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

Отчет

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

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

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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.

Вариант 7. БД «Курсы»

Описание предметной области: Сеть учебных подразделений НОУ ДПО занимается организацией внебюджетного образования.

Имеется несколько образовательных программ краткосрочных курсов, предназначенных для определенных специальностей, связанных с программным обеспечением ИТ. Каждый программа имеет определенную длительность и свой перечень изучаемых дисциплин. Одна дисциплина может относиться к нескольким программам. На каждую программу может быть набрано несколько групп обучающихся.

По каждой дисциплине могут проводиться лекционные, лабораторные/практические занятия и практика определенном объеме часов. По каждой дисциплине и практике проводится аттестация в формате экзамен/дифзачет/зачет.

Необходимо хранить информацию по аттестации обучающихся.

Подразделение обеспечивает следующие ресурсы: учебные классы, лекционные аудитории и преподавателей. Необходимо составить расписание занятий.

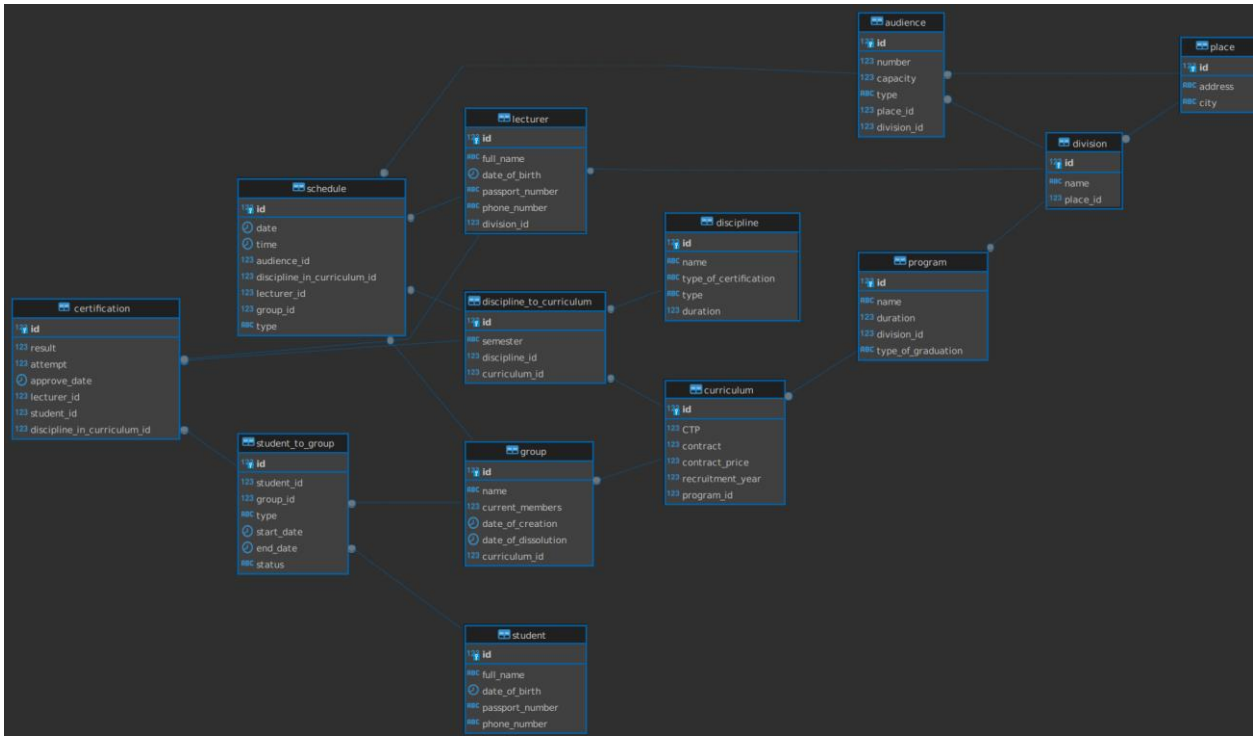
БД должна содержать следующий минимальный набор сведений: Фамилия слушателя. Имя слушателя. Паспортные данные. Контакты. Код программы. Программа. Тип программы. Объем часов. Номер группы. максимальное количество человек в группе (для набора). Дата начала обучения. Дата окончания обучения. Название дисциплины. Количество часов. Дата занятий. Номер пары. Номер аудитории. Тип аудитории. Адрес площадки. Вид занятий (лекционные, практические или лабораторные). Фамилия

преподавателя. Имя и отчество преподавателя. Должность преподавателя. Дисциплины, которые может вести преподаватель.

Выполнение

Название создаваемой БД – «Курсы»

Схема логической модели базы данны, сгенерированная с помощью ERD



Листинг

```
--

-- PostgreSQL database dump

--


-- Dumped from database version 15.5 (Ubuntu 15.5-1.pgdg22.04+1)

-- Dumped by pg_dump version 16.1 (Ubuntu 16.1-1.pgdg22.04+1)


-- Started on 2024-01-18 14:41:04 MSK
```

```
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 2200)

-- Name: public; Type: SCHEMA; Schema: -; Owner: pg_database_owner

--


CREATE SCHEMA public;




ALTER SCHEMA public OWNER TO pg_database_owner;


--

-- TOC entry 3541 (class 0 OID 0)

-- Dependencies: 4

-- Name: SCHEMA public; Type: COMMENT; Schema: -; Owner: pg_database_owner

--


COMMENT ON SCHEMA public IS 'standard public schema';
```

```
--
-- TOC entry 866 (class 1247 OID 62946)
-- Name: audiencetype; Type: TYPE; Schema: public; Owner: postgres
--

CREATE TYPE public.audiencetype AS ENUM (
    'lecture',
    'academic',
    'laboratory',
    'computer_lab'
);


ALTER TYPE public.audiencetype OWNER TO postgres;

--
-- TOC entry 869 (class 1247 OID 41988)
-- Name: disciplinetoprogramattestationtype; Type: TYPE; Schema: public; Owner: postgres
--

CREATE TYPE public.disciplinetoprogramattestationtype AS ENUM (
    'exam',
    'zachet'
);


ALTER TYPE public.disciplinetoprogramattestationtype OWNER TO postgres;
```

```
--
-- TOC entry 863 (class 1247 OID 62938)
-- Name: disciplinetype; Type: TYPE; Schema: public; Owner: postgres
--

CREATE TYPE public.disciplinetype AS ENUM (
    'lecture',
    'practice',
    'lab'
);


ALTER TYPE public.disciplinetype OWNER TO postgres;

--
-- TOC entry 872 (class 1247 OID 62956)
-- Name: programtypeofgraduation; Type: TYPE; Schema: public; Owner: postgres
--

CREATE TYPE public.programtypeofgraduation AS ENUM (
    'bachelor',
    'master'
);


ALTER TYPE public.programtypeofgraduation OWNER TO postgres;

--
-- TOC entry 881 (class 1247 OID 62976)
```

```
-- Name: scheduletypeenum; Type: TYPE; Schema: public; Owner: postgres
--

CREATE TYPE public.scheduletypeenum AS ENUM (
    'lecture',
    'practice',
    'lab'
);


ALTER TYPE public.scheduletypeenum OWNER TO postgres;

--
-- TOC entry 878 (class 1247 OID 62968)
-- Name: studenttogroupstatus; Type: TYPE; Schema: public; Owner: postgres
--

CREATE TYPE public.studenttogroupstatus AS ENUM (
    'studying',
    'expelled',
    'graduated'
);


ALTER TYPE public.studenttogroupstatus OWNER TO postgres;

--
-- TOC entry 875 (class 1247 OID 62962)
-- Name: studenttogrouptype; Type: TYPE; Schema: public; Owner: postgres
```

```
--


CREATE TYPE public.studenttogrouptype AS ENUM (
    'tuition_free',
    'contract'
);



ALTER TYPE public.studenttogrouptype OWNER TO postgres;


--
-- TOC entry 251 (class 1255 OID 60413)
-- Name: get_schedule_for_group_on_day(character varying, character varying); Type: FUNCTION; Schema: public; Owner: postgres
--


CREATE FUNCTION public.get_schedule_for_group_on_day(group_name character varying, schedule_day character varying) RETURNS TABLE(schedule_id integer, lesson_date date, lesson_time time without time zone, audience_number integer, discipline_name character varying, lecturer_name character varying)
    LANGUAGE plpgsql
    AS $$
BEGIN
    RETURN QUERY
    SELECT
        s.id AS schedule_id,
        s.date AS lesson_date,
        s."time" AS lesson_time,
        a."number" AS audience_number,
        d.name AS discipline_name,
```

```
    l.full_name AS lecturer_name
  FROM
    public.schedule s
  JOIN
    public."group" g ON s.group_id = g.id
  JOIN
    public.audience a ON s.audience_id = a.id
  JOIN
    public.discipline_to_curriculum dc ON s.discipline_in_curriculum_id = dc.id
  JOIN
    public.discipline d ON dc.discipline_id = d.id
  JOIN
    public.lecturer l ON s.lecturer_id = l.id
  WHERE
    g.name = group_name
    AND EXTRACT(DOW FROM s.date) = CASE
                                     WHEN schedule_day = 'Понедельник' THEN 1
                                     WHEN schedule_day = 'Вторник' THEN 2
                                     WHEN schedule_day = 'Среда' THEN 3
                                     WHEN schedule_day = 'Четверг' THEN 4
                                     WHEN schedule_day = 'Пятница' THEN 5
                                     WHEN schedule_day = 'Суббота' THEN 6
                                     WHEN schedule_day = 'Воскресенье' THEN 0
                                   END;
END;
$$;
```

```
ALTER FUNCTION public.get_schedule_for_group_on_day(group_name character varying, schedule_day
character varying) OWNER TO postgres;


SET default_tablespace = '';


SET default_table_access_method = heap;


--

-- TOC entry 223 (class 1259 OID 63023)

-- Name: audience; Type: TABLE; Schema: public; Owner: postgres

--


CREATE TABLE public.audience (

    id integer NOT NULL,

    number integer NOT NULL,

    capacity integer NOT NULL,

    type public.audiencetype NOT NULL,

    place_id integer NOT NULL,

    division_id integer NOT NULL

);



ALTER TABLE public.audience OWNER TO postgres;


--

-- TOC entry 222 (class 1259 OID 63022)

-- Name: audience_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres

--
```

```
CREATE SEQUENCE public.audience_id_seq
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER SEQUENCE public.audience_id_seq OWNER TO postgres;

--
-- TOC entry 3542 (class 0 OID 0)
-- Dependencies: 222
-- Name: audience_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner: postgres
--

ALTER SEQUENCE public.audience_id_seq OWNED BY public.audience.id;


--
-- TOC entry 239 (class 1259 OID 63149)
-- Name: certification; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.certification (
    id integer NOT NULL,
    result integer NOT NULL,
    attempt integer NOT NULL,
```

```
    approve_date timestamp without time zone NOT NULL,
    lecturer_id integer NOT NULL,
    student_id integer NOT NULL,
    discipline_in_curriculum_id integer NOT NULL
);


ALTER TABLE public.certification OWNER TO postgres;

--
-- TOC entry 238 (class 1259 OID 63148)
-- Name: certification_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres
--

CREATE SEQUENCE public.certification_id_seq
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER SEQUENCE public.certification_id_seq OWNER TO postgres;

--
-- TOC entry 3543 (class 0 OID 0)
-- Dependencies: 238
-- Name: certification_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner: postgres
```

```
--

ALTER SEQUENCE public.certification_id_seq OWNED BY public.certification.id;


--
-- TOC entry 229 (class 1259 OID 63064)
-- Name: curriculum; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.curriculum (
    id integer NOT NULL,
    "CTP" integer NOT NULL,
    contract integer NOT NULL,
    contract_price integer NOT NULL,
    recruitment_year integer NOT NULL,
    program_id integer NOT NULL
);


ALTER TABLE public.curriculum OWNER TO postgres;

--
-- TOC entry 228 (class 1259 OID 63063)
-- Name: curriculum_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres
--

CREATE SEQUENCE public.curriculum_id_seq
    AS integer
```

```
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER SEQUENCE public.curriculum_id_seq OWNER TO postgres;

--
-- TOC entry 3544 (class 0 OID 0)
-- Dependencies: 228
-- Name: curriculum_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner: postgres
--

ALTER SEQUENCE public.curriculum_id_seq OWNED BY public.curriculum.id;


--
-- TOC entry 217 (class 1259 OID 62995)
-- Name: discipline; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.discipline (
    id integer NOT NULL,
    name character varying(50) NOT NULL,
    type_of_certification character varying NOT NULL,
    type public.disciplinetype NOT NULL,
    duration integer NOT NULL
```

```
);


ALTER TABLE public.discipline OWNER TO postgres;

--
-- TOC entry 216 (class 1259 OID 62994)
-- Name: discipline_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres
--

CREATE SEQUENCE public.discipline_id_seq
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER SEQUENCE public.discipline_id_seq OWNER TO postgres;

--
-- TOC entry 3545 (class 0 OID 0)
-- Dependencies: 216
-- Name: discipline_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner: postgres
--

ALTER SEQUENCE public.discipline_id_seq OWNED BY public.discipline.id;
```

```
--
-- TOC entry 231 (class 1259 OID 63076)
-- Name: discipline_to_curriculum; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.discipline_to_curriculum (
    id integer NOT NULL,
    semester character varying(8) NOT NULL,
    discipline_id integer NOT NULL,
    curriculum_id integer NOT NULL
);


ALTER TABLE public.discipline_to_curriculum OWNER TO postgres;

--
-- TOC entry 230 (class 1259 OID 63075)
-- Name: discipline_to_curriculum_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres
--

CREATE SEQUENCE public.discipline_to_curriculum_id_seq
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;
```

```
ALTER SEQUENCE public.discipline_to_curriculum_id_seq OWNER TO postgres;


--

-- TOC entry 3546 (class 0 OID 0)

-- Dependencies: 230

-- Name: discipline_to_curriculum_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner:
postgres

--


ALTER SEQUENCE public.discipline_to_curriculum_id_seq OWNED BY public.discipline_to_curriculum.id;




--

-- TOC entry 221 (class 1259 OID 63011)

-- Name: division; Type: TABLE; Schema: public; Owner: postgres

--


CREATE TABLE public.division (

   id integer NOT NULL,

   name character varying(50) NOT NULL,

   place_id integer NOT NULL

);



ALTER TABLE public.division OWNER TO postgres;


--

-- TOC entry 220 (class 1259 OID 63010)
```

```
-- Name: division_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres
--

CREATE SEQUENCE public.division_id_seq
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER SEQUENCE public.division_id_seq OWNER TO postgres;

--
-- TOC entry 3547 (class 0 OID 0)
-- Dependencies: 220
-- Name: division_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner: postgres
--

ALTER SEQUENCE public.division_id_seq OWNED BY public.division.id;


--
-- TOC entry 233 (class 1259 OID 63093)
-- Name: group; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public."group" (
```

```
    id integer NOT NULL,
    name character varying(50) NOT NULL,
    current_members integer NOT NULL,
    date_of_creation date NOT NULL,
    date_of_dissolution date,
    curriculum_id integer NOT NULL
);


ALTER TABLE public."group" OWNER TO postgres;

--
-- TOC entry 232 (class 1259 OID 63092)
-- Name: group_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres
--

CREATE SEQUENCE public.group_id_seq
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER SEQUENCE public.group_id_seq OWNER TO postgres;

--
-- TOC entry 3548 (class 0 OID 0)
```

```
-- Dependencies: 232
-- Name: group_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner: postgres
--

ALTER SEQUENCE public.group_id_seq OWNED BY public."group".id;



--
-- TOC entry 227 (class 1259 OID 63052)
-- Name: lecturer; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.lecturer (
    id integer NOT NULL,
    full_name character varying(50) NOT NULL,
    date_of_birth date NOT NULL,
    passport_number character varying(10) NOT NULL,
    phone_number character varying(15) NOT NULL,
    division_id integer NOT NULL
);


ALTER TABLE public.lecturer OWNER TO postgres;

--
-- TOC entry 226 (class 1259 OID 63051)
-- Name: lecturer_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres
--
```

```
CREATE SEQUENCE public.lecturer_id_seq
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER SEQUENCE public.lecturer_id_seq OWNER TO postgres;

--
-- TOC entry 3549 (class 0 OID 0)
-- Dependencies: 226
-- Name: lecturer_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner: postgres
--

ALTER SEQUENCE public.lecturer_id_seq OWNED BY public.lecturer.id;


--
-- TOC entry 219 (class 1259 OID 63004)
-- Name: place; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.place (
    id integer NOT NULL,
    address character varying(50) NOT NULL,
    city character varying(50) NOT NULL
```

```
);


ALTER TABLE public.place OWNER TO postgres;


--
-- TOC entry 218 (class 1259 OID 63003)
-- Name: place_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres
--


CREATE SEQUENCE public.place_id_seq
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;



ALTER SEQUENCE public.place_id_seq OWNER TO postgres;


--
-- TOC entry 3550 (class 0 OID 0)
-- Dependencies: 218
-- Name: place_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner: postgres
--


ALTER SEQUENCE public.place_id_seq OWNED BY public.place.id;
```

```
--
-- TOC entry 225 (class 1259 OID 63040)
-- Name: program; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.program (
    id integer NOT NULL,
    name character varying(50) NOT NULL,
    duration integer NOT NULL,
    division_id integer NOT NULL,
    type_of_graduation public.programtypeofgraduation NOT NULL
);


ALTER TABLE public.program OWNER TO postgres;

--
-- TOC entry 224 (class 1259 OID 63039)
-- Name: program_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres
--

CREATE SEQUENCE public.program_id_seq
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;
```

```
ALTER SEQUENCE public.program_id_seq OWNER TO postgres;


--
-- TOC entry 3551 (class 0 OID 0)
-- Dependencies: 224
-- Name: program_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner: postgres
--

ALTER SEQUENCE public.program_id_seq OWNED BY public.program.id;



--
-- TOC entry 237 (class 1259 OID 63122)
-- Name: schedule; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.schedule (
    id integer NOT NULL,
    date date NOT NULL,
    "time" time without time zone NOT NULL,
    audience_id integer NOT NULL,
    discipline_in_curriculum_id integer NOT NULL,
    lecturer_id integer NOT NULL,
    group_id integer NOT NULL,
    type public.scheduletypeenum NOT NULL
);
```

```
ALTER TABLE public.schedule OWNER TO postgres;

--
-- TOC entry 236 (class 1259 OID 63121)
-- Name: schedule_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres
--

CREATE SEQUENCE public.schedule_id_seq
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;


ALTER SEQUENCE public.schedule_id_seq OWNER TO postgres;

--
-- TOC entry 3552 (class 0 OID 0)
-- Dependencies: 236
-- Name: schedule_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner: postgres
--

ALTER SEQUENCE public.schedule_id_seq OWNED BY public.schedule.id;


--
```

```
-- TOC entry 215 (class 1259 OID 62984)
-- Name: student; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.student (
    id integer NOT NULL,
    full_name character varying(50) NOT NULL,
    date_of_birth date NOT NULL,
    passport_number character varying(10) NOT NULL,
    phone_number character varying(15) NOT NULL,
    CONSTRAINT check_passport_number CHECK (regexp_like((passport_number)::text, '^\d{10}$'::text)),
    CONSTRAINT check_phone_number CHECK (regexp_like((phone_number)::text, '^\+7\d{10}$'::text))
);


ALTER TABLE public.student OWNER TO postgres;

--
-- TOC entry 214 (class 1259 OID 62983)
-- Name: student_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres
--

CREATE SEQUENCE public.student_id_seq
    AS integer
    START WITH 1
    INCREMENT BY 1
    NO MINVALUE
    NO MAXVALUE
    CACHE 1;
```

```
ALTER SEQUENCE public.student_id_seq OWNER TO postgres;


--
-- TOC entry 3553 (class 0 OID 0)
-- Dependencies: 214
-- Name: student_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner: postgres
--

ALTER SEQUENCE public.student_id_seq OWNED BY public.student.id;



--
-- TOC entry 235 (class 1259 OID 63105)
-- Name: student_to_group; Type: TABLE; Schema: public; Owner: postgres
--

CREATE TABLE public.student_to_group (
    id integer NOT NULL,
    student_id integer NOT NULL,
    group_id integer NOT NULL,
    type public.studenttogrouptype NOT NULL,
    start_date date NOT NULL,
    end_date date,
    status public.studenttogroupstatus NOT NULL
);
```

```
ALTER TABLE public.student_to_group OWNER TO postgres;


--

-- TOC entry 234 (class 1259 OID 63104)

-- Name: student_to_group_id_seq; Type: SEQUENCE; Schema: public; Owner: postgres

--


CREATE SEQUENCE public.student_to_group_id_seq

    AS integer

    START WITH 1

    INCREMENT BY 1

    NO MINVALUE

    NO MAXVALUE

    CACHE 1;



ALTER SEQUENCE public.student_to_group_id_seq OWNER TO postgres;


--

-- TOC entry 3554 (class 0 OID 0)

-- Dependencies: 234

-- Name: student_to_group_id_seq; Type: SEQUENCE OWNED BY; Schema: public; Owner: postgres

--


ALTER SEQUENCE public.student_to_group_id_seq OWNED BY public.student_to_group.id;



--

-- TOC entry 3311 (class 2604 OID 63026)
```

```
-- Name: audience id; Type: DEFAULT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.audience ALTER COLUMN id SET DEFAULT
nextval('public.audience_id_seq'::regclass);




--

-- TOC entry 3319 (class 2604 OID 63152)

-- Name: certification id; Type: DEFAULT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.certification ALTER COLUMN id SET DEFAULT
nextval('public.certification_id_seq'::regclass);




--

-- TOC entry 3314 (class 2604 OID 63067)

-- Name: curriculum id; Type: DEFAULT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.curriculum ALTER COLUMN id SET DEFAULT
nextval('public.curriculum_id_seq'::regclass);




--

-- TOC entry 3308 (class 2604 OID 62998)

-- Name: discipline id; Type: DEFAULT; Schema: public; Owner: postgres

--
```

```
ALTER TABLE ONLY public.discipline ALTER COLUMN id SET DEFAULT
nextval('public.discipline_id_seq'::regclass);



--

-- TOC entry 3315 (class 2604 OID 63079)

-- Name: discipline_to_curriculum id; Type: DEFAULT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.discipline_to_curriculum ALTER COLUMN id SET DEFAULT
nextval('public.discipline_to_curriculum_id_seq'::regclass);



--

-- TOC entry 3310 (class 2604 OID 63014)

-- Name: division id; Type: DEFAULT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.division ALTER COLUMN id SET DEFAULT
nextval('public.division_id_seq'::regclass);



--

-- TOC entry 3316 (class 2604 OID 63096)

-- Name: group id; Type: DEFAULT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public."group" ALTER COLUMN id SET DEFAULT
nextval('public.group_id_seq'::regclass);
```

--

-- TOC entry 3313 (class 2604 OID 63055)

-- Name: lecturer id; Type: DEFAULT; Schema: public; Owner: postgres

--

```
ALTER TABLE ONLY public.lecturer ALTER COLUMN id SET DEFAULT
nextval('public.lecturer_id_seq'::regclass);
```

--

-- TOC entry 3309 (class 2604 OID 63007)

-- Name: place id; Type: DEFAULT; Schema: public; Owner: postgres

--

```
ALTER TABLE ONLY public.place ALTER COLUMN id SET DEFAULT nextval('public.place_id_seq'::regclass);
```

--

-- TOC entry 3312 (class 2604 OID 63043)

-- Name: program id; Type: DEFAULT; Schema: public; Owner: postgres

--

```
ALTER TABLE ONLY public.program ALTER COLUMN id SET DEFAULT
nextval('public.program_id_seq'::regclass);
```

--

-- TOC entry 3318 (class 2604 OID 63125)

```
-- Name: schedule id; Type: DEFAULT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.schedule ALTER COLUMN id SET DEFAULT
nextval('public.schedule_id_seq'::regclass);




--

-- TOC entry 3307 (class 2604 OID 62987)

-- Name: student id; Type: DEFAULT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.student ALTER COLUMN id SET DEFAULT
nextval('public.student_id_seq'::regclass);




--

-- TOC entry 3317 (class 2604 OID 63108)

-- Name: student_to_group id; Type: DEFAULT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.student_to_group ALTER COLUMN id SET DEFAULT
nextval('public.student_to_group_id_seq'::regclass);




--

-- TOC entry 3519 (class 0 OID 63023)

-- Dependencies: 223

-- Data for Name: audience; Type: TABLE DATA; Schema: public; Owner: postgres

--
```

COPY public.audience (id, number, capacity, type, place_id, division_id) FROM stdin;

1 1 100 computer_lab 1 1

2 2 200 computer_lab 2 2

3 3 50 computer_lab 3 3

4 4 300 computer_lab 4 4

5 5 152 lecture 5 5

\.

--

-- TOC entry 3535 (class 0 OID 63149)

-- Dependencies: 239

-- Data for Name: certification; Type: TABLE DATA; Schema: public; Owner: postgres

--

COPY public.certification (id, result, attempt, approve_date, lecturer_id, student_id, discipline_in_curriculum_id) FROM stdin;

1 5 1 2024-01-18 14:06:16.01813 1 1 1

2 5 1 2024-01-18 14:06:16.01813 2 2 2

3 5 1 2024-01-18 14:06:16.01813 3 3 3

\.

--

-- TOC entry 3525 (class 0 OID 63064)

-- Dependencies: 229

-- Data for Name: curriculum; Type: TABLE DATA; Schema: public; Owner: postgres

--

```
COPY public.curriculum (id, "CTP", contract, contract_price, recruitment_year, program_id) FROM stdin;
1	10	50	100000	2020	1
2	20	40	130000	2020	2
3	30	40	150000	2020	3
\.


--
-- TOC entry 3513 (class 0 OID 62995)
-- Dependencies: 217
-- Data for Name: discipline; Type: TABLE DATA; Schema: public; Owner: postgres
--

COPY public.discipline (id, name, type_of_certification, type, duration) FROM stdin;
1	discipline1	exam	lecture	1
2	discipline1	exam	practice	1
3	discipline2	zachet	lecture	1
4	discipline2	zachet	practice	1
\.


--
-- TOC entry 3527 (class 0 OID 63076)
-- Dependencies: 231
-- Data for Name: discipline_to_curriculum; Type: TABLE DATA; Schema: public; Owner: postgres
--

COPY public.discipline_to_curriculum (id, semester, discipline_id, curriculum_id) FROM stdin;
```

1 6 1 1

2 4 2 1

3 3 3 2

4 7 4 2

\.

--

-- TOC entry 3517 (class 0 OID 63011)

-- Dependencies: 221

-- Data for Name: division; Type: TABLE DATA; Schema: public; Owner: postgres

--

COPY public.division (id, name, place_id) FROM stdin;

1 division1 1

2 division2 2

3 division3 3

4 division4 4

5 division5 5

\.

--

-- TOC entry 3529 (class 0 OID 63093)

-- Dependencies: 233

-- Data for Name: group; Type: TABLE DATA; Schema: public; Owner: postgres

--

COPY public."group" (id, name, current_members, date_of_creation, date_of_dissolution, curriculum_id) FROM stdin;

1	group1	17	2023-09-01	\N	1

2	group2	9	2023-09-01	\N	3

3	group3	25	2022-09-01	2015-07-01	2

4	group4	7	2023-09-01	\N	2

\.

--

-- TOC entry 3523 (class 0 OID 63052)

-- Dependencies: 227

-- Data for Name: lecturer; Type: TABLE DATA; Schema: public; Owner: postgres

--

COPY public.lecturer (id, full_name, date_of_birth, passport_number, phone_number, division_id) FROM stdin;

1	lecturer1	1999-01-01	1234567890	+77529123456	1

2	lecturer2	1999-01-01	2345678901	+77529123457	2

3	lecturer3	1999-01-01	3456789012	+77529123467	3

4	lecturer4	1999-01-01	4567890123	+77529123567	4

5	lecturer5	1999-01-01	5678901234	+77529124567	5

\.

--

-- TOC entry 3515 (class 0 OID 63004)

-- Dependencies: 219

-- Data for Name: place; Type: TABLE DATA; Schema: public; Owner: postgres

```
--

COPY public.place (id, address, city) FROM stdin;
1	Lenina 1	Saint-Petersburg
2	Lenina 2	Saint-Petersburg
3	Lenina 3	Saint-Petersburg
4	Lenina 4	Saint-Petersburg
5	Lenina 5	Saint-Petersburg
\.


--
-- TOC entry 3521 (class 0 OID 63040)
-- Dependencies: 225
-- Data for Name: program; Type: TABLE DATA; Schema: public; Owner: postgres
--

COPY public.program (id, name, duration, division_id, type_of_graduation) FROM stdin;
1	program1	4	1	bachelor
2	program2	2	2	master
3	program3	3	3	master
\.


--
-- TOC entry 3533 (class 0 OID 63122)
-- Dependencies: 237
-- Data for Name: schedule; Type: TABLE DATA; Schema: public; Owner: postgres
--
```

COPY public.schedule (id, date, "time", audience_id, discipline_in_curriculum_id, lecturer_id, group_id, type) FROM stdin;

1 2024-01-01 10:00:00 1 1 1 1 lecture

2 2023-01-02 11:00:00 2 2 2 1 practice

3 2023-12-25 12:00:00 3 3 3 2 lecture

4 2024-01-04 13:00:00 4 4 4 2 practice

\.

--

-- TOC entry 3511 (class 0 OID 62984)

-- Dependencies: 215

-- Data for Name: student; Type: TABLE DATA; Schema: public; Owner: postgres

--

COPY public.student (id, full_name, date_of_birth, passport_number, phone_number) FROM stdin;

1 Ivanov Ivan Ivanovich 1999-01-01 1234567890 +77529123456

2 Petrov Petr Petrovich 1999-01-01 2345678901 +77529123457

3 Sidorov Sidor Sidorovich 1999-01-01 3456789012 +77529123457

4 Pupkin Vasya Vasilievich 1999-01-01 4567890123 +77529123567

5 Ivanova Anna Ivanovna 1999-01-01 5678901234 +77529123467

6 Petrova Maria Petrovna 1999-01-01 6789012345 +77529123567

7 Sidorova Olga Sidorovna 1999-01-01 7890123456 +77529123467

8 Pupkina Vasilisa Vasilievna 1999-01-01 8901234567 +77529123467

9 Pupkin Vasilis Vasiliev 1999-01-01 8901234576 +77529123476

10 Pupin Vasilis Vasiliev 1999-02-01 8901234598 +77529123498

\.

--

-- TOC entry 3531 (class 0 OID 63105)

-- Dependencies: 235

-- Data for Name: student_to_group; Type: TABLE DATA; Schema: public; Owner: postgres

--

COPY public.student_to_group (id, student_id, group_id, type, start_date, end_date, status) FROM stdin;

1 1 1 tuition_free 2020-01-01 \N studying

2 2 1 tuition_free 2020-01-01 \N studying

3 3 1 contract 2020-01-01 \N studying

4 4 1 tuition_free 2020-01-01 \N studying

5 5 2 contract 2020-01-01 \N studying

6 6 2 contract 2020-01-01 \N studying

7 7 2 contract 2020-01-01 \N studying

8 8 2 tuition_free 2020-01-01 \N studying

9 9 4 contract 2023-01-01 \N studying

\.

--

-- TOC entry 3555 (class 0 OID 0)

-- Dependencies: 222

-- Name: audience_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres

--

SELECT pg_catalog.setval('public.audience_id_seq', 5, true);

--

-- TOC entry 3556 (class 0 OID 0)

-- Dependencies: 238

-- Name: certification_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres

--

SELECT pg_catalog.setval('public.certification_id_seq', 3, true);

--

-- TOC entry 3557 (class 0 OID 0)

-- Dependencies: 228

-- Name: curriculum_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres

--

SELECT pg_catalog.setval('public.curriculum_id_seq', 3, true);

--

-- TOC entry 3558 (class 0 OID 0)

-- Dependencies: 216

-- Name: discipline_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres

--

SELECT pg_catalog.setval('public.discipline_id_seq', 4, true);

--

```
-- TOC entry 3559 (class 0 OID 0)
-- Dependencies: 230
-- Name: discipline_to_curriculum_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres
--

SELECT pg_catalog.setval('public.discipline_to_curriculum_id_seq', 4, true);


--
-- TOC entry 3560 (class 0 OID 0)
-- Dependencies: 220
-- Name: division_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres
--

SELECT pg_catalog.setval('public.division_id_seq', 5, true);


--
-- TOC entry 3561 (class 0 OID 0)
-- Dependencies: 232
-- Name: group_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres
--

SELECT pg_catalog.setval('public.group_id_seq', 4, true);


--
-- TOC entry 3562 (class 0 OID 0)
-- Dependencies: 226
```

```
-- Name: lecturer_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres
--

SELECT pg_catalog.setval('public.lecturer_id_seq', 5, true);


--
-- TOC entry 3563 (class 0 OID 0)
-- Dependencies: 218
-- Name: place_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres
--

SELECT pg_catalog.setval('public.place_id_seq', 5, true);


--
-- TOC entry 3564 (class 0 OID 0)
-- Dependencies: 224
-- Name: program_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres
--

SELECT pg_catalog.setval('public.program_id_seq', 3, true);


--
-- TOC entry 3565 (class 0 OID 0)
-- Dependencies: 236
-- Name: schedule_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres
--
```

```
SELECT pg_catalog.setval('public.schedule_id_seq', 4, true);



--

-- TOC entry 3566 (class 0 OID 0)

-- Dependencies: 214

-- Name: student_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres

--

SELECT pg_catalog.setval('public.student_id_seq', 10, true);



--

-- TOC entry 3567 (class 0 OID 0)

-- Dependencies: 234

-- Name: student_to_group_id_seq; Type: SEQUENCE SET; Schema: public; Owner: postgres

--

SELECT pg_catalog.setval('public.student_to_group_id_seq', 9, true);



--

-- TOC entry 3333 (class 2606 OID 63028)

-- Name: audience audience_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres

--

ALTER TABLE ONLY public.audience

    ADD CONSTRAINT audience_pkey PRIMARY KEY (id);
```

```
--

-- TOC entry 3349 (class 2606 OID 63154)

-- Name: certification certification_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.certification

    ADD CONSTRAINT certification_pkey PRIMARY KEY (id);




--

-- TOC entry 3339 (class 2606 OID 63069)

-- Name: curriculum curriculum_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.curriculum

    ADD CONSTRAINT curriculum_pkey PRIMARY KEY (id);




--

-- TOC entry 3327 (class 2606 OID 63002)

-- Name: discipline discipline_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.discipline

    ADD CONSTRAINT discipline_pkey PRIMARY KEY (id);
```

```
--

-- TOC entry 3341 (class 2606 OID 63081)

-- Name: discipline_to_curriculum discipline_to_curriculum_pkey; Type: CONSTRAINT; Schema: public;
Owner: postgres

--


ALTER TABLE ONLY public.discipline_to_curriculum

   ADD CONSTRAINT discipline_to_curriculum_pkey PRIMARY KEY (id);




--

-- TOC entry 3331 (class 2606 OID 63016)

-- Name: division division_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.division

   ADD CONSTRAINT division_pkey PRIMARY KEY (id);




--

-- TOC entry 3343 (class 2606 OID 63098)

-- Name: group group_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public."group"

   ADD CONSTRAINT group_pkey PRIMARY KEY (id);




--
```

```
-- TOC entry 3337 (class 2606 OID 63057)
-- Name: lecturer lecturer_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.lecturer
    ADD CONSTRAINT lecturer_pkey PRIMARY KEY (id);


--
-- TOC entry 3329 (class 2606 OID 63009)
-- Name: place place_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.place
    ADD CONSTRAINT place_pkey PRIMARY KEY (id);


--
-- TOC entry 3335 (class 2606 OID 63045)
-- Name: program program_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.program
    ADD CONSTRAINT program_pkey PRIMARY KEY (id);


--
-- TOC entry 3347 (class 2606 OID 63127)
-- Name: schedule schedule_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
```

```
--

ALTER TABLE ONLY public.schedule
    ADD CONSTRAINT schedule_pkey PRIMARY KEY (id);


--
-- TOC entry 3323 (class 2606 OID 62993)
-- Name: student student_passport_number_key; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.student
    ADD CONSTRAINT student_passport_number_key UNIQUE (passport_number);


--
-- TOC entry 3325 (class 2606 OID 62991)
-- Name: student student_pkey; Type: CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.student
    ADD CONSTRAINT student_pkey PRIMARY KEY (id);


--
-- TOC entry 3345 (class 2606 OID 63110)
-- Name: student_to_group student_to_group_pkey; Type: CONSTRAINT; Schema: public; Owner:
postgres
--
```

```
ALTER TABLE ONLY public.student_to_group
    ADD CONSTRAINT student_to_group_pkey PRIMARY KEY (id);


--
-- TOC entry 3351 (class 2606 OID 63034)
-- Name: audience audience_division_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.audience
    ADD CONSTRAINT audience_division_id_fkey FOREIGN KEY (division_id) REFERENCES
public.division(id);


--
-- TOC entry 3352 (class 2606 OID 63029)
-- Name: audience audience_place_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres
--

ALTER TABLE ONLY public.audience
    ADD CONSTRAINT audience_place_id_fkey FOREIGN KEY (place_id) REFERENCES public.place(id);


--
-- TOC entry 3365 (class 2606 OID 63165)
-- Name: certification certification_discipline_in_curriculum_id_fkey; Type: FK CONSTRAINT; Schema:
public; Owner: postgres
--
```

```
ALTER TABLE ONLY public.certification
    ADD CONSTRAINT certification_discipline_in_curriculum_id_fkey FOREIGN KEY
(discipline_in_curriculum_id) REFERENCES public.discipline_to_curriculum(id);



--
-- TOC entry 3366 (class 2606 OID 63155)
-- Name: certification certification_lecturer_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner:
postgres
--

ALTER TABLE ONLY public.certification
    ADD CONSTRAINT certification_lecturer_id_fkey FOREIGN KEY (lecturer_id) REFERENCES
public.lecturer(id);



--
-- TOC entry 3367 (class 2606 OID 63160)
-- Name: certification certification_student_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner:
postgres
--

ALTER TABLE ONLY public.certification
    ADD CONSTRAINT certification_student_id_fkey FOREIGN KEY (student_id) REFERENCES
public.student_to_group(id);



--
-- TOC entry 3355 (class 2606 OID 63070)
```

-- Name: curriculum curriculum_program_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres

--

ALTER TABLE ONLY public.curriculum

ADD CONSTRAINT curriculum_program_id_fkey FOREIGN KEY (program_id) REFERENCES public.program(id);

--

-- TOC entry 3356 (class 2606 OID 63087)

-- Name: discipline_to_curriculum discipline_to_curriculum_curriculum_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres

--

ALTER TABLE ONLY public.discipline_to_curriculum

ADD CONSTRAINT discipline_to_curriculum_curriculum_id_fkey FOREIGN KEY (curriculum_id) REFERENCES public.curriculum(id);

--

-- TOC entry 3357 (class 2606 OID 63082)

-- Name: discipline_to_curriculum discipline_to_curriculum_discipline_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres

--

ALTER TABLE ONLY public.discipline_to_curriculum

ADD CONSTRAINT discipline_to_curriculum_discipline_id_fkey FOREIGN KEY (discipline_id) REFERENCES public.discipline(id);

```
--

-- TOC entry 3350 (class 2606 OID 63017)

-- Name: division division_place_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.division

    ADD CONSTRAINT division_place_id_fkey FOREIGN KEY (place_id) REFERENCES public.place(id);



--

-- TOC entry 3358 (class 2606 OID 63099)

-- Name: group group_curriculum_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public."group"

    ADD CONSTRAINT group_curriculum_id_fkey FOREIGN KEY (curriculum_id) REFERENCES
public.curriculum(id);



--

-- TOC entry 3354 (class 2606 OID 63058)

-- Name: lecturer lecturer_division_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.lecturer

    ADD CONSTRAINT lecturer_division_id_fkey FOREIGN KEY (division_id) REFERENCES
public.division(id);
```

--

-- TOC entry 3353 (class 2606 OID 63046)

-- Name: program program_division_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres

--

ALTER TABLE ONLY public.program

    ADD CONSTRAINT program_division_id_fkey FOREIGN KEY (division_id) REFERENCES public.division(id);

--

-- TOC entry 3361 (class 2606 OID 63128)

-- Name: schedule schedule_audience_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres

--

ALTER TABLE ONLY public.schedule

    ADD CONSTRAINT schedule_audience_id_fkey FOREIGN KEY (audience_id) REFERENCES public.audience(id);

--

-- TOC entry 3362 (class 2606 OID 63133)

-- Name: schedule schedule_discipline_in_curriculum_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres

--

ALTER TABLE ONLY public.schedule

    ADD CONSTRAINT schedule_discipline_in_curriculum_id_fkey FOREIGN KEY (discipline_in_curriculum_id) REFERENCES public.discipline_to_curriculum(id);

```
--

-- TOC entry 3363 (class 2606 OID 63143)

-- Name: schedule schedule_group_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.schedule

    ADD CONSTRAINT schedule_group_id_fkey FOREIGN KEY (group_id) REFERENCES public."group"(id);



--

-- TOC entry 3364 (class 2606 OID 63138)

-- Name: schedule schedule_lecturer_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.schedule

    ADD CONSTRAINT schedule_lecturer_id_fkey FOREIGN KEY (lecturer_id) REFERENCES
public.lecturer(id);



--

-- TOC entry 3359 (class 2606 OID 63116)

-- Name: student_to_group student_to_group_group_id_fkey; Type: FK CONSTRAINT; Schema: public;
Owner: postgres

--


ALTER TABLE ONLY public.student_to_group

    ADD CONSTRAINT student_to_group_group_id_fkey FOREIGN KEY (group_id) REFERENCES
public."group"(id);
```

```
--

-- TOC entry 3360 (class 2606 OID 63111)

-- Name: student_to_group student_to_group_student_id_fkey; Type: FK CONSTRAINT; Schema: public; Owner: postgres

--


ALTER TABLE ONLY public.student_to_group

    ADD CONSTRAINT student_to_group_student_id_fkey FOREIGN KEY (student_id) REFERENCES public.student(id);




-- Completed on 2024-01-18 14:41:04 MSK


--

-- PostgreSQL database dump complete

--
```

Вывод

В данной лабораторной работе мы создали базу данных с использованием pgAdmin 4. В базе данных были созданы схема и таблицы, установлены ограничения на данные: Primary Key, Unique, Check, Foreign Key. БД была заполнена рабочими данными с помощью запросов к базе. Была создана резервная копия БД, также БД была восстановлена. В итоге мы научились пользоваться pgAdmin 4 и создавать базы данных.