Министерство науки и высшего образования Российской Федерации
федеральное государственное автономное образовательное учреждение высшего образования
«НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИТМО»

Отчет

по лабораторной работе №3 «Создание таблиц базы данных PostgreSQL. Заполнение таблиц рабочими данными»

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

Автор: Цатинян А.А.

Факультет: ПИН

Группа: К3239

Преподаватель: Говорова М.М.

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Оглавление

Цель работы

Овладеть практическими навыками создания таблиц базы данных PostgreSQL 1X, 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.
7. Восстановить БД.

Выполнение

Вариант 9. БД «Оптовая база»

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

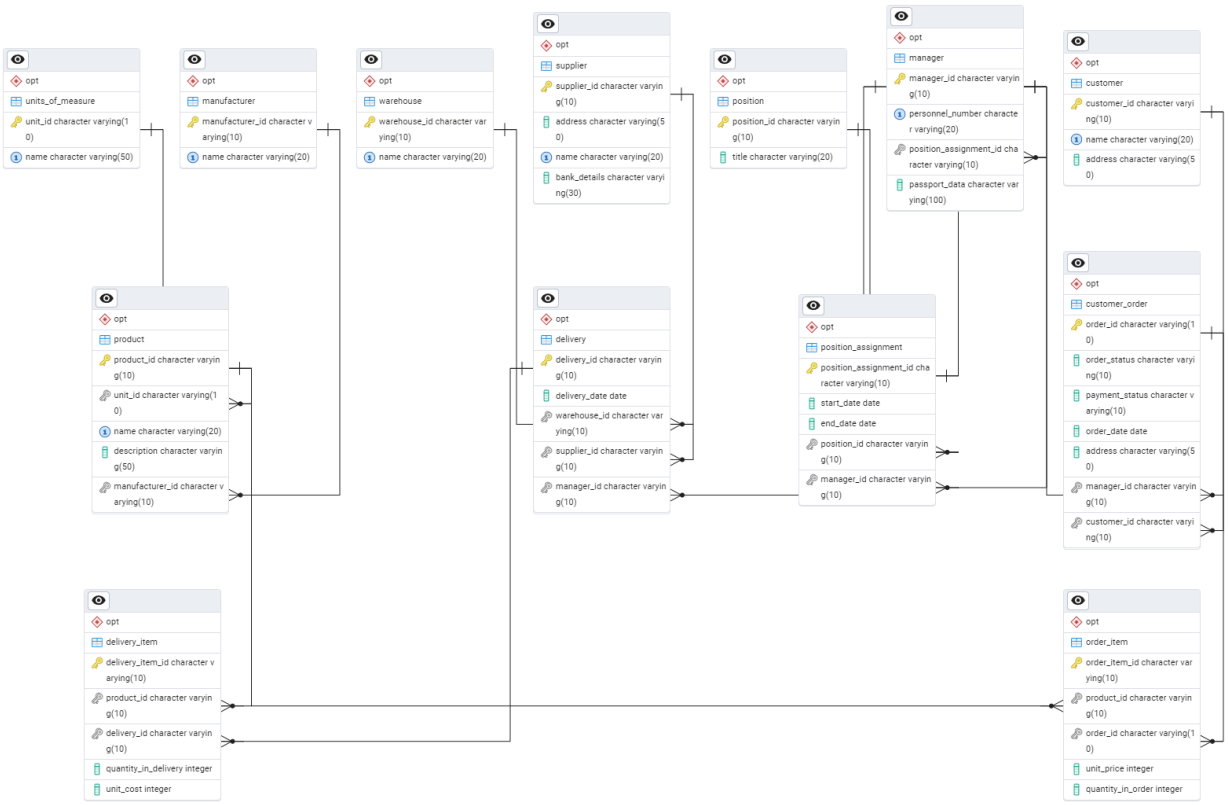

Рисунок 1 – Схема логической модели базы данных.

Листинг кода дампа приведен ниже в листинге 1:

Листинг 1 – Описание атрибутов сущностей

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

-- Dumped from database version 14.17
-- Dumped by pg_dump version 14.17

-- Started on 2025-03-20 22:26:04

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 4 (class 2615 OID 16864)
```

```
-- Name: opt; Type: SCHEMA; Schema: -; Owner: postgres
--

CREATE SCHEMA opt;


ALTER SCHEMA opt OWNER TO postgres;

SET default_tablespace = '';

SET default_table_access_method = heap;

--
-- TOC entry 220 (class 1259 OID 16965)
-- Name: customer; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt.customer (
    customer_id character varying(10) NOT NULL,
    name character varying(20),
    address character varying(50)
);


ALTER TABLE opt.customer OWNER TO postgres;

--
-- TOC entry 221 (class 1259 OID 16970)
-- Name: customer_order; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt.customer_order (
    order_id character varying(10) NOT NULL,
    order_status character varying(10),
    payment_status character varying(10),
    order_date date,
    address character varying(50),
    manager_id character varying(10) NOT NULL,
    customer_id character varying(10) NOT NULL
);


ALTER TABLE opt.customer_order OWNER TO postgres;

--
-- TOC entry 218 (class 1259 OID 16930)
-- Name: delivery; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt.delivery (
    delivery_id character varying(10) NOT NULL,
```

```
    delivery_date date,
    warehouse_id character varying(10) NOT NULL,
    supplier_id character varying(10) NOT NULL,
    manager_id character varying(10) NOT NULL
);


ALTER TABLE opt.delivery OWNER TO postgres;

--
-- TOC entry 219 (class 1259 OID 16950)
-- Name: delivery_item; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt.delivery_item (
    delivery_item_id character varying(10) NOT NULL,
    product_id character varying(10) NOT NULL,
    delivery_id character varying(10) NOT NULL,
    quantity_in_delivery integer,
    unit_cost integer,
    CONSTRAINT chk_quantity_in_delivery CHECK ((quantity_in_delivery > 0))
);


ALTER TABLE opt.delivery_item OWNER TO postgres;

--
-- TOC entry 215 (class 1259 OID 16900)
-- Name: manager; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt.manager (
    manager_id character varying(10) NOT NULL,
    personnel_number character varying(20),
    position_assignment_id character varying(10),
    passport_data character varying(100)
);


ALTER TABLE opt.manager OWNER TO postgres;

--
-- TOC entry 210 (class 1259 OID 16865)
-- Name: manufacturer; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt.manufacturer (
    manufacturer_id character varying(10) NOT NULL,
    name character varying(20)
);
```

```
ALTER TABLE opt.manufacturer OWNER TO postgres;

--
-- TOC entry 222 (class 1259 OID 16985)
-- Name: order_item; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt.order_item (
    order_item_id character varying(10) NOT NULL,
    product_id character varying(10) NOT NULL,
    order_id character varying(10) NOT NULL,
    unit_price integer,
    quantity_in_order integer,
    CONSTRAINT chk_quantity_in_order CHECK ((quantity_in_order > 0))
);


ALTER TABLE opt.order_item OWNER TO postgres;

--
-- TOC entry 216 (class 1259 OID 16905)
-- Name: position; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt."position" (
    position_id character varying(10) NOT NULL,
    title character varying(20)
);


ALTER TABLE opt."position" OWNER TO postgres;

--
-- TOC entry 217 (class 1259 OID 16910)
-- Name: position_assignment; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt.position_assignment (
    position_assignment_id character varying(10) NOT NULL,
    start_date date,
    end_date date,
    position_id character varying(10) NOT NULL,
    manager_id character varying(10) NOT NULL,
    CONSTRAINT chk_position_assignment_dates CHECK (((end_date IS NULL) OR
(end_date >= start_date)))
);


ALTER TABLE opt.position_assignment OWNER TO postgres;

--
```

```
-- TOC entry 212 (class 1259 OID 16875)
-- Name: product; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt.product (
    product_id character varying(10) NOT NULL,
    unit_id character varying(10) NOT NULL,
    name character varying(20),
    description character varying(50),
    manufacturer_id character varying(10) NOT NULL
);


ALTER TABLE opt.product OWNER TO postgres;

--
-- TOC entry 213 (class 1259 OID 16890)
-- Name: supplier; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt.supplier (
    supplier_id character varying(10) NOT NULL,
    address character varying(50),
    name character varying(20),
    bank_details character varying(30)
);


ALTER TABLE opt.supplier OWNER TO postgres;

--
-- TOC entry 211 (class 1259 OID 16870)
-- Name: units_of_measure; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt.units_of_measure (
    unit_id character varying(10) NOT NULL,
    name character varying(50)
);


ALTER TABLE opt.units_of_measure OWNER TO postgres;

--
-- TOC entry 214 (class 1259 OID 16895)
-- Name: warehouse; Type: TABLE; Schema: opt; Owner: postgres
--

CREATE TABLE opt.warehouse (
    warehouse_id character varying(10) NOT NULL,
    name character varying(20)
```

```
);


ALTER TABLE opt.warehouse OWNER TO postgres;

--
-- TOC entry 3420 (class 0 OID 16965)
-- Dependencies: 220
-- Data for Name: customer; Type: TABLE DATA; Schema: opt; Owner: postgres
--

COPY opt.customer (customer_id, name, address) FROM stdin;
CUST1   JohnDoe LA, Sunset Blvd 20
CUST2   MegaCorp    NY, Broadway 100
\.


--
-- TOC entry 3421 (class 0 OID 16970)
-- Dependencies: 221
-- Data for Name: customer_order; Type: TABLE DATA; Schema: opt; Owner: postgres
--

COPY opt.customer_order (order_id, order_status, payment_status, order_date,
address, manager_id, customer_id) FROM stdin;
O001    Created Pending 2023-08-15  LA, Sunset Blvd 20  MGR1    CUST1
O002    Created Paid    2023-08-16  NY, Broadway 100    MGR2    CUST2
\.


--
-- TOC entry 3418 (class 0 OID 16930)
-- Dependencies: 218
-- Data for Name: delivery; Type: TABLE DATA; Schema: opt; Owner: postgres
--

COPY opt.delivery (delivery_id, delivery_date, warehouse_id, supplier_id,
manager_id) FROM stdin;
D001    2023-08-10  W001    SUP1    MGR1
D002    2023-08-11  W001    SUP2    MGR2
\.


--
-- TOC entry 3419 (class 0 OID 16950)
-- Dependencies: 219
-- Data for Name: delivery_item; Type: TABLE DATA; Schema: opt; Owner: postgres
--

COPY opt.delivery_item (delivery_item_id, product_id, delivery_id,
quantity_in_delivery, unit_cost) FROM stdin;
```

```
DI001   P001    D001    30  300
DI002   P002    D002    20  500
\.


--
-- TOC entry 3415 (class 0 OID 16900)
-- Dependencies: 215
-- Data for Name: manager; Type: TABLE DATA; Schema: opt; Owner: postgres
--

COPY opt.manager (manager_id, personnel_number, position_assignment_id,
passport_data) FROM stdin;
MGR1    001 PA1 \N
MGR2    002 PA2 \N
\.


--
-- TOC entry 3410 (class 0 OID 16865)
-- Dependencies: 210
-- Data for Name: manufacturer; Type: TABLE DATA; Schema: opt; Owner: postgres
--

COPY opt.manufacturer (manufacturer_id, name) FROM stdin;
M001    Samsung
M002    LG
\.


--
-- TOC entry 3422 (class 0 OID 16985)
-- Dependencies: 222
-- Data for Name: order_item; Type: TABLE DATA; Schema: opt; Owner: postgres
--

COPY opt.order_item (order_item_id, product_id, order_id, unit_price,
quantity_in_order) FROM stdin;
OI001   P001    O001    350 2
OI002   P002    O002    550 1
\.


--
-- TOC entry 3416 (class 0 OID 16905)
-- Dependencies: 216
-- Data for Name: position; Type: TABLE DATA; Schema: opt; Owner: postgres
--

COPY opt."position" (position_id, title) FROM stdin;
POS1    Sales Manager
```

```
POS2    Head of Sales
\.


--
-- TOC entry 3417 (class 0 OID 16910)
-- Dependencies: 217
-- Data for Name: position_assignment; Type: TABLE DATA; Schema: opt; Owner:
postgres
--

COPY opt.position_assignment (position_assignment_id, start_date, end_date,
position_id, manager_id) FROM stdin;
PA1 2023-01-01  \N  POS1    MGR1
PA2 2023-06-01  \N  POS2    MGR2
\.


--
-- TOC entry 3412 (class 0 OID 16875)
-- Dependencies: 212
-- Data for Name: product; Type: TABLE DATA; Schema: opt; Owner: postgres
--

COPY opt.product (product_id, unit_id, name, description, manufacturer_id) FROM
stdin;
P001    U001    Smartphone S10  64GB memory M001
P002    U002    TV 42inch   LED display M002
\.


--
-- TOC entry 3413 (class 0 OID 16890)
-- Dependencies: 213
-- Data for Name: supplier; Type: TABLE DATA; Schema: opt; Owner: postgres
--

COPY opt.supplier (supplier_id, address, name, bank_details) FROM stdin;
SUP1    New York, 5th Ave 10    TechSupplier    Bank of America
SUP2    Seoul, Main St 50   AsiaSupply  Industrial Bank
\.


--
-- TOC entry 3411 (class 0 OID 16870)
-- Dependencies: 211
-- Data for Name: units_of_measure; Type: TABLE DATA; Schema: opt; Owner:
postgres
--

COPY opt.units_of_measure (unit_id, name) FROM stdin;
```

```
U001    Piece
U002    Pack
U003    Box
\.


--
-- TOC entry 3414 (class 0 OID 16895)
-- Dependencies: 214
-- Data for Name: warehouse; Type: TABLE DATA; Schema: opt; Owner: postgres
--

COPY opt.warehouse (warehouse_id, name) FROM stdin;
W001    Main Warehouse
W002    Backup Storage
\.


--
-- TOC entry 3214 (class 2606 OID 17164)
-- Name: delivery_item chk_unit_cost; Type: CHECK CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE opt.delivery_item
    ADD CONSTRAINT chk_unit_cost CHECK ((unit_cost >= 0)) NOT VALID;


--
-- TOC entry 3216 (class 2606 OID 17165)
-- Name: order_item chk_unit_price; Type: CHECK CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE opt.order_item
    ADD CONSTRAINT chk_unit_price CHECK ((unit_price >= 0)) NOT VALID;


--
-- TOC entry 3254 (class 2606 OID 16974)
-- Name: customer_order customer_order_pkey; Type: CONSTRAINT; Schema: opt;
Owner: postgres
--

ALTER TABLE ONLY opt.customer_order
    ADD CONSTRAINT customer_order_pkey PRIMARY KEY (order_id);


--
-- TOC entry 3250 (class 2606 OID 16969)
-- Name: customer customer_pkey; Type: CONSTRAINT; Schema: opt; Owner: postgres
```

```
--

ALTER TABLE ONLY opt.customer
    ADD CONSTRAINT customer_pkey PRIMARY KEY (customer_id);


--
-- TOC entry 3248 (class 2606 OID 16954)
-- Name: delivery_item delivery_item_pkey; Type: CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE ONLY opt.delivery_item
    ADD CONSTRAINT delivery_item_pkey PRIMARY KEY (delivery_item_id);


--
-- TOC entry 3246 (class 2606 OID 16934)
-- Name: delivery delivery_pkey; Type: CONSTRAINT; Schema: opt; Owner: postgres
--

ALTER TABLE ONLY opt.delivery
    ADD CONSTRAINT delivery_pkey PRIMARY KEY (delivery_id);


--
-- TOC entry 3238 (class 2606 OID 16904)
-- Name: manager manager_pkey; Type: CONSTRAINT; Schema: opt; Owner: postgres
--

ALTER TABLE ONLY opt.manager
    ADD CONSTRAINT manager_pkey PRIMARY KEY (manager_id);


--
-- TOC entry 3218 (class 2606 OID 16869)
-- Name: manufacturer manufacturer_pkey; Type: CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE ONLY opt.manufacturer
    ADD CONSTRAINT manufacturer_pkey PRIMARY KEY (manufacturer_id);


--
-- TOC entry 3256 (class 2606 OID 16989)
-- Name: order_item order_item_pkey; Type: CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE ONLY opt.order_item
```

```
    ADD CONSTRAINT order_item_pkey PRIMARY KEY (order_item_id);


--
-- TOC entry 3244 (class 2606 OID 16914)
-- Name: position_assignment position_assignment_pkey; Type: CONSTRAINT; Schema:
opt; Owner: postgres
--

ALTER TABLE ONLY opt.position_assignment
    ADD CONSTRAINT position_assignment_pkey PRIMARY KEY (position_assignment_id);


--
-- TOC entry 3242 (class 2606 OID 16909)
-- Name: position position_pkey; Type: CONSTRAINT; Schema: opt; Owner: postgres
--

ALTER TABLE ONLY opt."position"
    ADD CONSTRAINT position_pkey PRIMARY KEY (position_id);


--
-- TOC entry 3226 (class 2606 OID 16879)
-- Name: product product_pkey; Type: CONSTRAINT; Schema: opt; Owner: postgres
--

ALTER TABLE ONLY opt.product
    ADD CONSTRAINT product_pkey PRIMARY KEY (product_id);


--
-- TOC entry 3230 (class 2606 OID 16894)
-- Name: supplier supplier_pkey; Type: CONSTRAINT; Schema: opt; Owner: postgres
--

ALTER TABLE ONLY opt.supplier
    ADD CONSTRAINT supplier_pkey PRIMARY KEY (supplier_id);


--
-- TOC entry 3252 (class 2606 OID 17152)
-- Name: customer unique_customer_name; Type: CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE ONLY opt.customer
    ADD CONSTRAINT unique_customer_name UNIQUE (name);


--
```

```
-- TOC entry 3240 (class 2606 OID 17161)
-- Name: manager unique_manager_personnel_number; Type: CONSTRAINT; Schema: opt;
Owner: postgres
--

ALTER TABLE ONLY opt.manager
    ADD CONSTRAINT unique_manager_personnel_number UNIQUE (personnel_number);


--
-- TOC entry 3220 (class 2606 OID 17146)
-- Name: manufacturer unique_manufacturer_name; Type: CONSTRAINT; Schema: opt;
Owner: postgres
--

ALTER TABLE ONLY opt.manufacturer
    ADD CONSTRAINT unique_manufacturer_name UNIQUE (name);


--
-- TOC entry 3228 (class 2606 OID 17154)
-- Name: product unique_product_name_manufacturer; Type: CONSTRAINT; Schema: opt;
Owner: postgres
--

ALTER TABLE ONLY opt.product
    ADD CONSTRAINT unique_product_name_manufacturer UNIQUE (name,
manufacturer_id);


--
-- TOC entry 3232 (class 2606 OID 17150)
-- Name: supplier unique_supplier_name; Type: CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE ONLY opt.supplier
    ADD CONSTRAINT unique_supplier_name UNIQUE (name);


--
-- TOC entry 3222 (class 2606 OID 17148)
-- Name: units_of_measure unique_units_of_measure_name; Type: CONSTRAINT; Schema:
opt; Owner: postgres
--

ALTER TABLE ONLY opt.units_of_measure
    ADD CONSTRAINT unique_units_of_measure_name UNIQUE (name);


--
```

```
-- TOC entry 3234 (class 2606 OID 17163)
-- Name: warehouse unique_warehouse_name; Type: CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE ONLY opt.warehouse
    ADD CONSTRAINT unique_warehouse_name UNIQUE (name);


--
-- TOC entry 3224 (class 2606 OID 16874)
-- Name: units_of_measure units_of_measure_pkey; Type: CONSTRAINT; Schema: opt;
Owner: postgres
--

ALTER TABLE ONLY opt.units_of_measure
    ADD CONSTRAINT units_of_measure_pkey PRIMARY KEY (unit_id);


--
-- TOC entry 3236 (class 2606 OID 16899)
-- Name: warehouse warehouse_pkey; Type: CONSTRAINT; Schema: opt; Owner: postgres
--

ALTER TABLE ONLY opt.warehouse
    ADD CONSTRAINT warehouse_pkey PRIMARY KEY (warehouse_id);


--
-- TOC entry 3268 (class 2606 OID 16980)
-- Name: customer_order fk_customer_order_customer; Type: FK CONSTRAINT; Schema:
opt; Owner: postgres
--

ALTER TABLE ONLY opt.customer_order
    ADD CONSTRAINT fk_customer_order_customer FOREIGN KEY (customer_id)
REFERENCES opt.customer(customer_id);


--
-- TOC entry 3267 (class 2606 OID 16975)
-- Name: customer_order fk_customer_order_manager; Type: FK CONSTRAINT; Schema:
opt; Owner: postgres
--

ALTER TABLE ONLY opt.customer_order
    ADD CONSTRAINT fk_customer_order_manager FOREIGN KEY (manager_id) REFERENCES
opt.manager(manager_id);


--
```

```
-- TOC entry 3266 (class 2606 OID 16960)
-- Name: delivery_item fk_delivery_item_delivery; Type: FK CONSTRAINT; Schema:
opt; Owner: postgres
--

ALTER TABLE ONLY opt.delivery_item
    ADD CONSTRAINT fk_delivery_item_delivery FOREIGN KEY (delivery_id) REFERENCES
opt.delivery(delivery_id);


--
-- TOC entry 3265 (class 2606 OID 16955)
-- Name: delivery_item fk_delivery_item_product; Type: FK CONSTRAINT; Schema:
opt; Owner: postgres
--

ALTER TABLE ONLY opt.delivery_item
    ADD CONSTRAINT fk_delivery_item_product FOREIGN KEY (product_id) REFERENCES
opt.product(product_id);


--
-- TOC entry 3264 (class 2606 OID 16945)
-- Name: delivery fk_delivery_manager; Type: FK CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE ONLY opt.delivery
    ADD CONSTRAINT fk_delivery_manager FOREIGN KEY (manager_id) REFERENCES
opt.manager(manager_id);


--
-- TOC entry 3263 (class 2606 OID 16940)
-- Name: delivery fk_delivery_supplier; Type: FK CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE ONLY opt.delivery
    ADD CONSTRAINT fk_delivery_supplier FOREIGN KEY (supplier_id) REFERENCES
opt.supplier(supplier_id);


--
-- TOC entry 3262 (class 2606 OID 16935)
-- Name: delivery fk_delivery_warehouse; Type: FK CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE ONLY opt.delivery
```

```
    ADD CONSTRAINT fk_delivery_warehouse FOREIGN KEY (warehouse_id) REFERENCES
opt.warehouse(warehouse_id);


--
-- TOC entry 3259 (class 2606 OID 16925)
-- Name: manager fk_manager_position_assignment; Type: FK CONSTRAINT; Schema:
opt; Owner: postgres
--

ALTER TABLE ONLY opt.manager
    ADD CONSTRAINT fk_manager_position_assignment FOREIGN KEY
(position_assignment_id) REFERENCES
opt.position_assignment(position_assignment_id);


--
-- TOC entry 3270 (class 2606 OID 16995)
-- Name: order_item fk_order_item_order; Type: FK CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE ONLY opt.order_item
    ADD CONSTRAINT fk_order_item_order FOREIGN KEY (order_id) REFERENCES
opt.customer_order(order_id);


--
-- TOC entry 3269 (class 2606 OID 16990)
-- Name: order_item fk_order_item_product; Type: FK CONSTRAINT; Schema: opt;
Owner: postgres
--

ALTER TABLE ONLY opt.order_item
    ADD CONSTRAINT fk_order_item_product FOREIGN KEY (product_id) REFERENCES
opt.product(product_id);


--
-- TOC entry 3261 (class 2606 OID 16920)
-- Name: position_assignment fk_position_assignment_manager; Type: FK CONSTRAINT;
Schema: opt; Owner: postgres
--

ALTER TABLE ONLY opt.position_assignment
    ADD CONSTRAINT fk_position_assignment_manager FOREIGN KEY (manager_id)
REFERENCES opt.manager(manager_id);


--
-- TOC entry 3260 (class 2606 OID 16915)
```

```
-- Name: position_assignment fk_position_assignment_position; Type: FK
CONSTRAINT; Schema: opt; Owner: postgres
--

ALTER TABLE ONLY opt.position_assignment
    ADD CONSTRAINT fk_position_assignment_position FOREIGN KEY (position_id)
REFERENCES opt."position"(position_id);


--
-- TOC entry 3258 (class 2606 OID 16885)
-- Name: product fk_product_manufacturer; Type: FK CONSTRAINT; Schema: opt;
Owner: postgres
--

ALTER TABLE ONLY opt.product
    ADD CONSTRAINT fk_product_manufacturer FOREIGN KEY (manufacturer_id)
REFERENCES opt.manufacturer(manufacturer_id);


--
-- TOC entry 3257 (class 2606 OID 16880)
-- Name: product fk_product_unit; Type: FK CONSTRAINT; Schema: opt; Owner:
postgres
--

ALTER TABLE ONLY opt.product
    ADD CONSTRAINT fk_product_unit FOREIGN KEY (unit_id) REFERENCES
opt.units_of_measure(unit_id);


-- Completed on 2025-03-20 22:26:04

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

Вывод

В ходе лабораторной работы я научился создавать, заполнять, восстанавливать и сохранять базы данных PostgreSQL с использованием программы pgAdmin 4. В процессе работы была создана база данных и таблицы в соответствии с заданием. Были определены необходимые связи и ограничения, после чего таблицы были заполнены данными. Для обеспечения безопасности в случае сбоя я создал две резервные копии, что позволило восстановить базу данных без потерь, а также получить листинг кода.