ОТЧЕТ
О ЛАБОРАТОРНОЙ РАБОТЕ № 3
«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: Выполнил(и):
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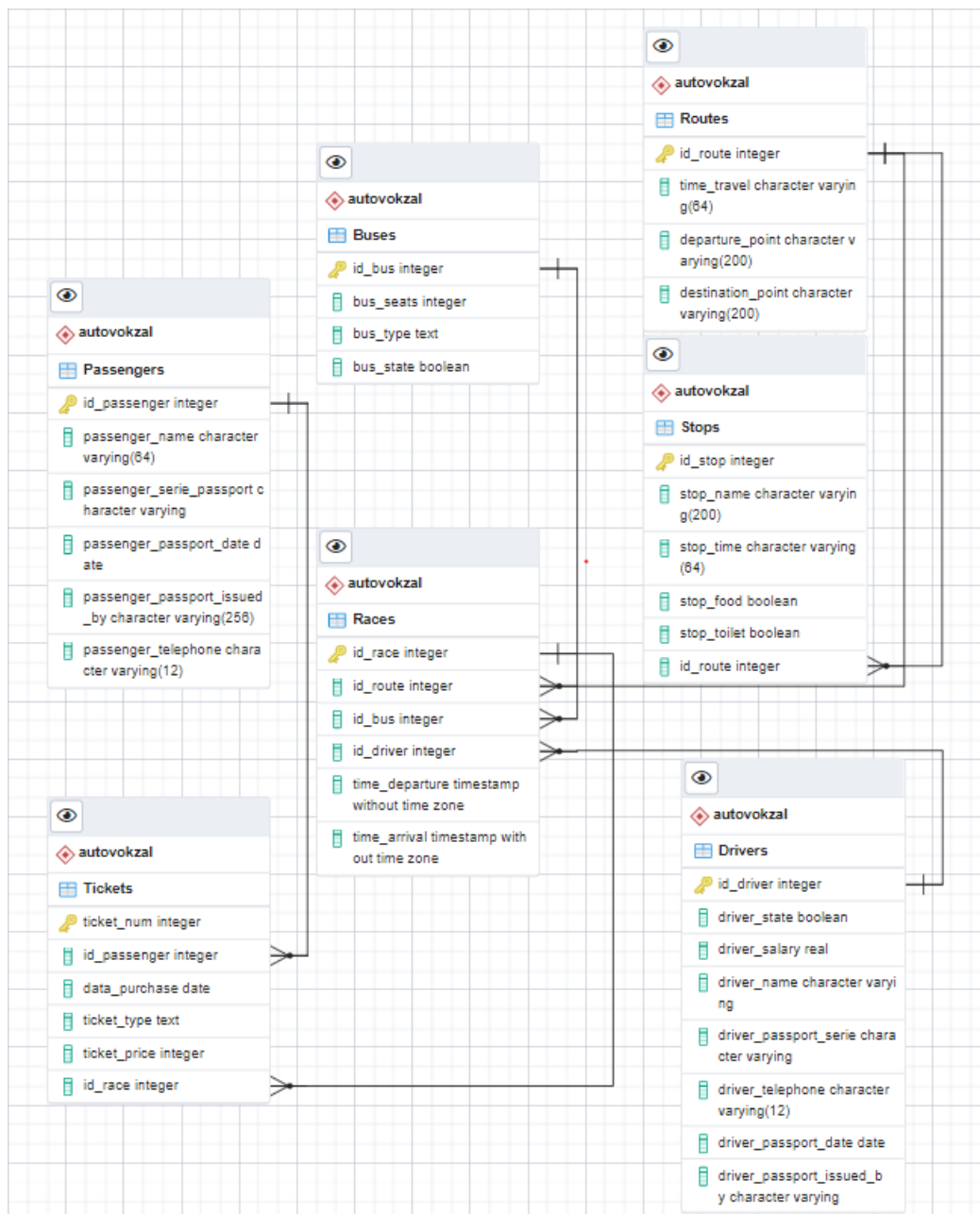Дата: «30» апреля 2021г.   Дао Куанг Ань
Оценка _____

Санкт-Петербург 2021г

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

Выполнение практического задания:

Наименование БД: Avtovokzaldb.

Схема логической модели базы данных: рисунок 1.

Dump, содержащий скрипты работы с бд:

--

-- PostgreSQL database dump

--

-- Dumped from database version 11.11

-- Dumped by pg_dump version 11.11

-- Started on 2021-04-30 18:04:26

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 avtovokzaldb;

--

-- TOC entry 2877 (class 1262 OID 16393)

-- Name: avtovokzaldb; Type: DATABASE; Schema: -; Owner: postgres

--

CREATE DATABASE avtovokzaldb WITH TEMPLATE = template0 ENCODING = 'UTF8' LC_COLLATE = 'Vietnamese_Vietnam.1252' LC_CTYPE = 'Vietnamese_Vietnam.1252';

ALTER DATABASE avtovokzaldb OWNER TO postgres;

\connect avtovokzaldb

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 16394)

-- Name: autovokzal; Type: SCHEMA; Schema: -; Owner: postgres

--

CREATE SCHEMA autovokzal;

ALTER SCHEMA autovokzal OWNER TO postgres;

SET default_tablespace = '';

SET default_with_oids = false;

--

-- TOC entry 203 (class 1259 OID 16565)

-- Name: Buses; Type: TABLE; Schema: autovokzal; Owner: postgres

```sql
--

CREATE TABLE autovokzal."Buses" (
    id_bus integer NOT NULL,
    bus_seats integer NOT NULL,
    bus_type text NOT NULL,
    bus_state boolean NOT NULL
);


ALTER TABLE autovokzal."Buses" OWNER TO postgres;


--
-- TOC entry 199 (class 1259 OID 16416)
-- Name: Drivers; Type: TABLE; Schema: autovokzal; Owner: postgres
--

CREATE TABLE autovokzal."Drivers" (
    id_driver integer NOT NULL,
    driver_state boolean NOT NULL,
    driver_salary real NOT NULL,
    driver_name character varying NOT NULL,
    driver_passport_serie character varying NOT NULL,
    driver_telephone character varying(12) NOT NULL,
    driver_passport_date date NOT NULL,
    driver_passport_issued_by character varying NOT NULL
);


ALTER TABLE autovokzal."Drivers" OWNER TO postgres;
```

```
--
-- TOC entry 200 (class 1259 OID 16424)
-- Name: Passengers; Type: TABLE; Schema: autovokzal; Owner: postgres
--

CREATE TABLE autovokzal."Passengers" (
    id_passenger integer NOT NULL,
    passenger_name character varying(64) NOT NULL,
    passenger_serie_passport character varying NOT NULL,
    passenger_passport_date date NOT NULL,
    passenger_passport_issued_by character varying(256) NOT NULL,
    passenger_telephone character varying(12)
);


ALTER TABLE autovokzal."Passengers" OWNER TO postgres;


--
-- TOC entry 197 (class 1259 OID 16395)
-- Name: Races; Type: TABLE; Schema: autovokzal; Owner: postgres
--

CREATE TABLE autovokzal."Races" (
    id_race integer NOT NULL,
    id_route integer NOT NULL,
    id_bus integer NOT NULL,
    id_driver integer NOT NULL,
    time_departure timestamp without time zone NOT NULL,
    time_arrival timestamp without time zone
```

```sql
);


ALTER TABLE autovokzal."Races" OWNER TO postgres;


--
-- TOC entry 198 (class 1259 OID 16403)
-- Name: Routes; Type: TABLE; Schema: autovokzal; Owner: postgres
--


CREATE TABLE autovokzal."Routes" (
    id_route integer NOT NULL,
    time_travel character varying(64) NOT NULL,
    departure_point character varying(200) NOT NULL,
    destination_point character varying(200) NOT NULL
);


ALTER TABLE autovokzal."Routes" OWNER TO postgres;


--
-- TOC entry 202 (class 1259 OID 16442)
-- Name: Stops; Type: TABLE; Schema: autovokzal; Owner: postgres
--


CREATE TABLE autovokzal."Stops" (
    id_stop integer NOT NULL,
    stop_name character varying(200) NOT NULL,
    stop_time character varying(64) NOT NULL,
    stop_food boolean NOT NULL,
```

```
    stop_toilet boolean,

    id_route integer

);
```

ALTER TABLE autovokzal."Stops" OWNER TO postgres;

--
-- TOC entry 201 (class 1259 OID 16432)
-- Name: Tickets; Type: TABLE; Schema: autovokzal; Owner: postgres
--

```
CREATE TABLE autovokzal."Tickets" (

    ticket_num integer NOT NULL,

    id_passenger integer NOT NULL,

    data_purchase date NOT NULL,

    ticket_type text NOT NULL,

    ticket_price integer NOT NULL,

    id_race integer

);
```

ALTER TABLE autovokzal."Tickets" OWNER TO postgres;

--
-- TOC entry 2871 (class 0 OID 16565)
-- Dependencies: 203
-- Data for Name: Buses; Type: TABLE DATA; Schema: autovokzal; Owner: postgres
--

INSERT INTO autovokzal."Buses" (id_bus, bus_seats, bus_type, bus_state) VALUES (1, 30, 'Normal', true);

INSERT INTO autovokzal."Buses" (id_bus, bus_seats, bus_type, bus_state) VALUES (2, 60, '2 floor', true);

INSERT INTO autovokzal."Buses" (id_bus, bus_seats, bus_type, bus_state) VALUES (3, 15, 'Mini', false);

--

-- TOC entry 2867 (class 0 OID 16416)

-- Dependencies: 199

-- Data for Name: Drivers; Type: TABLE DATA; Schema: autovokzal; Owner: postgres

--

INSERT INTO autovokzal."Drivers" (id_driver, driver_state, driver_salary, driver_name, driver_passport_serie, driver_telephone, driver_passport_date, driver_passport_issued_by) VALUES (1, true, 30000, 'Dao Quynh Anh', 'A1234567', '89219363635', '2028-03-12', 'Vietnam');

INSERT INTO autovokzal."Drivers" (id_driver, driver_state, driver_salary, driver_name, driver_passport_serie, driver_telephone, driver_passport_date, driver_passport_issued_by) VALUES (2, true, 27800, 'Elvira Ngo', 'A1235437', '89214663635', '2023-10-12', 'Vietnam');

INSERT INTO autovokzal."Drivers" (id_driver, driver_state, driver_salary, driver_name, driver_passport_serie, driver_telephone, driver_passport_date, driver_passport_issued_by) VALUES (3, false, 29800, 'Ivan Ivanov', 'C4832765', '89323456789', '2023-10-10', 'Vietnam');

--

-- TOC entry 2868 (class 0 OID 16424)

-- Dependencies: 200

-- Data for Name: Passengers; Type: TABLE DATA; Schema: autovokzal; Owner: postgres

--

INSERT INTO autovokzal."Passengers" (id_passenger, passenger_name, passenger_serie_passport, passenger_passport_date, passenger_passport_issued_by,

passenger_telephone) VALUES (1, 'Bosoeva Natalya', 'C4538786', '2028-12-31', 'Russia', '89322548989');

INSERT INTO autovokzal."Passengers" (id_passenger, passenger_name, passenger_serie_passport, passenger_passport_date, passenger_passport_issued_by, passenger_telephone) VALUES (2, 'Basily Ivanov', 'C1023456', '2025-03-12', 'Russia', '89669656869');

INSERT INTO autovokzal."Passengers" (id_passenger, passenger_name, passenger_serie_passport, passenger_passport_date, passenger_passport_issued_by, passenger_telephone) VALUES (3, 'Do Thinh', 'C9875659', '2023-10-23', 'Vietnam', '89272762726');

INSERT INTO autovokzal."Passengers" (id_passenger, passenger_name, passenger_serie_passport, passenger_passport_date, passenger_passport_issued_by, passenger_telephone) VALUES (4, 'David Walliams', 'A2345698', '2022-03-10', 'America', '89238862726');

INSERT INTO autovokzal."Passengers" (id_passenger, passenger_name, passenger_serie_passport, passenger_passport_date, passenger_passport_issued_by, passenger_telephone) VALUES (5, 'Delta Goodrem', 'M2341198', '2028-05-06', 'Australia', '89236764426');

--

-- TOC entry 2865 (class 0 OID 16395)

-- Dependencies: 197

-- Data for Name: Races; Type: TABLE DATA; Schema: autovokzal; Owner: postgres

--

INSERT INTO autovokzal."Races" (id_race, id_route, id_bus, id_driver, time_departure, time_arrival) VALUES (1, 1, 1, 1, '2021-04-26 07:00:00', NULL);

INSERT INTO autovokzal."Races" (id_race, id_route, id_bus, id_driver, time_departure, time_arrival) VALUES (2, 2, 2, 1, '2021-03-30 08:30:00', NULL);

INSERT INTO autovokzal."Races" (id_race, id_route, id_bus, id_driver, time_departure, time_arrival) VALUES (3, 4, 3, 3, '2021-04-01 12:30:00', NULL);

--

-- TOC entry 2866 (class 0 OID 16403)

-- Dependencies: 198

-- Data for Name: Routes; Type: TABLE DATA; Schema: autovokzal; Owner: postgres

--

INSERT INTO autovokzal."Routes" (id_route, time_travel, departure_point, destination_point) VALUES (1, '10H', 'Vyazemskiy Pereulok 5-7', 'Gate the Woodlands');

INSERT INTO autovokzal."Routes" (id_route, time_travel, departure_point, destination_point) VALUES (2, '4H', 'Vyazemskiy Pereulok 5-7', 'The Temple of Ariana Grande ');

INSERT INTO autovokzal."Routes" (id_route, time_travel, departure_point, destination_point) VALUES (3, '6H', 'Vyazemskiy Pereulok 5-7', 'Simon Cowells Royal Garden');

INSERT INTO autovokzal."Routes" (id_route, time_travel, departure_point, destination_point) VALUES (4, '2H', 'Vyazemskiy Pereulok 5-7', 'Billie Eilishs Palace');

--

-- TOC entry 2870 (class 0 OID 16442)

-- Dependencies: 202

-- Data for Name: Stops; Type: TABLE DATA; Schema: autovokzal; Owner: postgres

--

INSERT INTO autovokzal."Stops" (id_stop, stop_name, stop_time, stop_food, stop_toilet, id_route) VALUES (1, 'Taylor Swifts Avenue', '4H', true, true, 1);

INSERT INTO autovokzal."Stops" (id_stop, stop_name, stop_time, stop_food, stop_toilet, id_route) VALUES (3, ' Circle K Ardashian', '15M', false, false, 1);

INSERT INTO autovokzal."Stops" (id_stop, stop_name, stop_time, stop_food, stop_toilet, id_route) VALUES (2, ' Miley Cyrus Monument', '30M', false, true, 2);

INSERT INTO autovokzal."Stops" (id_stop, stop_name, stop_time, stop_food, stop_toilet, id_route) VALUES (4, 'RiRestaurant', '2H', true, true, 3);

--

-- TOC entry 2869 (class 0 OID 16432)

-- Dependencies: 201

-- Data for Name: Tickets; Type: TABLE DATA; Schema: autovokzal; Owner: postgres

--

INSERT INTO autovokzal."Tickets" (ticket_num, id_passenger, data_purchase, ticket_type, ticket_price, id_race) VALUES (1, 2, '2021-01-01', 'bought in cashier', 100, 1);

INSERT INTO autovokzal."Tickets" (ticket_num, id_passenger, data_purchase, ticket_type, ticket_price, id_race) VALUES (2, 1, '2021-03-10', 'ordered', 200, 2);

INSERT INTO autovokzal."Tickets" (ticket_num, id_passenger, data_purchase, ticket_type, ticket_price, id_race) VALUES (3, 3, '2021-02-20', 'ordered', 200, 2);

INSERT INTO autovokzal."Tickets" (ticket_num, id_passenger, data_purchase, ticket_type, ticket_price, id_race) VALUES (4, 4, '2021-02-18', 'additional', 180, 3);

INSERT INTO autovokzal."Tickets" (ticket_num, id_passenger, data_purchase, ticket_type, ticket_price, id_race) VALUES (5, 5, '2021-02-18', 'bought in cashier', 100, 3);

--

-- TOC entry 2737 (class 2606 OID 16572)

-- Name: Buses Buses_pkey; Type: CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE ONLY autovokzal."Buses"

    ADD CONSTRAINT "Buses_pkey" PRIMARY KEY (id_bus);

--

-- TOC entry 2715 (class 2606 OID 16585)

-- Name: Drivers Drivers_driver_passport_date_check; Type: CHECK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE autovokzal."Drivers"

ADD CONSTRAINT "Drivers_driver_passport_date_check" CHECK ((driver_passport_date > CURRENT_DATE)) NOT VALID;

--

-- TOC entry 2716 (class 2606 OID 16477)

-- Name: Drivers Drivers_driver_salary_check; Type: CHECK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE autovokzal."Drivers"

    ADD CONSTRAINT "Drivers_driver_salary_check" CHECK ((driver_salary > (0)::double precision)) NOT VALID;

--

-- TOC entry 2727 (class 2606 OID 16423)

-- Name: Drivers Drivers_pkey; Type: CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE ONLY autovokzal."Drivers"

    ADD CONSTRAINT "Drivers_pkey" PRIMARY KEY (id_driver);

--

-- TOC entry 2729 (class 2606 OID 16480)

-- Name: Passengers Passengers_id_passenger_key; Type: CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE ONLY autovokzal."Passengers"

ADD CONSTRAINT "Passengers_id_passenger_key" UNIQUE (id_passenger);

--

-- TOC entry 2717 (class 2606 OID 16586)

-- Name: Passengers Passengers_passenger_passport_date_check1; Type: CHECK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE autovokzal."Passengers"

    ADD CONSTRAINT "Passengers_passenger_passport_date_check1" CHECK ((passenger_passport_date > CURRENT_DATE)) NOT VALID;

--

-- TOC entry 2731 (class 2606 OID 16431)

-- Name: Passengers Passengers_pkey; Type: CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE ONLY autovokzal."Passengers"

    ADD CONSTRAINT "Passengers_pkey" PRIMARY KEY (id_passenger);

--

-- TOC entry 2723 (class 2606 OID 16402)

-- Name: Races Race_pkey; Type: CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE ONLY autovokzal."Races"

    ADD CONSTRAINT "Race_pkey" PRIMARY KEY (id_race);

--

-- TOC entry 2713 (class 2606 OID 16758)

-- Name: Races Races_check; Type: CHECK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE autovokzal."Races"

    ADD CONSTRAINT "Races_check" CHECK ((time_arrival > time_departure)) NOT VALID;

--

-- TOC entry 2714 (class 2606 OID 16474)

-- Name: Races Races_time_departure_check; Type: CHECK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE autovokzal."Races"

    ADD CONSTRAINT "Races_time_departure_check" CHECK ((time_departure > '2020-12-31 23:59:59'::timestamp without time zone)) NOT VALID;

--

-- TOC entry 2725 (class 2606 OID 16458)

-- Name: Routes Routes_pkey; Type: CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE ONLY autovokzal."Routes"

    ADD CONSTRAINT "Routes_pkey" PRIMARY KEY (id_route);

```
--

-- TOC entry 2735 (class 2606 OID 16446)

-- Name: Stops Stops_pkey; Type: CONSTRAINT; Schema: autovokzal; Owner: postgres

--


ALTER TABLE ONLY autovokzal."Stops"

    ADD CONSTRAINT "Stops_pkey" PRIMARY KEY (id_stop);




--

-- TOC entry 2718 (class 2606 OID 16587)

-- Name: Tickets Tickets_data_purchase_check; Type: CHECK CONSTRAINT; Schema: autovokzal; Owner: postgres

--


ALTER TABLE autovokzal."Tickets"

    ADD CONSTRAINT "Tickets_data_purchase_check" CHECK ((data_purchase > '2020-12-31'::date)) NOT VALID;




--

-- TOC entry 2733 (class 2606 OID 16436)

-- Name: Tickets Tickets_pkey; Type: CONSTRAINT; Schema: autovokzal; Owner: postgres

--


ALTER TABLE ONLY autovokzal."Tickets"

    ADD CONSTRAINT "Tickets_pkey" PRIMARY KEY (ticket_num);




--
```

-- TOC entry 2719 (class 2606 OID 16488)

-- Name: Tickets Tickets_ticket_price_check; Type: CHECK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

```sql
ALTER TABLE autovokzal."Tickets"
    ADD CONSTRAINT "Tickets_ticket_price_check" CHECK ((ticket_price > 0)) NOT VALID;
```

--

-- TOC entry 2720 (class 2606 OID 16564)

-- Name: Tickets Tickets_ticket_type_check; Type: CHECK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

```sql
ALTER TABLE autovokzal."Tickets"
    ADD CONSTRAINT "Tickets_ticket_type_check" CHECK (((ticket_type = 'ordered'::text) OR (ticket_type = 'bought in cashier'::text) OR (ticket_type = 'additional'::text))) NOT VALID;
```

--

-- TOC entry 2721 (class 2606 OID 16747)

-- Name: Buses bus_seats >=15 AND bus_seats <= 90; Type: CHECK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

```sql
ALTER TABLE autovokzal."Buses"
    ADD CONSTRAINT "bus_seats >=15 AND bus_seats <= 90" CHECK (((bus_seats >= 15) AND (bus_seats <= 90))) NOT VALID;
```

--

-- TOC entry 2740 (class 2606 OID 16573)

-- Name: Races Races_id_bus_fkey; Type: FK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE ONLY autovokzal."Races"

    ADD CONSTRAINT "Races_id_bus_fkey" FOREIGN KEY (id_bus) REFERENCES autovokzal."Buses"(id_bus) MATCH FULL ON UPDATE CASCADE ON DELETE CASCADE;

--

-- TOC entry 2739 (class 2606 OID 16534)

-- Name: Races Races_id_driver_fkey; Type: FK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE ONLY autovokzal."Races"

    ADD CONSTRAINT "Races_id_driver_fkey" FOREIGN KEY (id_driver) REFERENCES autovokzal."Drivers"(id_driver) MATCH FULL ON UPDATE CASCADE ON DELETE CASCADE;

--

-- TOC entry 2738 (class 2606 OID 16529)

-- Name: Races Races_id_route_fkey; Type: FK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE ONLY autovokzal."Races"

    ADD CONSTRAINT "Races_id_route_fkey" FOREIGN KEY (id_route) REFERENCES autovokzal."Routes"(id_route) MATCH FULL ON UPDATE CASCADE ON DELETE CASCADE;

--

-- TOC entry 2743 (class 2606 OID 16753)

-- Name: Stops Stops_id_route_fkey; Type: FK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE ONLY autovokzal."Stops"

    ADD CONSTRAINT "Stops_id_route_fkey" FOREIGN KEY (id_route) REFERENCES autovokzal."Routes"(id_route) ON UPDATE CASCADE ON DELETE CASCADE;

--

-- TOC entry 2741 (class 2606 OID 16519)

-- Name: Tickets Tickets_id_passenger_fkey; Type: FK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE ONLY autovokzal."Tickets"

    ADD CONSTRAINT "Tickets_id_passenger_fkey" FOREIGN KEY (id_passenger) REFERENCES autovokzal."Passengers"(id_passenger) MATCH FULL ON UPDATE CASCADE ON DELETE CASCADE;

--

-- TOC entry 2742 (class 2606 OID 16748)

-- Name: Tickets Tickets_id_race_fkey; Type: FK CONSTRAINT; Schema: autovokzal; Owner: postgres

--

ALTER TABLE ONLY autovokzal."Tickets"

ADD CONSTRAINT "Tickets_id_race_fkey" FOREIGN KEY (id_race) REFERENCES autovokzal."Races"(id_race) MATCH FULL;

--

-- TOC entry 2878 (class 0 OID 0)

-- Dependencies: 2877

-- Name: DATABASE avtovokzaldb; Type: ACL; Schema: -; Owner: postgres

--

REVOKE CONNECT,TEMPORARY ON DATABASE avtovokzaldb FROM PUBLIC;

GRANT TEMPORARY ON DATABASE avtovokzaldb TO PUBLIC;

-- Completed on 2021-04-30 18:04:26

--

-- PostgreSQL database dump complete

--

Вывод: в ходе выполнения работы была создана база данных в Postgresql, созданы таблицы и ограничения на значения столбцов, в базу данных были занесены рабочие данные, а также была создана логическая модель базы данных и dump.