
  
  
--  
-- TOC entry 4728 (class 2606 OID 16434)  
-- Name: employee employee\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.employee  
 ADD CONSTRAINT employee\_pkey PRIMARY KEY (id\_employee);  
  
  
--  
-- TOC entry 4738 (class 2606 OID 16467)  
-- Name: model model\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.model  
 ADD CONSTRAINT model\_pkey PRIMARY KEY (id\_model);  
  
  
--  
-- TOC entry 4720 (class 2606 OID 16410)  
-- Name: passenger passenger\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.passenger  
 ADD CONSTRAINT passenger\_pkey PRIMARY KEY (id\_passenger);  
  
  
--  
-- TOC entry 4736 (class 2606 OID 16456)  
-- Name: plane plane\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.plane  
 ADD CONSTRAINT plane\_pkey PRIMARY KEY (id\_plane);  
  
  
--  
-- TOC entry 4724 (class 2606 OID 16422)  
-- Name: route route\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.route  
 ADD CONSTRAINT route\_pkey PRIMARY KEY (id\_route);  
  
  
--  
-- TOC entry 4734 (class 2606 OID 16450)  
-- Name: schedule schedule\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.schedule  
 ADD CONSTRAINT schedule\_pkey PRIMARY KEY (id\_schedule);  
  
  
--  
-- TOC entry 4726 (class 2606 OID 16428)  
-- Name: seat seat\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.seat  
 ADD CONSTRAINT seat\_pkey PRIMARY KEY (id\_seat);  
  
  
--  
-- TOC entry 4718 (class 2606 OID 16404)  
-- Name: ticket\_office ticket\_office\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.ticket\_office  
 ADD CONSTRAINT ticket\_office\_pkey PRIMARY KEY (id\_ticket\_office);  
  
  
--  
-- TOC entry 4722 (class 2606 OID 16558)  
-- Name: ticket ticket\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.ticket  
 ADD CONSTRAINT ticket\_pkey PRIMARY KEY (id\_ticket);  
  
  
--  
-- TOC entry 4732 (class 2606 OID 16526)  
-- Name: transit transit\_pkey; Type: CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.transit  
 ADD CONSTRAINT transit\_pkey PRIMARY KEY (id\_transit);  
  
  
--  
-- TOC entry 4743 (class 1259 OID 16914)  
-- Name: fki\_fk\_employee; Type: INDEX; Schema: schema; Owner: postgres  
--  
  
CREATE INDEX fki\_fk\_employee ON schema.crew USING btree (id\_employee);  
  
  
--  
-- TOC entry 4744 (class 1259 OID 16920)  
-- Name: fki\_fk\_route; Type: INDEX; Schema: schema; Owner: postgres  
--  
  
CREATE INDEX fki\_fk\_route ON schema.crew USING btree (id\_route);  
  
  
--  
-- TOC entry 4753 (class 2606 OID 16532)  
-- Name: transit fk\_airport; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.transit  
 ADD CONSTRAINT fk\_airport FOREIGN KEY (id\_airport) REFERENCES schema.airport(id\_airport);  
  
  
--  
-- TOC entry 4755 (class 2606 OID 16537)  
-- Name: schedule fk\_airport\_arrival; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.schedule  
 ADD CONSTRAINT fk\_airport\_arrival FOREIGN KEY (id\_airport\_arrival) REFERENCES schema.airport(id\_airport);  
  
  
--  
-- TOC entry 4756 (class 2606 OID 16542)  
-- Name: schedule fk\_airport\_departure; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.schedule  
 ADD CONSTRAINT fk\_airport\_departure FOREIGN KEY (id\_airport\_departure) REFERENCES schema.airport(id\_airport);  
  
  
--  
-- TOC entry 4752 (class 2606 OID 16520)  
-- Name: employee fk\_company; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.employee  
 ADD CONSTRAINT fk\_company FOREIGN KEY (id\_company) REFERENCES schema.company(id\_company);  
  
  
--  
-- TOC entry 4757 (class 2606 OID 16552)  
-- Name: plane fk\_company; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.plane  
 ADD CONSTRAINT fk\_company FOREIGN KEY (id\_company) REFERENCES schema.company(id\_company);  
  
  
--  
-- TOC entry 4759 (class 2606 OID 16909)  
-- Name: crew fk\_employee; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.crew  
 ADD CONSTRAINT fk\_employee FOREIGN KEY (id\_employee) REFERENCES schema.employee(id\_employee);  
  
  
--  
-- TOC entry 4758 (class 2606 OID 16547)  
-- Name: plane fk\_model; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.plane  
 ADD CONSTRAINT fk\_model FOREIGN KEY (id\_model) REFERENCES schema.model(id\_model);  
  
  
--  
-- TOC entry 4745 (class 2606 OID 16485)  
-- Name: ticket fk\_passenger; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.ticket  
 ADD CONSTRAINT fk\_passenger FOREIGN KEY (id\_passenger) REFERENCES schema.passenger(id\_passenger);  
  
  
--  
-- TOC entry 4749 (class 2606 OID 16510)  
-- Name: route fk\_plane; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.route  
 ADD CONSTRAINT fk\_plane FOREIGN KEY (id\_plane) REFERENCES schema.plane(id\_plane);  
  
  
--  
-- TOC entry 4751 (class 2606 OID 16457)  
-- Name: seat fk\_route; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.seat  
 ADD CONSTRAINT fk\_route FOREIGN KEY (id\_route) REFERENCES schema.route(id\_route);  
  
  
--  
-- TOC entry 4746 (class 2606 OID 16495)  
-- Name: ticket fk\_route; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.ticket  
 ADD CONSTRAINT fk\_route FOREIGN KEY (id\_route) REFERENCES schema.route(id\_route);  
  
  
--  
-- TOC entry 4760 (class 2606 OID 16915)  
-- Name: crew fk\_route; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.crew  
 ADD CONSTRAINT fk\_route FOREIGN KEY (id\_route) REFERENCES schema.route(id\_route);  
  
  
--  
-- TOC entry 4750 (class 2606 OID 16500)  
-- Name: route fk\_schedule; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.route  
 ADD CONSTRAINT fk\_schedule FOREIGN KEY (id\_schedule) REFERENCES schema.schedule(id\_schedule);  
  
  
--  
-- TOC entry 4754 (class 2606 OID 16527)  
-- Name: transit fk\_schedule; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.transit  
 ADD CONSTRAINT fk\_schedule FOREIGN KEY (id\_schedule) REFERENCES schema.schedule(id\_schedule);  
  
  
--  
-- TOC entry 4747 (class 2606 OID 16490)  
-- Name: ticket fk\_seat; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.ticket  
 ADD CONSTRAINT fk\_seat FOREIGN KEY (id\_seat) REFERENCES schema.seat(id\_seat);  
  
  
--  
-- TOC entry 4748 (class 2606 OID 16480)  
-- Name: ticket fk\_ticket\_office; Type: FK CONSTRAINT; Schema: schema; Owner: postgres  
--  
  
ALTER TABLE ONLY schema.ticket  
 ADD CONSTRAINT fk\_ticket\_office FOREIGN KEY (id\_ticket\_office) REFERENCES schema.ticket\_office(id\_ticket\_office);  
  
  
-- Completed on 2023-10-27 18:52:15  
  
--  
-- PostgreSQL database dump complete  
--

# Вывод

В ходе лабораторной работы я научилась создавать, заполнять, восстанавливать и сохранять баз данных PostgresSQL с использованием программы pgAdmin4. В процессе лабораторной работы была создана база данных и таблицы в соответствии с заданием. Были заданы необходимые привязки и ограничения, после чего таблица была заполнена данными. Для безопасности в случае сбоя было создано две резервные копии, которые позволили восстановить базу данных без потерь, а также посмотреть на листинг кода.