ОТЧЕТ
ПО ЛАБОРАТОРНОЙ РАБОТЕ № 6
«СОЗДАНИЕ ТАБЛИЦ БАЗЫ ДАННЫХ POSTGRESQL. ЗАПОЛНЕНИЕ ТАБЛИЦ РАБОЧИМИ ДАННЫМИ»

Специальность 09.02.07 «Информационные системы и программирование»

ПМ.02 Разработка и администрирование баз данных

МДК.02.02 Технология разработки и защиты баз данных

Тема 2.1 Проектирование и реализация баз данных

Преподаватель:

Говоров А.И.

«____» _____2020г.

Оценка _____

Выполнил

студент группы Y2338

Михеев Н.С.

Санкт-Петербург
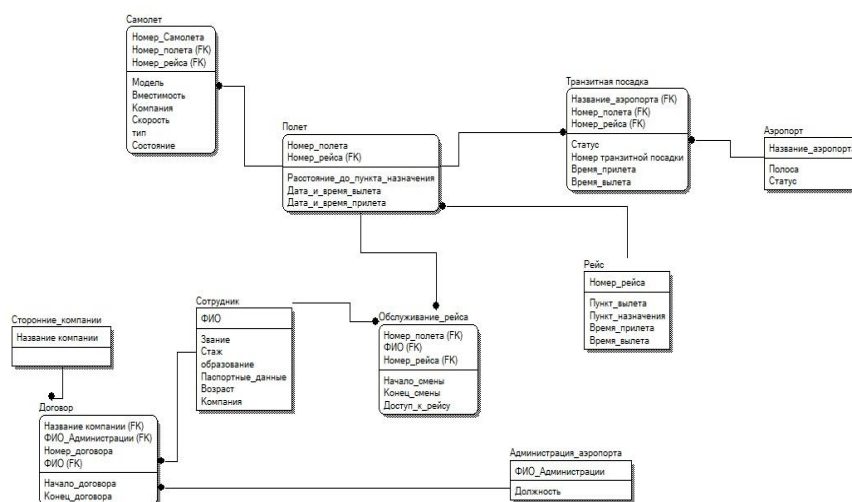2019/2020

Цель работы: овладеть практическими навыками создания таблиц базы данных PostgreSQL 10 (11), 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. Заполнить таблицы БД рабочими данными.
5. Создать резервную копию БД.
6. Восстановить БД на другом ПК.

Технология выполнения работы:

Необходимо создать базу данных, согласно се

следующей схеме:

Изображение 1 — схема БД.

И заполнить БД данными. Дамп БД находится в архиве.

```sql
CREATE TABLE airport."Airplane" (
    "AirplaneNumber" character varying(7) NOT NULL,
    "Model" character varying NOT NULL,
    "Company" character varying NOT NULL,
    "Speed" double precision NOT NULL,
    "Type" character varying NOT NULL,
    "Status" character varying,
    "FlightNumber" character varying,
    "TripNumber" character varying(6),
    CONSTRAINT "isSpeedpositiveValue" CHECK (("Speed" > (0)::double precision))
);
CREATE TABLE airport."Airport" (
    "AirportName" character varying NOT NULL,
    "Status" character varying NOT NULL,
    "Strip" character varying NOT NULL
);
CREATE TABLE airport."AirportAdministration" (
    "AdministrationName" character varying NOT NULL,
    "Position" character varying NOT NULL
);
CREATE TABLE airport."Contract" (
    "ContractNumber" character varying NOT NULL,
    "Fullname" character varying NOT NULL,
    "CompanyName" character varying NOT NULL,
    "AdministrationName" character varying NOT NULL,
    "ContractStart" date NOT NULL,
    "ContractEnd" date NOT NULL
);
CREATE TABLE airport."Flight" (
    "FlightNumber" character varying NOT NULL,
    "ArrivalDate" date NOT NULL,
    "DepartrureDate" date NOT NULL,
    "DistanceToDestinationPoint" double precision NOT NULL,
    "TripNumber" character varying,
    CONSTRAINT "isDistanceToDestinitionPointPositiveValue" CHECK
(("DistanceToDestinationPoint" > (0)::double precision))
);
CREATE TABLE airport."FlightService" (
    "FlightNumber" character varying NOT NULL,
    "Fullname" character varying NOT NULL,
    "TripNumber" character varying(6) NOT NULL,
    "StartShift" date NOT NULL,
    "EndShift" date NOT NULL
```

);

```sql
CREATE TABLE airport."Stuff" (
    "Fullname" character varying NOT NULL,
    "Status" character varying NOT NULL,
    "Experience" double precision,
    "PassportData" character varying NOT NULL,
    "Age" integer NOT NULL,
    "Company" character varying NOT NULL,
    CONSTRAINT "isAgePositiveValue" CHECK (("Age" > 0))
);
CREATE TABLE airport."Third-partryCompanies" (
    "CompanyName" character varying NOT NULL
);
CREATE TABLE airport."TransitLanding" (
    "Status" character varying NOT NULL,
    "TransitLandingNumber" character varying NOT NULL,
    "ArrivalTime" timestamp with time zone NOT NULL,
    "DepartureTime" timestamp with time zone NOT NULL,
    "FlightNumber" character varying NOT NULL,
    "AirportName" character varying NOT NULL,
    "TripNumber" character varying(6)
);
CREATE TABLE airport."Trip" (
    "TripNumber" character varying(6) NOT NULL,
    "DeparturePoint" character varying NOT NULL,
    "DestinationPoint" character varying NOT NULL,
    "ArrivalTime" time with time zone NOT NULL,
    "DepartureTime" time with time zone NOT NULL
);
ALTER TABLE ONLY airport."AirportAdministration"
    ADD CONSTRAINT "AirportAdministration_pkey" PRIMARY KEY
("AdministrationName");
ALTER TABLE ONLY airport."Airport"
    ADD CONSTRAINT "Airport_pkey" PRIMARY KEY ("AirportName");
ALTER TABLE ONLY airport."Contract"
    ADD CONSTRAINT "Contract_pkey" PRIMARY KEY ("ContractNumber");
ALTER TABLE ONLY airport."Flight"
    ADD CONSTRAINT "Flight_pkey" PRIMARY KEY ("FlightNumber");
ALTER TABLE ONLY airport."Stuff"
    ADD CONSTRAINT "Stuff_pkey" PRIMARY KEY ("Fullname");
ALTER TABLE ONLY airport."Third-partryCompanies"
    ADD CONSTRAINT "Third-partryCompanies_pkey" PRIMARY KEY
("CompanyName");
ALTER TABLE ONLY airport."Trip"
```

ADD CONSTRAINT "Trip_pkey" PRIMARY KEY ("TripNumber");
ALTER TABLE ONLY airport."Airplane"
   ADD CONSTRAINT airplane_pkey PRIMARY KEY ("AirplaneNumber")
INCLUDE ("AirplaneNumber");
CREATE INDEX "fki_Airplane_Flight_FK" ON airport."Airplane" USING btree
("FlightNumber");
CREATE INDEX "fki_Airplane_Trip_FK" ON airport."Airplane" USING btree
("TripNumber");
CREATE INDEX "fki_Contact_Administration_FK" ON airport."Contract"
USING btree ("AdministrationName");
CREATE INDEX "fki_Flight_Trip_FK" ON airport."Flight" USING btree
("TripNumber");
CREATE INDEX "fki_TransitLanding_Airport_FK" ON airport."TransitLanding"
USING btree ("AirportName");
CREATE INDEX "fki_TransitLanding_Flight_FK" ON airport."TransitLanding"
USING btree ("FlightNumber");
CREATE INDEX "fki_TransitLanding_Trip_FK" ON airport."TransitLanding"
USING btree ("TripNumber");
ALTER TABLE ONLY airport."Airplane"
   ADD CONSTRAINT "Airplane_Flight_FK" FOREIGN KEY ("FlightNumber")
REFERENCES airport."Flight"("FlightNumber") ON UPDATE SET NULL ON
DELETE SET NULL;
ALTER TABLE ONLY airport."Airplane"
   ADD CONSTRAINT "Airplane_Trip_FK" FOREIGN KEY ("TripNumber")
REFERENCES airport."Trip"("TripNumber") ON UPDATE CASCADE ON
DELETE SET NULL;
ALTER TABLE ONLY airport."Contract"
   ADD CONSTRAINT "Contact_Administration_FK" FOREIGN KEY
("AdministrationName") REFERENCES
airport."AirportAdministration"("AdministrationName") ON UPDATE
CASCADE ON DELETE CASCADE;
ALTER TABLE ONLY airport."Contract"
   ADD CONSTRAINT "Contract_Stuff" FOREIGN KEY ("Fullname")
REFERENCES airport."Stuff"("Fullname") ON UPDATE CASCADE ON
DELETE CASCADE;
ALTER TABLE ONLY airport."Contract"
   ADD CONSTRAINT "Contract_Third-partryCompany" FOREIGN KEY
("CompanyName") REFERENCES airport."Third-
partryCompanies"("CompanyName") ON UPDATE CASCADE ON DELETE
CASCADE;
ALTER TABLE ONLY airport."FlightService"
   ADD CONSTRAINT "FlightService_Flight_FK" FOREIGN KEY
("FlightNumber") REFERENCES airport."Flight"("FlightNumber") ON UPDATE
CASCADE ON DELETE SET NULL;

ALTER TABLE ONLY airport."FlightService"
    ADD CONSTRAINT "FlightService_Stuff_FK" FOREIGN KEY ("Fullname")
REFERENCES airport."Stuff"("Fullname") ON UPDATE CASCADE ON
DELETE CASCADE;
ALTER TABLE ONLY airport."FlightService"
    ADD CONSTRAINT "FlightService_Trip_FK" FOREIGN KEY
("TripNumber") REFERENCES airport."Trip"("TripNumber") ON UPDATE
CASCADE ON DELETE SET NULL;
ALTER TABLE ONLY airport."Flight"
    ADD CONSTRAINT "Flight_Trip_FK" FOREIGN KEY ("TripNumber")
REFERENCES airport."Trip"("TripNumber") ON UPDATE CASCADE ON
DELETE CASCADE NOT VALID;
ALTER TABLE ONLY airport."TransitLanding"
    ADD CONSTRAINT "TransitLanding_Airport_FK" FOREIGN KEY
("AirportName") REFERENCES airport."Airport"("AirportName") ON UPDATE
CASCADE ON DELETE CASCADE;
ALTER TABLE ONLY airport."TransitLanding"
    ADD CONSTRAINT "TransitLanding_Flight_FK" FOREIGN KEY
("FlightNumber") REFERENCES airport."Flight"("FlightNumber") ON UPDATE
CASCADE ON DELETE CASCADE;
ALTER TABLE ONLY airport."TransitLanding"
    ADD CONSTRAINT "TransitLanding_Trip_FK" FOREIGN KEY
("TripNumber") REFERENCES airport."Trip"("TripNumber") ON UPDATE
CASCADE ON DELETE CASCADE;
INSERT INTO airport."Airplane" ("AirplaneNumber", "Model", "Company",
"Speed", "Type", "Status", "FlightNumber", "TripNumber") VALUES ('A330',
'Airbus A330/A330neo', 'Airbus', 496, 'Airbus', 'waiting', 'U80DTG', 'SHJ32');
INSERT INTO airport."Airplane" ("AirplaneNumber", "Model", "Company",
"Speed", "Type", "Status", "FlightNumber", "TripNumber") VALUES ('A380',
'Airbus A380', 'Airbus', 384, 'Airbus', 'preparing', 'Kl4DFR', 'KMN');
INSERT INTO airport."Airplane" ("AirplaneNumber", "Model", "Company",
"Speed", "Type", "Status", "FlightNumber", "TripNumber") VALUES ('737',
'Boeing 737 NG/737 MAX', 'Boing', 270, 'Boing', 'waiting', 'AEN7J', 'NVB2C');
INSERT INTO airport."Airport" ("AirportName", "Status", "Strip") VALUES
('Hartsfield–Jackson Atlanta International Airport', 'ready', 'A10');
INSERT INTO airport."Airport" ("AirportName", "Status", "Strip") VALUES
('Los Angeles International Airport', 'ready', 'B02');
INSERT INTO airport."Airport" ("AirportName", "Status", "Strip") VALUES
('Dallas/Fort Worth International Airport', 'ready', 'C4');
INSERT INTO airport."AirportAdministration" ("AdministrationName",
"Position") VALUES ('Donald Duck', 'Director');
INSERT INTO airport."AirportAdministration" ("AdministrationName",
"Position") VALUES ('Sam Yound', 'Press-Director');

```sql
INSERT INTO airport."Contract" ("ContractNumber", "Fullname",
"CompanyName", "AdministrationName", "ContractStart", "ContractEnd")
VALUES ('SN89D', 'Ivan Rubinsky', 'FlyEmirates', 'Donald Duck', '2019-08-07',
'2025-05-06');
INSERT INTO airport."Contract" ("ContractNumber", "Fullname",
"CompanyName", "AdministrationName", "ContractStart", "ContractEnd")
VALUES ('JNFS4S9', 'Ashot Vanshot', 'Pegas', 'Donald Duck', '2019-04-23',
'2027-08-11');
INSERT INTO airport."Flight" ("FlightNumber", "ArrivalDate",
"DepartrureDate", "DistanceToDestinationPoint", "TripNumber") VALUES
('U80DTG', '2020-05-21', '2021-05-21', 400, 'SHJ32');
INSERT INTO airport."Flight" ("FlightNumber", "ArrivalDate",
"DepartrureDate", "DistanceToDestinationPoint", "TripNumber") VALUES
('AEN7J', '2021-07-05', '2021-07-04', 1200, 'NVB2C');
INSERT INTO airport."Flight" ("FlightNumber", "ArrivalDate",
"DepartrureDate", "DistanceToDestinationPoint", "TripNumber") VALUES
('Kl4DFR', '2020-10-13', '2020-10-12', 1430, 'KMN');
INSERT INTO airport."FlightService" ("FlightNumber", "Fullname",
"TripNumber", "StartShift", "EndShift") VALUES ('U80DTG', 'Ivan Rubinsky',
'SHJ32', '2021-05-06', '2023-08-09');
INSERT INTO airport."Stuff" ("Fullname", "Status", "Experience",
"PassportData", "Age", "Company") VALUES ('Ivan Rubinsky', 'Director', 9,
'SomeData', 42, 'LA FlyEmirates');
INSERT INTO airport."Stuff" ("Fullname", "Status", "Experience",
"PassportData", "Age", "Company") VALUES ('Ashot Vanshot', 'worker', 1,
'SomeData', 32, 'GR RK');
INSERT INTO airport."Third-partryCompanies" ("CompanyName") VALUES
('FlyEmirates');
INSERT INTO airport."Third-partryCompanies" ("CompanyName") VALUES
('Pegas');
```

INSERT INTO airport."TransitLanding" ("Status", "TransitLandingNumber", "ArrivalTime", "DepartureTime", "FlightNumber", "AirportName", "TripNumber") VALUES ('waiting', '1', '2020-05-21 16:45:00+03', '2020-05-21 17:45:00+03', 'U80DTG', 'Hartsfield–Jackson Atlanta International Airport', 'SHJ32');
INSERT INTO airport."TransitLanding" ("Status", "TransitLandingNumber", "ArrivalTime", "DepartureTime", "FlightNumber", "AirportName", "TripNumber") VALUES ('waiting', '1', '2020-10-13 11:12:00+03', '2020-10-12 13:23:00+03', 'Kl4DFR', 'Los Angeles International Airport', 'KMN');
INSERT INTO airport."TransitLanding" ("Status", "TransitLandingNumber", "ArrivalTime", "DepartureTime", "FlightNumber", "AirportName", "TripNumber") VALUES ('waiting', '1', '2021-07-04 20:17:00+03', '2021-07-05 21:23:00+03', 'AEN7J', 'Dallas/Fort Worth International Airport', 'NVB2C');
INSERT INTO airport."Trip" ("TripNumber", "DeparturePoint", "DestinationPoint", "ArrivalTime", "DepartureTime") VALUES ('SHJ32', 'Uk', 'USA', '16:23:00+03', '18:12:00+03');
INSERT INTO airport."Trip" ("TripNumber", "DeparturePoint", "DestinationPoint", "ArrivalTime", "DepartureTime") VALUES ('KMN', 'Russia', 'Monako', '12:44:00+03', '15:06:00+03');
INSERT INTO airport."Trip" ("TripNumber", "DeparturePoint", "DestinationPoint", "ArrivalTime", "DepartureTime") VALUES ('NVB2C', 'LA', 'London', '13:34:00+03', '10:56:00+03');

ВЫВОД

В ходе выполнения данной лабораторной работы, я овладел практическими навыками создания таблиц базы данных PostgreSQL 10 (11), заполнения их рабочими данными, резервного копирования и восстановления БД.