Министерство науки и высшего образования Российской Федерации
Федеральное государственное автономное образовательное
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«НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИТМО»
Факультет инфокоммуникационных технологий

ОТЧЕТ
ПО ЛАБОРАТОРНОЙ РАБОТЕ № 1.2

по теме: Создание таблиц базы данных postgresql. Заполнение таблиц рабочими данными.
по дисциплине: Проектирование и реализация баз данных

Специальность:
09.03.03 Мобильные и сетевые технологии

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ЦЕЛЬ РАБОТЫ

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

ПРАКТИЧЕСКОЕ ЗАДАНИЕ

Оборудование: компьютерный класс.
Программное обеспечение: СУБД PostgreSQL 1X, pgAdmin 4.
Практическое задание:

1. Создать базу данных с использованием pgAdmin 4 (согласно индивидуальному заданию).
2. Создать схему в составе базы данных.
3. Создать таблицы базы данных.
4. Установить ограничения на данные: *Primary Key, Unique, Check, Foreign Key*.
5. Заполнить таблицы БД рабочими данными.
6. Создать резервную копию БД.

Указание:
Создать две резервные копии:

- *с расширением CUSTOM для восстановления БД;*
- *с расширением PLAIN для листинга (в отчете);*
- *при создании резервных копий БД настроить параметры Dump options для Type of objects и Queries.*

1. Восстановить БД.

Вариант 4. БД «Учет выполнения заданий»

Описание предметной области: Сотрудники организации выполняют проекты. Проекты состоят из нескольких заданий. 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 сотрудник. Каждый сотрудник числится в одном отделе.

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. Номер телефона отдела. Номер отдела. Название отдела. Код проекта. Название проекта. Сроки выполнения проекта. Руководитель проекта. Номер задания. Дата начала выполнения задания. Срок выполнения задания. Отметка о выполнении задания. Отметка

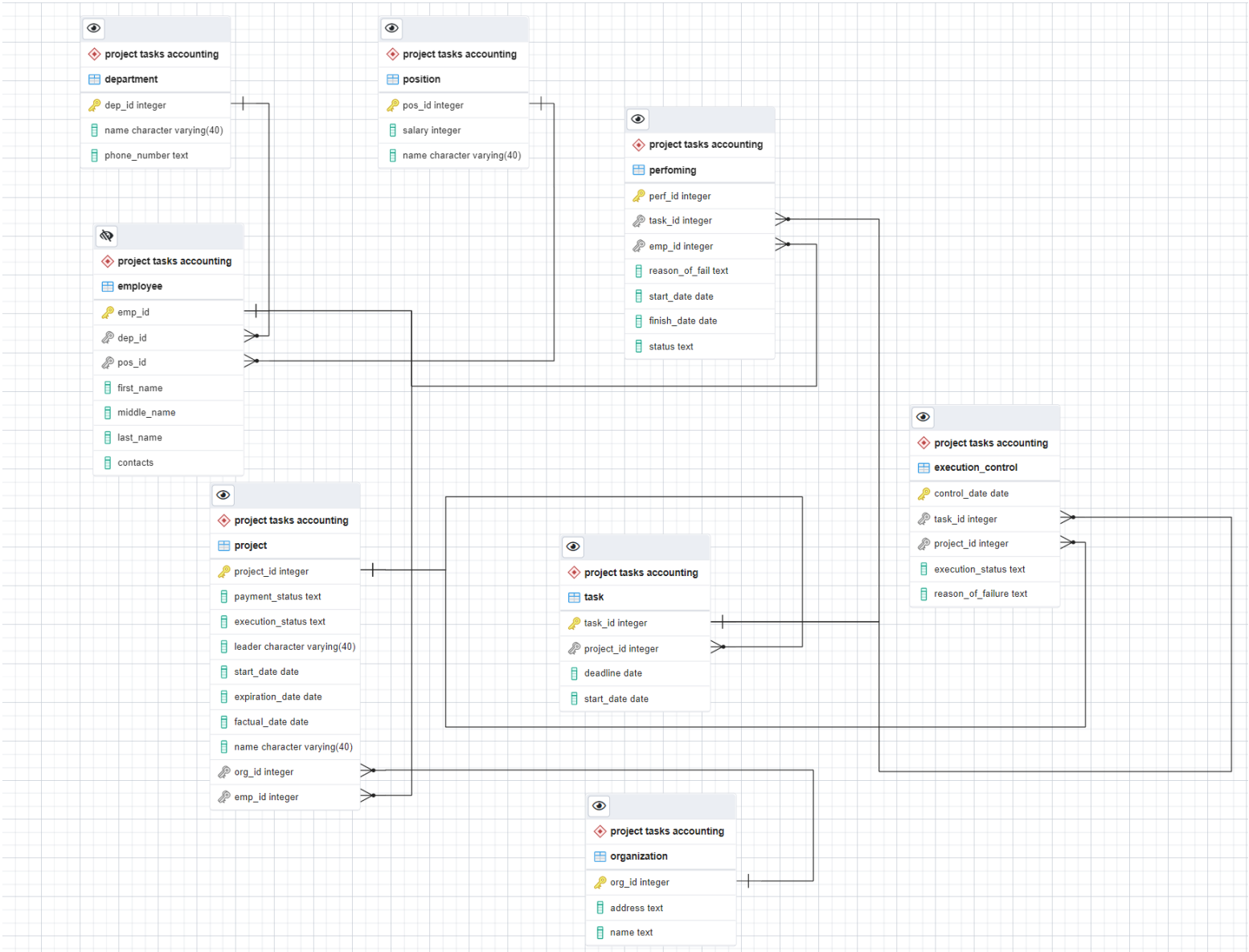
о выполнении задания каждым сотрудником. Дата контроля выполнения задания. Причина невыполнения задания.

ХОД РАБОТЫ

1) Наименование БД:

project tasks accounting

2) Схема логической модели:



3) Dump, содержащий скрипты работы с БД.

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

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

-- Started on 2022-02-26 12:09:40

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 24578)
-- Name: project tasks accounting ; Type: SCHEMA; Schema: -; Owner: postgres
--

CREATE SCHEMA "project tasks accounting ";


ALTER SCHEMA "project tasks accounting " OWNER TO postgres;

SET default_tablespace = '';

SET default_table_access_method = heap;

--
-- TOC entry 214 (class 1259 OID 24621)
-- Name: department; Type: TABLE; Schema: project tasks accounting ; Owner:
    postgres
--

CREATE TABLE "project tasks accounting ".department (
    dep_id integer NOT NULL,
    name character varying(40) NOT NULL,
    phone_number text
);
```

```
ALTER TABLE "project tasks accounting ".department OWNER TO postgres;

--
-- TOC entry 212 (class 1259 OID 24599)
-- Name: employee; Type: TABLE; Schema: project tasks accounting ; Owner:
     postgres
--

CREATE TABLE "project tasks accounting ".employee (
    emp_id integer NOT NULL,
    dep_id integer NOT NULL,
    pos_id integer NOT NULL,
    first_name character(40) NOT NULL,
    middle_name character varying(40),
    last_name character varying(40) NOT NULL,
    contacts text NOT NULL
);


ALTER TABLE "project tasks accounting ".employee OWNER TO postgres;

--
-- TOC entry 216 (class 1259 OID 24641)
-- Name: execution_control; Type: TABLE; Schema: project tasks accounting ;
     Owner: postgres
--

CREATE TABLE "project tasks accounting ".execution_control (
    control_date date NOT NULL,
    task_id integer NOT NULL,
    project_id integer NOT NULL,
    execution_status text NOT NULL,
    reason_of_failure text
);


ALTER TABLE "project tasks accounting ".execution_control OWNER TO postgres;

--
-- TOC entry 211 (class 1259 OID 24587)
```

```
-- Name: organization; Type: TABLE; Schema: project tasks accounting ; Owner:
     postgres
--

CREATE TABLE "project tasks accounting ".organization (
    org_id integer NOT NULL,
    address text NOT NULL,
    name text NOT NULL
);


ALTER TABLE "project tasks accounting ".organization OWNER TO postgres;

--
-- TOC entry 217 (class 1259 OID 24648)
-- Name: perfoming ; Type: TABLE; Schema: project tasks accounting ; Owner:
     postgres
--

CREATE TABLE "project tasks accounting "."perfoming " (
    perf_id integer NOT NULL,
    task_id integer NOT NULL,
    emp_id integer NOT NULL,
    reason_of_fail character varying(40),
    start_date date NOT NULL,
    finish_date date NOT NULL,
    project_id integer NOT NULL,
    status text
);


ALTER TABLE "project tasks accounting "."perfoming " OWNER TO postgres;

--
-- TOC entry 213 (class 1259 OID 24611)
-- Name: position; Type: TABLE; Schema: project tasks accounting ; Owner: postgres
--

CREATE TABLE "project tasks accounting "."position" (
    pos_id integer NOT NULL,
    salary integer NOT NULL,
    name character varying(40) NOT NULL
```

```
);


ALTER TABLE "project tasks accounting "."position" OWNER TO postgres;

--
-- TOC entry 210 (class 1259 OID 24579)
-- Name: project; Type: TABLE; Schema: project tasks accounting ; Owner: postgres
--

CREATE TABLE "project tasks accounting ".project (
    project_id integer NOT NULL,
    payment_status text NOT NULL,
    execution_status text NOT NULL,
    leader character varying(40) NOT NULL,
    start_date date NOT NULL,
    expiration_date date NOT NULL,
    factual_date date,
    name character varying(40) NOT NULL,
    org_id integer NOT NULL,
    emp_id integer NOT NULL
);


ALTER TABLE "project tasks accounting ".project OWNER TO postgres;

--
-- TOC entry 215 (class 1259 OID 24631)
-- Name: task; Type: TABLE; Schema: project tasks accounting ; Owner: postgres
--

CREATE TABLE "project tasks accounting ".task (
    task_id integer NOT NULL,
    project_id integer NOT NULL,
    deadline date NOT NULL,
    start_date date NOT NULL
);


ALTER TABLE "project tasks accounting ".task OWNER TO postgres;

--
```

```
-- TOC entry 3381 (class 0 OID 24621)
-- Dependencies: 214
-- Data for Name: department; Type: TABLE DATA; Schema: project tasks
    accounting ; Owner: postgres
--

COPY "project tasks accounting ".department (dep_id, name, phone_number) FROM
    stdin;
111     Analytics   +79617573850\n
222     Fanance     +79656873730
333     General     +79617456789
\.



--
-- TOC entry 3379 (class 0 OID 24599)
-- Dependencies: 212
-- Data for Name: employee; Type: TABLE DATA; Schema: project tasks accounting
    ; Owner: postgres
--

COPY "project tasks accounting ".employee (emp_id, dep_id, pos_id, first_name,
    middle_name, last_name, contacts) FROM stdin;
1   111 1       Ivan                            Olegovich   Ivanov
            iiiiv@mail.ru
2   222 2       Olga\n                          Danilovna   Zhilina
            zhil@gmail.com\n
3   333 3       Daria\n                         \N      Krasnova    dar@mail.ru,
    +283285
\.



--
-- TOC entry 3383 (class 0 OID 24641)
-- Dependencies: 216
-- Data for Name: execution_control; Type: TABLE DATA; Schema: project tasks
    accounting ; Owner: postgres
--

COPY "project tasks accounting ".execution_control (control_date, task_id,
    project_id, execution_status, reason_of_failure) FROM stdin;
2021-03-01      1       1       Finished        Broke server
```

```
2021-03-20	2	2	In work	\N
2021-05-25	3	2	Processing	\N
\.


--
-- TOC entry 3378 (class 0 OID 24587)
-- Dependencies: 211
-- Data for Name: organization; Type: TABLE DATA; Schema: project tasks
    accounting ; Owner: postgres
--

COPY "project tasks accounting ".organization (org_id, address, name) FROM stdin;
1	St.Petersburg, st. Basseynay, 19Gazprom
2	Moscow, st. Lenina, 11	Adventure
3	Perm, st. Shosseynay, 25 Novomet\n
\.


--
-- TOC entry 3384 (class 0 OID 24648)
-- Dependencies: 217
-- Data for Name: perfoming ; Type: TABLE DATA; Schema: project tasks
    accounting ; Owner: postgres
--

COPY "project tasks accounting "."perfoming " (perf_id, task_id, emp_id,
    reason_of_fail, start_date, finish_date, project_id, status) FROM stdin;
1	1	1	\N	2021-01-17	2021-02-01	1	finished
2	2	2	was ill	2021-03-05	2021-04-23	2	Delayed
3	3	3	\N	2021-05-15	2021-06-01	2	In work
\.


--
-- TOC entry 3380 (class 0 OID 24611)
-- Dependencies: 213
-- Data for Name: position; Type: TABLE DATA; Schema: project tasks accounting ;
    Owner: postgres
--

COPY "project tasks accounting "."position" (pos_id, salary, name) FROM stdin;
```

```
1	75000	Developer
2	120000	Manager
3	45000	Salesman
\.


--
-- TOC entry 3377 (class 0 OID 24579)
-- Dependencies: 210
-- Data for Name: project; Type: TABLE DATA; Schema: project tasks accounting ; Owner: postgres
--

COPY "project tasks accounting ".project (project_id, payment_status, execution_status, leader, start_date, expiration_date, factual_date, name, org_id, emp_id) FROM stdin;
2	Unpaid	finished	Oleg Glyzov	2021-02-13	2021-08-13	2022-02-13	Project "Leader"	2	2
3	In work	Processing	Alex Rubanov	2020-08-03	2022-03-12	\N	"Finance system"	3	3
1	Paid	In work	Maria Bortko	2021-01-11	2022-01-02	\N	Create the game "Future"	1	1
\.


--
-- TOC entry 3382 (class 0 OID 24631)
-- Dependencies: 215
-- Data for Name: task; Type: TABLE DATA; Schema: project tasks accounting ; Owner: postgres
--

COPY "project tasks accounting ".task (task_id, project_id, deadline, start_date) FROM stdin;
1	1	2021-03-15	2021-01-15
2	2	2021-04-23	2021-02-20
3	2	2021-06-25	2021-04-25
\.


--
-- TOC entry 3211 (class 2606 OID 24593)
```

```
-- Name: organization Organization_pkey; Type: CONSTRAINT; Schema: project
     tasks accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".organization
    ADD CONSTRAINT "Organization_pkey" PRIMARY KEY (org_id);



--
-- TOC entry 3201 (class 2606 OID 24702)
-- Name: department chk_dep_id; Type: CHECK CONSTRAINT; Schema: project
     tasks accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting ".department
    ADD CONSTRAINT chk_dep_id CHECK ((dep_id > 0)) NOT VALID;



--
-- TOC entry 3198 (class 2606 OID 24696)
-- Name: employee chk_emp_id; Type: CHECK CONSTRAINT; Schema: project
     tasks accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting ".employee
    ADD CONSTRAINT chk_emp_id CHECK ((emp_id > 0)) NOT VALID;



--
-- TOC entry 3192 (class 2606 OID 24695)
-- Name: project chk_execution_status; Type: CHECK CONSTRAINT; Schema:
     project tasks accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting ".project
    ADD CONSTRAINT chk_execution_status CHECK ((execution_status = ANY
     (ARRAY['In work'::text, 'in work'::text, 'Finished'::text, 'finished'::text,
     'Suspended'::text, 'suspended'::text, 'Processing'::text, 'processing'::text,
     'Canceled'::text, 'canceled'::text]))) NOT VALID;



--
```

```
-- TOC entry 3204 (class 2606 OID 24713)
-- Name: execution_control chk_execution_status; Type: CHECK CONSTRAINT;
     Schema: project tasks accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting ".execution_control
    ADD CONSTRAINT chk_execution_status CHECK ((execution_status = ANY
     (ARRAY['In work'::text, 'in work'::text, 'Finished'::text, 'finished'::text,
     'Suspended'::text, 'suspended'::text, 'Processing'::text, 'processing'::text,
     'Canceled'::text, 'canceled'::text]))) NOT VALID;



--
-- TOC entry 3197 (class 2606 OID 24699)
-- Name: organization chk_org_id; Type: CHECK CONSTRAINT; Schema: project
     tasks accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting ".organization
    ADD CONSTRAINT chk_org_id CHECK ((org_id > 0)) NOT VALID;



--
-- TOC entry 3193 (class 2606 OID 24759)
-- Name: project chk_payment_status; Type: CHECK CONSTRAINT; Schema:
     project tasks accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting ".project
    ADD CONSTRAINT chk_payment_status CHECK ((payment_status = ANY
     (ARRAY['Paid'::text, 'paid'::text, 'In work'::text, 'in work'::text, 'Unpaid'::text,
     'unpaid'::text]))) NOT VALID;



--
-- TOC entry 3205 (class 2606 OID 24704)
-- Name: perfoming  chk_perf_id; Type: CHECK CONSTRAINT; Schema: project
     tasks accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting "."perfoming "
    ADD CONSTRAINT chk_perf_id CHECK ((perf_id > 0)) NOT VALID;
```

```
--
-- TOC entry 3199 (class 2606 OID 24700)
-- Name: position chk_pos_id; Type: CHECK CONSTRAINT; Schema: project tasks
     accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting "."position"
    ADD CONSTRAINT chk_pos_id CHECK ((pos_id > 0)) NOT VALID;



--
-- TOC entry 3194 (class 2606 OID 24586)
-- Name: project chk_project_id; Type: CHECK CONSTRAINT; Schema: project
     tasks accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting ".project
    ADD CONSTRAINT chk_project_id CHECK ((project_id > 0)) NOT VALID;



--
-- TOC entry 3200 (class 2606 OID 24701)
-- Name: position chk_salary; Type: CHECK CONSTRAINT; Schema: project tasks
     accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting "."position"
    ADD CONSTRAINT chk_salary CHECK ((salary > 0)) NOT VALID;



--
-- TOC entry 3202 (class 2606 OID 24698)
-- Name: task chk_start_date; Type: CHECK CONSTRAINT; Schema: project tasks
     accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting ".task
    ADD CONSTRAINT chk_start_date CHECK ((start_date < deadline)) NOT
     VALID;
```

```
--
-- TOC entry 3195 (class 2606 OID 24678)
-- Name: project chk_start_date1; Type: CHECK CONSTRAINT; Schema: project
     tasks accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting ".project
    ADD CONSTRAINT chk_start_date1 CHECK ((start_date < factual_date)) NOT
     VALID;



--
-- TOC entry 3196 (class 2606 OID 24679)
-- Name: project chk_start_date2; Type: CHECK CONSTRAINT; Schema: project
     tasks accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting ".project
    ADD CONSTRAINT chk_start_date2 CHECK ((start_date < expiration_date))
     NOT VALID;



--
-- TOC entry 3206 (class 2606 OID 24764)
-- Name: perfoming  chk_status; Type: CHECK CONSTRAINT; Schema: project
     tasks accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting "."perfoming "
    ADD CONSTRAINT chk_status CHECK ((status = ANY (ARRAY['In work'::text,
     'in work'::text, 'finished'::text, 'Finished'::text, 'delayed'::text, 'Delayed'::text])))
     NOT VALID;



--
-- TOC entry 3203 (class 2606 OID 24697)
-- Name: task chk_task_id; Type: CHECK CONSTRAINT; Schema: project tasks
     accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting ".task
```

```
    ADD CONSTRAINT chk_task_id CHECK ((task_id > 0)) NOT VALID;


--
-- TOC entry 3221 (class 2606 OID 24761)
-- Name: execution_control chk_uniq_date_and_task; Type: CONSTRAINT; Schema:
     project tasks accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".execution_control
    ADD CONSTRAINT chk_uniq_date_and_task UNIQUE (control_date, task_id);



--
-- TOC entry 3225 (class 2606 OID 24766)
-- Name: perfoming  chk_unique; Type: CONSTRAINT; Schema: project tasks
     accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting "."perfoming "
    ADD CONSTRAINT chk_unique UNIQUE (task_id, emp_id);



--
-- TOC entry 3217 (class 2606 OID 24625)
-- Name: department department_pkey; Type: CONSTRAINT; Schema: project tasks
     accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".department
    ADD CONSTRAINT department_pkey PRIMARY KEY (dep_id);



--
-- TOC entry 3213 (class 2606 OID 24605)
-- Name: employee employee_pkey; Type: CONSTRAINT; Schema: project tasks
     accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".employee
    ADD CONSTRAINT employee_pkey PRIMARY KEY (emp_id);
```

```
--
-- TOC entry 3223 (class 2606 OID 24647)
-- Name: execution_control execution_control_pkey; Type: CONSTRAINT; Schema:
     project tasks accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".execution_control
    ADD CONSTRAINT execution_control_pkey PRIMARY KEY (control_date);



--
-- TOC entry 3227 (class 2606 OID 24652)
-- Name: perfoming  perfoming _pkey; Type: CONSTRAINT; Schema: project tasks
     accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting "."perfoming "
    ADD CONSTRAINT "perfoming _pkey" PRIMARY KEY (perf_id);



--
-- TOC entry 3207 (class 2606 OID 24705)
-- Name: perfoming  permoning _check; Type: CHECK CONSTRAINT; Schema:
     project tasks accounting ; Owner: postgres
--

ALTER TABLE "project tasks accounting "."perfoming "
    ADD CONSTRAINT "permoning _check" CHECK ((start_date < finish_date))
     NOT VALID;



--
-- TOC entry 3215 (class 2606 OID 24615)
-- Name: position position_pkey; Type: CONSTRAINT; Schema: project tasks
     accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting "."position"
    ADD CONSTRAINT position_pkey PRIMARY KEY (pos_id);
```

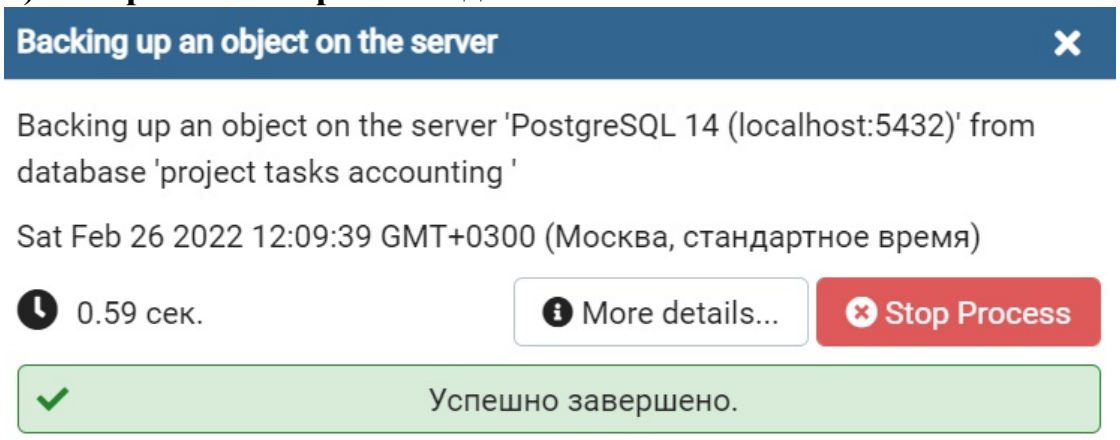
```
--
-- TOC entry 3209 (class 2606 OID 24585)
-- Name: project project_pkey; Type: CONSTRAINT; Schema: project tasks
     accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".project
    ADD CONSTRAINT project_pkey PRIMARY KEY (project_id);



--
-- TOC entry 3219 (class 2606 OID 24635)
-- Name: task task_pkey; Type: CONSTRAINT; Schema: project tasks accounting ;
     Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".task
    ADD CONSTRAINT task_pkey PRIMARY KEY (task_id);



--
-- TOC entry 3229 (class 2606 OID 24606)
-- Name: project emp_id; Type: FK CONSTRAINT; Schema: project tasks
     accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".project
    ADD CONSTRAINT emp_id FOREIGN KEY (emp_id) REFERENCES "project
     tasks accounting ".employee(emp_id) NOT VALID;



--
-- TOC entry 3231 (class 2606 OID 24626)
-- Name: employee employee_dep_id_fkey; Type: FK CONSTRAINT; Schema:
     project tasks accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".employee
    ADD CONSTRAINT employee_dep_id_fkey FOREIGN KEY (dep_id)
     REFERENCES "project tasks accounting ".department(dep_id) NOT VALID;
```

```
--
-- TOC entry 3230 (class 2606 OID 24616)
-- Name: employee employee_pos_id_fkey; Type: FK CONSTRAINT; Schema:
    project tasks accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".employee
   ADD CONSTRAINT employee_pos_id_fkey FOREIGN KEY (pos_id)
    REFERENCES "project tasks accounting "."position"(pos_id) NOT VALID;



--
-- TOC entry 3234 (class 2606 OID 24658)
-- Name: execution_control execution_control_project_id_fkey; Type: FK
    CONSTRAINT; Schema: project tasks accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".execution_control
   ADD CONSTRAINT execution_control_project_id_fkey FOREIGN KEY
    (project_id) REFERENCES "project tasks accounting ".project(project_id) NOT
    VALID;



--
-- TOC entry 3233 (class 2606 OID 24653)
-- Name: execution_control execution_control_task_id_fkey; Type: FK
    CONSTRAINT; Schema: project tasks accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".execution_control
   ADD CONSTRAINT execution_control_task_id_fkey FOREIGN KEY (task_id)
    REFERENCES "project tasks accounting ".task(task_id) NOT VALID;



--
-- TOC entry 3228 (class 2606 OID 24594)
-- Name: project org_id; Type: FK CONSTRAINT; Schema: project tasks accounting
    ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting ".project
```

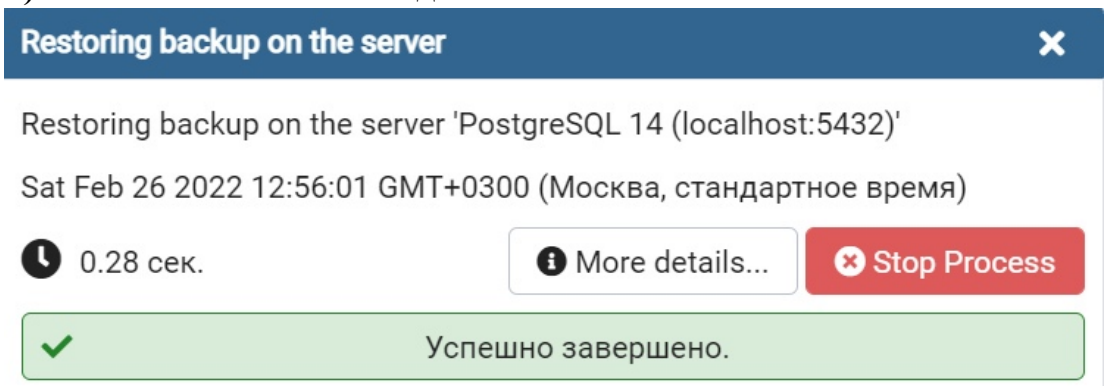
```
    ADD CONSTRAINT org_id FOREIGN KEY (org_id) REFERENCES "project
     tasks accounting ".organization(org_id) NOT VALID;


--
-- TOC entry 3236 (class 2606 OID 24668)
-- Name: perfoming  permoning _emp_id_fkey; Type: FK CONSTRAINT; Schema:
     project tasks accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting "."perfoming "
    ADD CONSTRAINT "permoning _emp_id_fkey" FOREIGN KEY (emp_id)
     REFERENCES "project tasks accounting ".employee(emp_id) NOT VALID;


--
-- TOC entry 3237 (class 2606 OID 24673)
-- Name: perfoming  permoning _project_id_fkey; Type: FK CONSTRAINT;
     Schema: project tasks accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting "."perfoming "
    ADD CONSTRAINT "permoning _project_id_fkey" FOREIGN KEY (project_id)
     REFERENCES "project tasks accounting ".project(project_id) NOT VALID;


--
-- TOC entry 3235 (class 2606 OID 24663)
-- Name: perfoming  permoning _task_id_fkey; Type: FK CONSTRAINT; Schema:
     project tasks accounting ; Owner: postgres
--

ALTER TABLE ONLY "project tasks accounting "."perfoming "
    ADD CONSTRAINT "permoning _task_id_fkey" FOREIGN KEY (task_id)
     REFERENCES "project tasks accounting ".task(task_id) NOT VALID;


--
-- TOC entry 3232 (class 2606 OID 24636)
-- Name: task task_project_id_fkey; Type: FK CONSTRAINT; Schema: project tasks
     accounting ; Owner: postgres
--
```

```
ALTER TABLE ONLY "project tasks accounting ".task
    ADD CONSTRAINT task_project_id_fkey FOREIGN KEY (project_id)
     REFERENCES "project tasks accounting ".project(project_id) NOT VALID;


-- Completed on 2022-02-26 12:09:40

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

4) Резервное копирование данных



5) Восстановление базы данных



Вывод:

В ходе выполнения работы была создана база данных в PostgreSQL, созданы таблицы и ограничения на значение столбцов, в базу данных были занесены рабочие данные, а также была создана логическая модель базы данных и dump. Программа pgAdmin позволяет создавать базы данных на высоком уровне: либо напрямую посредством взаимодействия с ее GUI, или же через работу на

встроенном генераторе ER диаграмм. Однако, каким способом диаграмма не была создана, всегда сохраняется возможность увидеть какими SQL командами была создана диаграмма. Видеть код, создаваемый нажатием кнопки в интерфейсе, оказалось полезным для нахождения ошибок и общего понимания работы программы.