

Министерство науки и высшего образования Российской Федерации
ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ АВТОНОМНОЕ ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ
«НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИТМО»
(Университет ИТМО)

Факультет **Инфокоммуникационных технологий**

Образовательная программа **Мобильные и сетевые технологии**

Направление подготовки (специальность) **09.03.03 Прикладная информатика**

О Т Ч Е Т

по дисциплине «Проектирование и реализация баз данных»

на тему: создание таблиц базы данных PostgreSQL. Заполнение таблиц рабочими данными

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ВВЕДЕНИЕ

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.

Индивидуальное задание: Вариант 4. БД «Учет выполнения заданий»

Описание предметной области: Компания осуществляет деятельность по выполнению проектов на заказ. По каждому проекту составляется договор с Заказчиком (в 2-х экземплярах для каждой стороны). По каждому договору оформляется два счета - на предоплату и остаток. После выполнения проекта подписывается Акт выполненных работ (в 2-х экземплярах для каждой стороны). Каждый договор сопровождается менеджером со стороны

компании, который обеспечивает коммуникации между заказчиком и руководителем проекта.

Проекты состоят из нескольких заданий (этапов), каждый из которых имеет свою стоимость в рамках всего проекта. Для каждого задания проекта руководитель проекта составляет график контроля выполнения, включающий несколько дат для каждого задания. По итогу контроля хранится информация о выполнении к дате контроля задания (в процентах), поясняющий комментарий о причинах невыполнения или отставания выполнения задания.

Каждый проект имеет руководителя проекта из числа сотрудников. Каждый сотрудник может участвовать в одном или нескольких проектах, или временно не участвовать ни в каких проектах. Над каждым проектом может работать несколько сотрудников отделов, или временно проект может быть приостановлен, тогда над ним не работает ни один сотрудник. Над каждым заданием (этапом) в проекте может работать несколько сотрудников. Для участия в проекте с каждым сотрудником заключается договор на выполнение проектных работ.

Каждый сотрудник числится в одном отделе по основной должности согласно штатному расписанию отдела. Сотрудник может работать в другом отделе на условиях штатного совмещения на 0,5 ставки.

БД должна содержать следующий минимальный набор сведений: Номер сотрудника. Фамилия сотрудника. Имя сотрудника. Отчество сотрудника. Должность сотрудника. Оклад сотрудника. Название организации-заказчика. Номер организации. Адрес организации. Контактное лицо и его контакты. Номер телефона отдела. Номер отдела. Название отдела. Код проекта. Название проекта. Сроки выполнения проекта. Руководитель проекта. Статус выполнения. Статус оплаты. Номер задания. Дата начала выполнения задания. Срок выполнения задания. Статус выполнения задания. Вознаграждение за задание сотруднику. Статус выполнения задания каждым сотрудником. Дата контроля выполнения задания. Причина невыполнения или отставания выполнения задания.

1 Выполнение

Наименование БД: Accounting for tasks.

Схема логической модели базы данных:



Dump, содержащий скрипты работы с БД:

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

-- Dumped from database version 11.19
-- Dumped by pg_dump version 11.19

-- Started on 2023-03-20 10:30:16

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 2910 (class 1262 OID 16393)
-- Name: Accounting for tasks; Type: DATABASE; Schema: -; Owner: postgres
--

CREATE DATABASE "Accounting for tasks" WITH TEMPLATE = template0
ENCODING = 'UTF8' LC_COLLATE = 'Russian_Russia.1251' LC_CTYPE =
'Russian_Russia.1251';
```

```
ALTER DATABASE "Accounting for tasks" OWNER TO postgres;
```

```
\connect -reuse-previous=on "dbname='Accounting for tasks'"
```

```
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: accounting_for_tasks; Type: SCHEMA; Schema: -; Owner: postgres
```

```
--
```

```
CREATE SCHEMA accounting_for_tasks;
```

```
ALTER SCHEMA accounting_for_tasks OWNER TO postgres;
```

```
SET default_tablespace = '';
```

```
SET default_with_oids = false;
```

```
--  
-- TOC entry 203 (class 1259 OID 16460)  
-- Name: contract; Type: TABLE; Schema: accounting_for_tasks; Owner: postgres  
--
```

```
CREATE TABLE accounting_for_tasks.contract (  
    id_contract integer NOT NULL,  
    id_staffing integer NOT NULL,  
    id_employee integer NOT NULL  
);
```

```
ALTER TABLE accounting_for_tasks.contract OWNER TO postgres;
```

```
--  
-- TOC entry 205 (class 1259 OID 16500)  
-- Name: control; Type: TABLE; Schema: accounting_for_tasks; Owner: postgres  
--
```

```
CREATE TABLE accounting_for_tasks.control (  
    id_control integer NOT NULL,  
    id_task integer NOT NULL,  
    date date NOT NULL,  
    status integer NOT NULL,  
    comment text NOT NULL  
);
```

```
ALTER TABLE accounting_for_tasks.control OWNER TO postgres;
```

```
--  
-- TOC entry 197 (class 1259 OID 16395)  
-- Name: department; Type: TABLE; Schema: accounting_for_tasks; Owner:  
postgres
```

```
--
```

```
CREATE TABLE accounting_for_tasks.department (  
    id_department integer NOT NULL,  
    name character varying(40) NOT NULL,  
    phone_number bigint NOT NULL  
);
```

```
ALTER TABLE accounting_for_tasks.department OWNER TO postgres;
```

```
--
```

```
-- TOC entry 200 (class 1259 OID 16422)  
-- Name: employee; Type: TABLE; Schema: accounting_for_tasks; Owner:  
postgres
```

```
--
```

```
CREATE TABLE accounting_for_tasks.employee (  
    id_employee integer NOT NULL,  
    fio character varying(50) NOT NULL  
);
```

```
ALTER TABLE accounting_for_tasks.employee OWNER TO postgres;
```

```
--
```



```
-- TOC entry 206 (class 1259 OID 16514)
-- Name: employee_on_task; Type: TABLE; Schema: accounting_for_tasks;
Owner: postgres
```

```
--
```

```
CREATE TABLE accounting_for_tasks.employee_on_task (
    id_employee_on_task integer NOT NULL,
    id_task integer NOT NULL,
    id_contract integer NOT NULL,
    status integer NOT NULL,
    reward integer NOT NULL
);
```

```
ALTER TABLE accounting_for_tasks.employee_on_task OWNER TO postgres;
```

```
--
```

```
-- TOC entry 201 (class 1259 OID 16444)
-- Name: organization; Type: TABLE; Schema: accounting_for_tasks; Owner:
postgres
```

```
--
```

```
CREATE TABLE accounting_for_tasks.organization (
    id_organization integer NOT NULL,
    name character varying(50) NOT NULL,
    address character varying(50) NOT NULL,
    phone_number bigint NOT NULL
);
```

```
ALTER TABLE accounting_for_tasks.organization OWNER TO postgres;
```

```
--
```

```
-- TOC entry 198 (class 1259 OID 16400)
```

```
-- Name: position; Type: TABLE; Schema: accounting_for_tasks; Owner: postgres
```

```
--
```

```
CREATE TABLE accounting_for_tasks."position" (
```

```
    id_position integer NOT NULL,
```

```
    name character varying(20) NOT NULL,
```

```
    salary integer NOT NULL
```

```
);
```

```
ALTER TABLE accounting_for_tasks."position" OWNER TO postgres;
```

```
--
```

```
-- TOC entry 202 (class 1259 OID 16449)
```

```
-- Name: project; Type: TABLE; Schema: accounting_for_tasks; Owner: postgres
```

```
--
```

```
CREATE TABLE accounting_for_tasks.project (
```

```
    id_project integer NOT NULL,
```

```
    id_organization integer NOT NULL,
```

```
    leader integer NOT NULL,
```

```
    manager integer NOT NULL,
```

```
    date_start date NOT NULL,
```

```
    date_end date NOT NULL,
```

```
    name character varying(50) NOT NULL,
```

```
    code integer NOT NULL,
```

```
price integer NOT NULL,  
execution character varying(20) NOT NULL,  
payment character varying(20) NOT NULL  
);
```

```
ALTER TABLE accounting_for_tasks.project OWNER TO postgres;
```

```
--  
-- TOC entry 199 (class 1259 OID 16405)  
-- Name: staffing; Type: TABLE; Schema: accounting_for_tasks; Owner: postgres  
--
```

```
CREATE TABLE accounting_for_tasks.staffing (  
    id_staffing integer NOT NULL,  
    rate real NOT NULL,  
    id_position integer NOT NULL,  
    id_department integer NOT NULL  
);
```

```
ALTER TABLE accounting_for_tasks.staffing OWNER TO postgres;
```

```
--  
-- TOC entry 204 (class 1259 OID 16489)  
-- Name: task; Type: TABLE; Schema: accounting_for_tasks; Owner: postgres  
--
```

```
CREATE TABLE accounting_for_tasks.task (  
    id_task integer NOT NULL,
```

```
id_project integer NOT NULL,  
date_start date NOT NULL,  
date_end date NOT NULL,  
price integer NOT NULL,  
description text NOT NULL  
);
```

```
ALTER TABLE accounting_for_tasks.task OWNER TO postgres;
```

```
--  
-- TOC entry 2901 (class 0 OID 16460)  
-- Dependencies: 203  
-- Data for Name: contract; Type: TABLE DATA; Schema: accounting_for_tasks;  
Owner: postgres  
--
```

```
INSERT INTO accounting_for_tasks.contract (id_contract, id_staffing,  
id_employee) VALUES (1, 1, 1);  
INSERT INTO accounting_for_tasks.contract (id_contract, id_staffing,  
id_employee) VALUES (2, 3, 3);  
INSERT INTO accounting_for_tasks.contract (id_contract, id_staffing,  
id_employee) VALUES (3, 2, 2);
```

```
--  
-- TOC entry 2903 (class 0 OID 16500)  
-- Dependencies: 205  
-- Data for Name: control; Type: TABLE DATA; Schema: accounting_for_tasks;  
Owner: postgres
```

--

```
INSERT INTO accounting_for_tasks.control (id_control, id_task, date, status,
comment) VALUES (2, 2, '2023-08-02', 0, 'еще ничего не сделано');
```

```
INSERT INTO accounting_for_tasks.control (id_control, id_task, date, status,
comment) VALUES (1, 1, '2023-07-02', 100, 'правок нет');
```

```
INSERT INTO accounting_for_tasks.control (id_control, id_task, date, status,
comment) VALUES (3, 3, '2023-07-23', 75, 'доделать');
```

--

-- TOC entry 2895 (class 0 OID 16395)

-- Dependencies: 197

-- Data for Name: department; Type: TABLE DATA; Schema:
accounting_for_tasks; Owner: postgres

--

```
INSERT INTO accounting_for_tasks.department (id_department, name,
phone_number) VALUES (1, 'ДИС', 89128967277);
```

```
INSERT INTO accounting_for_tasks.department (id_department, name,
phone_number) VALUES (2, 'ДОД', 89218967277);
```

```
INSERT INTO accounting_for_tasks.department (id_department, name,
phone_number) VALUES (3, 'ДНИР', 89128989234);
```

--

-- TOC entry 2898 (class 0 OID 16422)

-- Dependencies: 200

-- Data for Name: employee; Type: TABLE DATA; Schema: accounting_for_tasks;
Owner: postgres

--

```
INSERT INTO accounting_for_tasks.employee (id_employee, fio) VALUES (1,
'Иванов Иван Иванович');
```

```
INSERT INTO accounting_for_tasks.employee (id_employee, fio) VALUES (2,
'Сергеев Сергей Сергеевич');
```

```
INSERT INTO accounting_for_tasks.employee (id_employee, fio) VALUES (3,
'Олейникова Полина Леонидовна');
```

```
INSERT INTO accounting_for_tasks.employee (id_employee, fio) VALUES (4,
'Алексеев Алексей Алексеевич
');
```

--

-- TOC entry 2904 (class 0 OID 16514)

-- Dependencies: 206

-- Data for Name: employee_on_task; Type: TABLE DATA; Schema:
accounting_for_tasks; Owner: postgres

--

```
INSERT INTO accounting_for_tasks.employee_on_task (id_employee_on_task,
id_task, id_contract, status, reward) VALUES (1, 1, 1, 1, 10000);
```

```
INSERT INTO accounting_for_tasks.employee_on_task (id_employee_on_task,
id_task, id_contract, status, reward) VALUES (2, 2, 2, 0, 6000);
```

--

-- TOC entry 2899 (class 0 OID 16444)

-- Dependencies: 201

-- Data for Name: organization; Type: TABLE DATA; Schema:
accounting_for_tasks; Owner: postgres

--

INSERT INTO accounting_for_tasks.organization (id_organization, name, address,
phone_number) VALUES (1, 'ИТМО', 'Кронверский 49', 89128989898);

INSERT INTO accounting_for_tasks.organization (id_organization, name, address,
phone_number) VALUES (2, 'СПБПУ', 'Политехническая 29', 89128083697);

--

-- TOC entry 2896 (class 0 OID 16400)

-- Dependencies: 198

-- Data for Name: position; Type: TABLE DATA; Schema: accounting_for_tasks;
Owner: postgres

--

INSERT INTO accounting_for_tasks."position" (id_position, name, salary)
VALUES (2, 'руководитель', 250000);

INSERT INTO accounting_for_tasks."position" (id_position, name, salary)
VALUES (1, 'программист', 150000);

INSERT INTO accounting_for_tasks."position" (id_position, name, salary)
VALUES (3, 'лаборант', 45000);

--

-- TOC entry 2900 (class 0 OID 16449)

-- Dependencies: 202

-- Data for Name: project; Type: TABLE DATA; Schema: accounting_for_tasks;
Owner: postgres

--

```
INSERT INTO accounting_for_tasks.project (id_project, id_organization, leader,
manager, date_start, date_end, name, code, price, execution, payment) VALUES (1,
1, 3, 2, '2023-06-03', '2024-07-03', 'my.itmo', 1, 1000000, 'в процессе', 'не
оплачено');
```

```
INSERT INTO accounting_for_tasks.project (id_project, id_organization, leader,
manager, date_start, date_end, name, code, price, execution, payment) VALUES (2,
2, 3, 2, '2023-07-01', '2024-07-01', 'ису', 2, 1000000, 'готово', 'оплачено');
```

--

-- TOC entry 2897 (class 0 OID 16405)

-- Dependencies: 199

-- Data for Name: staffing; Type: TABLE DATA; Schema: accounting_for_tasks;
Owner: postgres

--

```
INSERT INTO accounting_for_tasks.staffing (id_staffing, rate, id_position,
id_department) VALUES (1, 20, 3, 1);
```

```
INSERT INTO accounting_for_tasks.staffing (id_staffing, rate, id_position,
id_department) VALUES (2, 10, 2, 1);
```

```
INSERT INTO accounting_for_tasks.staffing (id_staffing, rate, id_position,
id_department) VALUES (3, 5, 1, 1);
```

--

-- TOC entry 2902 (class 0 OID 16489)

-- Dependencies: 204

-- Data for Name: task; Type: TABLE DATA; Schema: accounting_for_tasks;
Owner: postgres

--

INSERT INTO accounting_for_tasks.task (id_task, id_project, date_start, date_end,
price, description) VALUES (1, 1, '2023-06-03', '2023-07-03', 10000, 'страница
персоналий');

INSERT INTO accounting_for_tasks.task (id_task, id_project, date_start, date_end,
price, description) VALUES (2, 1, '2023-07-03', '2023-08-03', 10000, 'страница
расписания');

INSERT INTO accounting_for_tasks.task (id_task, id_project, date_start, date_end,
price, description) VALUES (3, 1, '2023-08-03', '2023-09-25', 15000, 'страница
заявок');

--

-- TOC entry 2751 (class 2606 OID 16464)

-- Name: contract contract_pkey; Type: CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres

--

ALTER TABLE ONLY accounting_for_tasks.contract

ADD CONSTRAINT contract_pkey PRIMARY KEY (id_contract);

--

-- TOC entry 2758 (class 2606 OID 16507)

-- Name: control control_pkey; Type: CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres

--

```

ALTER TABLE ONLY accounting_for_tasks.control
    ADD CONSTRAINT control_pkey PRIMARY KEY (id_control);

--
-- TOC entry 2726 (class 2606 OID 16542)
--   Name:   project_date_end;   Type:   CHECK   CONSTRAINT;   Schema:
accounting_for_tasks; Owner: postgres
--

ALTER TABLE accounting_for_tasks.project
    ADD CONSTRAINT date_end CHECK ((date_end > date_start)) NOT VALID;

--
-- TOC entry 2911 (class 0 OID 0)
-- Dependencies: 2726
--   Name:   CONSTRAINT date_end ON project; Type: COMMENT; Schema:
accounting_for_tasks; Owner: postgres
--

COMMENT ON CONSTRAINT date_end ON accounting_for_tasks.project IS
'Дата конца больше даты начала';

--
-- TOC entry 2728 (class 2606 OID 16544)
--   Name:   task_date_end;   Type:   CHECK   CONSTRAINT;   Schema:
accounting_for_tasks; Owner: postgres

```

--

```
ALTER TABLE accounting_for_tasks.task
```

```
    ADD CONSTRAINT date_end CHECK ((date_end > date_start)) NOT VALID;
```

--

-- TOC entry 2912 (class 0 OID 0)

-- Dependencies: 2728

-- Name: CONSTRAINT date_end ON task; Type: COMMENT; Schema:
accounting_for_tasks; Owner: postgres

--

COMMENT ON CONSTRAINT date_end ON accounting_for_tasks.task IS 'дата
конца больше даты начала';

--

-- TOC entry 2734 (class 2606 OID 16399)

-- Name: department departament_pkey; Type: CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres

--

```
ALTER TABLE ONLY accounting_for_tasks.department
```

```
    ADD CONSTRAINT departament_pkey PRIMARY KEY (id_departament);
```

--

-- TOC entry 2761 (class 2606 OID 16518)

-- Name: employee_on_task employee_on_task_pkey; Type: CONSTRAINT;
Schema: accounting_for_tasks; Owner: postgres

--

ALTER TABLE ONLY accounting_for_tasks.employee_on_task
ADD CONSTRAINT employee_on_task_pkey PRIMARY KEY
(id_employee_on_task);

--

-- TOC entry 2742 (class 2606 OID 16426)

-- Name: employee employee_pkey; Type: CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres

--

ALTER TABLE ONLY accounting_for_tasks.employee
ADD CONSTRAINT employee_pkey PRIMARY KEY (id_employee);

--

-- TOC entry 2744 (class 2606 OID 16448)

-- Name: organization organization_pkey; Type: CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres

--

ALTER TABLE ONLY accounting_for_tasks.organization
ADD CONSTRAINT organization_pkey PRIMARY KEY (id_organization);

--

```
-- TOC entry 2722 (class 2606 OID 16537)
-- Name: department phone_number; Type: CHECK CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres
```

```
--
```

```
ALTER TABLE accounting_for_tasks.department
    ADD CONSTRAINT phone_number CHECK (((phone_number >
'9999999999'::bigint) AND (phone_number < '100000000000'::bigint))) NOT
VALID;
```

```
--
```

```
-- TOC entry 2913 (class 0 OID 0)
-- Dependencies: 2722
-- Name: CONSTRAINT phone_number ON department; Type: COMMENT;
Schema: accounting_for_tasks; Owner: postgres
```

```
--
```

```
COMMENT ON CONSTRAINT phone_number ON
accounting_for_tasks.department IS 'телефонный номер в 11 цифр';
```

```
--
```

```
-- TOC entry 2725 (class 2606 OID 16540)
-- Name: organization phone_number; Type: CHECK CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres
```

```
--
```

```
ALTER TABLE accounting_for_tasks.organization
```

```
ADD CONSTRAINT phone_number CHECK (((phone_number >
'9999999999'::bigint) AND (phone_number < '100000000000'::bigint))) NOT
VALID;
```

```
--
```

```
-- TOC entry 2914 (class 0 OID 0)
```

```
-- Dependencies: 2725
```

```
-- Name: CONSTRAINT phone_number ON organization; Type: COMMENT;
Schema: accounting_for_tasks; Owner: postgres
```

```
--
```

```
COMMENT ON CONSTRAINT phone_number ON
accounting_for_tasks.organization IS 'телефонный номер в 11 цифр';
```

```
--
```

```
-- TOC entry 2736 (class 2606 OID 16404)
```

```
-- Name: position position_pkey; Type: CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres
```

```
--
```

```
ALTER TABLE ONLY accounting_for_tasks."position"
```

```
ADD CONSTRAINT position_pkey PRIMARY KEY (id_position);
```

```
--
```

```
-- TOC entry 2727 (class 2606 OID 16543)
```

```
-- Name: project price; Type: CHECK CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres
```

--

```
ALTER TABLE accounting_for_tasks.project  
    ADD CONSTRAINT price CHECK ((price > 0)) NOT VALID;
```

--

```
-- TOC entry 2915 (class 0 OID 0)  
-- Dependencies: 2727  
-- Name: CONSTRAINT price ON project; Type: COMMENT; Schema:  
accounting_for_tasks; Owner: postgres
```

--

```
COMMENT ON CONSTRAINT price ON accounting_for_tasks.project IS  
'положительная цена';
```

--

```
-- TOC entry 2729 (class 2606 OID 16545)  
-- Name: task price; Type: CHECK CONSTRAINT; Schema: accounting_for_tasks;  
Owner: postgres
```

--

```
ALTER TABLE accounting_for_tasks.task  
    ADD CONSTRAINT price CHECK ((price > 0)) NOT VALID;
```

--

```
-- TOC entry 2916 (class 0 OID 0)  
-- Dependencies: 2729
```

```
-- Name: CONSTRAINT price ON task; Type: COMMENT; Schema:
accounting_for_tasks; Owner: postgres
```

```
--
```

```
COMMENT ON CONSTRAINT price ON accounting_for_tasks.task IS
'положительная цена';
```

```
--
```

```
-- TOC entry 2749 (class 2606 OID 16453)
```

```
-- Name: project project_pkey; Type: CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres
```

```
--
```

```
ALTER TABLE ONLY accounting_for_tasks.project
ADD CONSTRAINT project_pkey PRIMARY KEY (id_project);
```

```
--
```

```
-- TOC entry 2724 (class 2606 OID 16551)
```

```
-- Name: staffing rate; Type: CHECK CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres
```

```
--
```

```
ALTER TABLE accounting_for_tasks.staffing
ADD CONSTRAINT rate CHECK ((rate > (0)::double precision)) NOT VALID;
```

```
--
```

```
-- TOC entry 2917 (class 0 OID 0)
```



```

-- Dependencies: 2724
-- Name: CONSTRAINT rate ON staffing; Type: COMMENT; Schema:
accounting_for_tasks; Owner: postgres
--

COMMENT ON CONSTRAINT rate ON accounting_for_tasks.staffing IS
'положительная ставка';

--

-- TOC entry 2731 (class 2606 OID 16538)
-- Name: employee_on_task reward; Type: CHECK CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres
--

ALTER TABLE accounting_for_tasks.employee_on_task
    ADD CONSTRAINT reward CHECK ((reward > 0)) NOT VALID;

--

-- TOC entry 2918 (class 0 OID 0)
-- Dependencies: 2731
-- Name: CONSTRAINT reward ON employee_on_task; Type: COMMENT;
Schema: accounting_for_tasks; Owner: postgres
--

COMMENT          ON          CONSTRAINT          reward          ON
accounting_for_tasks.employee_on_task IS 'положительное вознаграждение';

```

```
--  
-- TOC entry 2723 (class 2606 OID 16541)  
--   Name:   position   salary;   Type:   CHECK   CONSTRAINT;   Schema:  
accounting_for_tasks; Owner: postgres  
--
```

```
ALTER TABLE accounting_for_tasks."position"  
    ADD CONSTRAINT salary CHECK ((salary > 0)) NOT VALID;
```

```
--  
-- TOC entry 2919 (class 0 OID 0)  
-- Dependencies: 2723  
--   Name:   CONSTRAINT salary ON "position"; Type: COMMENT; Schema:  
accounting_for_tasks; Owner: postgres  
--
```

```
COMMENT ON CONSTRAINT salary ON accounting_for_tasks."position" IS  
'положительная зарплата';
```

```
--  
-- TOC entry 2740 (class 2606 OID 16409)  
--   Name:   staffing   staffing_pkey;   Type:   CONSTRAINT;   Schema:  
accounting_for_tasks; Owner: postgres  
--
```

```
ALTER TABLE ONLY accounting_for_tasks.staffing  
    ADD CONSTRAINT staffing_pkey PRIMARY KEY (id_staffing);
```

```
--  
-- TOC entry 2732 (class 2606 OID 16539)  
-- Name: employee_on_task status; Type: CHECK CONSTRAINT; Schema:  
accounting_for_tasks; Owner: postgres  
--
```

```
ALTER TABLE accounting_for_tasks.employee_on_task  
    ADD CONSTRAINT status CHECK (((status = 0) OR (status = 1))) NOT  
VALID;
```

```
--  
-- TOC entry 2920 (class 0 OID 0)  
-- Dependencies: 2732  
-- Name: CONSTRAINT status ON employee_on_task; Type: COMMENT;  
Schema: accounting_for_tasks; Owner: postgres  
--
```

```
COMMENT          ON          CONSTRAINT          status          ON  
accounting_for_tasks.employee_on_task IS 'статус равен 0 или 1';
```

```
--  
-- TOC entry 2730 (class 2606 OID 16550)  
-- Name: control status; Type: CHECK CONSTRAINT; Schema:  
accounting_for_tasks; Owner: postgres  
--
```

```
ALTER TABLE accounting_for_tasks.control
```

```
ADD CONSTRAINT status CHECK (((status >= 0) AND (status <= 100))) NOT  
VALID;
```

```
--
```

```
-- TOC entry 2921 (class 0 OID 0)
```

```
-- Dependencies: 2730
```

```
-- Name: CONSTRAINT status ON control; Type: COMMENT; Schema:  
accounting_for_tasks; Owner: postgres
```

```
--
```

```
COMMENT ON CONSTRAINT status ON accounting_for_tasks.control IS 'статус  
в процентах (максимум 100, минимум 0)';
```

```
--
```

```
-- TOC entry 2756 (class 2606 OID 16493)
```

```
-- Name: task task_pkey; Type: CONSTRAINT; Schema: accounting_for_tasks;  
Owner: postgres
```

```
--
```

```
ALTER TABLE ONLY accounting_for_tasks.task
```

```
ADD CONSTRAINT task_pkey PRIMARY KEY (id_task);
```

```
--
```

```
-- TOC entry 2745 (class 1259 OID 16482)
```

```
-- Name: fki_e; Type: INDEX; Schema: accounting_for_tasks; Owner: postgres
```

```
--
```

```

CREATE INDEX fki_e ON accounting_for_tasks.project USING btree (leader);

--
-- TOC entry 2762 (class 1259 OID 16524)
-- Name: fki_id_contract; Type: INDEX; Schema: accounting_for_tasks; Owner:
postgres
--

CREATE INDEX fki_id_contract ON accounting_for_tasks.employee_on_task
USING btree (id_contract);

--
-- TOC entry 2737 (class 1259 OID 16421)
-- Name: fki_id_department; Type: INDEX; Schema: accounting_for_tasks; Owner:
postgres
--

CREATE INDEX fki_id_department ON accounting_for_tasks.staffing USING
btree (id_department);

--
-- TOC entry 2752 (class 1259 OID 16476)
-- Name: fki_id_employee; Type: INDEX; Schema: accounting_for_tasks; Owner:
postgres
--

```

```
CREATE INDEX fki_id_employee ON accounting_for_tasks.contract USING  
btree (id_employee);
```

```
--  
-- TOC entry 2746 (class 1259 OID 16459)  
-- Name: fki_id_organization; Type: INDEX; Schema: accounting_for_tasks;  
Owner: postgres  
--
```

```
CREATE INDEX fki_id_organization ON accounting_for_tasks.project USING  
btree (id_organization);
```

```
--  
-- TOC entry 2738 (class 1259 OID 16415)  
-- Name: fki_id_position; Type: INDEX; Schema: accounting_for_tasks; Owner:  
postgres  
--
```

```
CREATE INDEX fki_id_position ON accounting_for_tasks.staffing USING btree  
(id_position);
```

```
--  
-- TOC entry 2754 (class 1259 OID 16499)  
-- Name: fki_id_project; Type: INDEX; Schema: accounting_for_tasks; Owner:  
postgres  
--
```

```
CREATE INDEX fki_id_project ON accounting_for_tasks.task USING btree
(id_project);
```

```
--
-- TOC entry 2753 (class 1259 OID 16470)
-- Name: fki_id_staffing; Type: INDEX; Schema: accounting_for_tasks; Owner:
postgres
```

```
CREATE INDEX fki_id_staffing ON accounting_for_tasks.contract USING btree
(id_staffing);
```

```
--
-- TOC entry 2759 (class 1259 OID 16513)
-- Name: fki_id_task; Type: INDEX; Schema: accounting_for_tasks; Owner:
postgres
```

```
CREATE INDEX fki_id_task ON accounting_for_tasks.control USING btree
(id_task);
```

```
--
-- TOC entry 2747 (class 1259 OID 16488)
-- Name: fki_manager; Type: INDEX; Schema: accounting_for_tasks; Owner:
postgres
```

```
CREATE INDEX fki_manager ON accounting_for_tasks.project USING btree
(manager);
```

```
--
-- TOC entry 2772 (class 2606 OID 16519)
-- Name: employee_on_task id_contract; Type: FK CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres
--
```

```
ALTER TABLE ONLY accounting_for_tasks.employee_on_task
    ADD CONSTRAINT id_contract FOREIGN KEY (id_contract) REFERENCES
accounting_for_tasks.contract(id_contract) NOT VALID;
```

```
--
-- TOC entry 2764 (class 2606 OID 16416)
-- Name: staffing id_department; Type: FK CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres
--
```

```
ALTER TABLE ONLY accounting_for_tasks.staffing
    ADD CONSTRAINT id_department FOREIGN KEY (id_department)
REFERENCES accounting_for_tasks.department(id_department) NOT VALID;
```

```
--
-- TOC entry 2769 (class 2606 OID 16471)
-- Name: contract id_employee; Type: FK CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres
```


--

```
ALTER TABLE ONLY accounting_for_tasks.contract
    ADD CONSTRAINT id_employee FOREIGN KEY (id_employee)
REFERENCES accounting_for_tasks.employee(id_employee) NOT VALID;
```

--

```
-- TOC entry 2765 (class 2606 OID 16454)
-- Name: project id_organization; Type: FK CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres
```

--

```
ALTER TABLE ONLY accounting_for_tasks.project
    ADD CONSTRAINT id_organization FOREIGN KEY (id_organization)
REFERENCES accounting_for_tasks.organization(id_organization) NOT VALID;
```

--

```
-- TOC entry 2763 (class 2606 OID 16410)
-- Name: staffing id_position; Type: FK CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres
```

--

```
ALTER TABLE ONLY accounting_for_tasks.staffing
    ADD CONSTRAINT id_position FOREIGN KEY (id_position) REFERENCES
accounting_for_tasks."position"(id_position) NOT VALID;
```

--

-- TOC entry 2770 (class 2606 OID 16494)
-- Name: task id_project; Type: FK CONSTRAINT; Schema: accounting_for_tasks;
Owner: postgres

--

ALTER TABLE ONLY accounting_for_tasks.task
ADD CONSTRAINT id_project FOREIGN KEY (id_project) REFERENCES
accounting_for_tasks.project(id_project) NOT VALID;

--

-- TOC entry 2768 (class 2606 OID 16465)
-- Name: contract id_staffing; Type: FK CONSTRAINT; Schema:
accounting_for_tasks; Owner: postgres

--

ALTER TABLE ONLY accounting_for_tasks.contract
ADD CONSTRAINT id_staffing FOREIGN KEY (id_staffing) REFERENCES
accounting_for_tasks.staffing(id_staffing) NOT VALID;

--

-- TOC entry 2771 (class 2606 OID 16508)
-- Name: control id_task; Type: FK CONSTRAINT; Schema: accounting_for_tasks;
Owner: postgres

--

ALTER TABLE ONLY accounting_for_tasks.control
ADD CONSTRAINT id_task FOREIGN KEY (id_task) REFERENCES
accounting_for_tasks.task(id_task) NOT VALID;

```
--  
-- TOC entry 2773 (class 2606 OID 16525)  
-- Name: employee_on_task id_task; Type: FK CONSTRAINT; Schema:  
accounting_for_tasks; Owner: postgres  
--
```

```
ALTER TABLE ONLY accounting_for_tasks.employee_on_task  
    ADD CONSTRAINT id_task FOREIGN KEY (id_task) REFERENCES  
accounting_for_tasks.task(id_task) NOT VALID;
```

```
--  
-- TOC entry 2766 (class 2606 OID 16477)  
-- Name: project leader; Type: FK CONSTRAINT; Schema: accounting_for_tasks;  
Owner: postgres  
--
```

```
ALTER TABLE ONLY accounting_for_tasks.project  
    ADD CONSTRAINT leader FOREIGN KEY (leader) REFERENCES  
accounting_for_tasks.contract(id_contract) NOT VALID;
```

```
--  
-- TOC entry 2767 (class 2606 OID 16483)  
-- Name: project manager; Type: FK CONSTRAINT; Schema:  
accounting_for_tasks; Owner: postgres  
--
```

```
ALTER TABLE ONLY accounting_for_tasks.project  
    ADD CONSTRAINT manager FOREIGN KEY (manager) REFERENCES  
accounting_for_tasks.contract(id_contract) NOT VALID;
```

```
-- Completed on 2023-03-20 10:30:16
```

```
--
```

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

```
--
```

ЗАКЛЮЧЕНИЕ

В ходе лабораторной работы я создала базу данных в pgAdmin 4 на основе логической модели IDEF1X, наложила на определённые поля ограничения в БД, а также создала бэкап БД и произвела её восстановление из созданного бэкапа.