**МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ РФ**

ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ БЮДЖЕТНОЕ ОБРАЗОВАТЕЛЬНОЕ УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ **«БЕЛГОРОДСКИЙ ГОСУДАРСТВЕННЫЙ ТЕХНОЛОГИЧЕСКИЙ УНИВЕРСИТЕТ ИМ. В. Г. ШУХОВА»**

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**ЛАБОРАТОРНАЯ РАБОТА №2**

**Дисциплина: Базы данных**

**Тема: Создание объектов базы данных в СУБД Microsoft SQL Server**

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**Цель работы:** изучить основные возможности языка SQL для создания структуры базы данных, научиться создавать базы данных, таблицы, связи, ограничения, а также создавать, изменять и удалять данные.

**Вариант 13 (4)**

1. Составить SQL-запросы для создания структуры базы данных, полученной в результате лабораторной работы №1. Указать используемые типы данных, ограничения значений полей; для связей: действия с записями подчинённой таблицы при удалении и изменении соответствующей записи главной таблицы.

2. С помощью SQL-запросов выполнить добавление 3–4 записей в каждую таблицу, изменение и удаление нескольких записей.

**Ход работы**

**Создание таблиц**:

CREATE TABLE "MainSchema"."Book"

(

"ProductCode" integer NOT NULL,

"Genre" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"Title" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"Author" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"Publisher" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"Sales" integer,

CONSTRAINT "Book\_pkey" PRIMARY KEY ("ProductCode"),

CONSTRAINT "ProductCode" FOREIGN KEY ("ProductCode")

REFERENCES "MainSchema"."Product" ("Code") MATCH SIMPLE

ON UPDATE NO ACTION

ON DELETE NO ACTION

)

CREATE TABLE "MainSchema"."BookDepartment"

(

"ShopID" integer NOT NULL,

"EmployeeList" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"ItemList" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

CONSTRAINT "BookDepartment\_pkey" PRIMARY KEY ("ShopID"),

CONSTRAINT "ShopID" FOREIGN KEY ("ShopID")

REFERENCES "MainSchema"."Shop" ("ID") MATCH SIMPLE

ON UPDATE NO ACTION

ON DELETE NO ACTION

)

CREATE TABLE "MainSchema"."ClericalDepartment"

(

"ShopID" integer NOT NULL,

"EmployeeList" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"ItemList" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

CONSTRAINT "ClericalDepartment\_pkey" PRIMARY KEY ("ShopID"),

CONSTRAINT "ShopID" FOREIGN KEY ("ShopID")

REFERENCES "MainSchema"."Shop" ("ID") MATCH SIMPLE

ON UPDATE NO ACTION

ON DELETE NO ACTION

)

CREATE TABLE "MainSchema"."Client"

(

"ID" integer NOT NULL,

"FullName" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"ContactInfo" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"Orders" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

CONSTRAINT "Client\_pkey" PRIMARY KEY ("ID")

)

CREATE TABLE "MainSchema"."Employee"

(

"ID" integer NOT NULL,

"Position" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"FullName" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"ContactInfo" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"ClericalDepartmentID" integer,

"BookDepartmentID" integer,

CONSTRAINT "Employee\_pkey" PRIMARY KEY ("ID"),

CONSTRAINT "BookDepartmentID" FOREIGN KEY ("BookDepartmentID")

REFERENCES "MainSchema"."BookDepartment" ("ShopID") MATCH SIMPLE

ON UPDATE NO ACTION

ON DELETE NO ACTION,

CONSTRAINT "ClericalDepartmentID" FOREIGN KEY ("ClericalDepartmentID")

REFERENCES "MainSchema"."ClericalDepartment" ("ShopID") MATCH SIMPLE

ON UPDATE NO ACTION

ON DELETE NO ACTION

)

CREATE TABLE "MainSchema"."Order"

(

"Number" integer NOT NULL,

"State" boolean NOT NULL,

"Check" integer NOT NULL,

"Date" date NOT NULL,

"ItemList" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"EmployeeID" integer NOT NULL,

"ClientID" integer NOT NULL,

CONSTRAINT "Order\_pkey" PRIMARY KEY ("Number"),

CONSTRAINT "ClientID" FOREIGN KEY ("ClientID")

REFERENCES "MainSchema"."Client" ("ID") MATCH SIMPLE

ON UPDATE NO ACTION

ON DELETE NO ACTION,

CONSTRAINT "EmployeeID" FOREIGN KEY ("EmployeeID")

REFERENCES "MainSchema"."Employee" ("ID") MATCH SIMPLE

ON UPDATE NO ACTION

ON DELETE NO ACTION

)

CREATE TABLE "MainSchema"."Product"

(

"Code" integer NOT NULL,

"Title" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"Availability" integer NOT NULL,

"ProviderID" integer NOT NULL,

CONSTRAINT "Product\_pkey" PRIMARY KEY ("Code"),

CONSTRAINT "ProviderID" FOREIGN KEY ("Code")

REFERENCES "MainSchema"."Provider" ("ID") MATCH SIMPLE

ON UPDATE NO ACTION

ON DELETE NO ACTION

)

CREATE TABLE "MainSchema"."Provider"

(

"ID" integer NOT NULL,

"Phone" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"Address" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"Contact" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

CONSTRAINT "Provider\_pkey" PRIMARY KEY ("ID")

)

CREATE TABLE "MainSchema"."Shop"

(

"ID" integer NOT NULL,

"Phone" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"Address" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"Sales" integer NOT NULL,

"Stock\_Number" integer NOT NULL,

CONSTRAINT "Shop\_pkey" PRIMARY KEY ("ID"),

CONSTRAINT "Stock\_Number" FOREIGN KEY ("Stock\_Number")

REFERENCES "MainSchema"."Stock" ("Number") MATCH SIMPLE

ON UPDATE NO ACTION

ON DELETE NO ACTION

)

CREATE TABLE "MainSchema"."Stock"

(

"Number" integer NOT NULL,

"Address" character varying(50) COLLATE pg\_catalog."default" NOT NULL,

"Phone" character varying COLLATE pg\_catalog."default",

"Items\_in\_stock" integer NOT NULL,

CONSTRAINT "Stock\_pkey" PRIMARY KEY ("Number"),

CONSTRAINT "Items\_in\_Stock" FOREIGN KEY ("Items\_in\_stock")

REFERENCES "MainSchema"."Product" ("Code") MATCH SIMPLE

ON UPDATE NO ACTION

ON DELETE NO ACTION

)

**Заполнение таблиц**:

insert into Provider (Phone, Address, Contact) values

('88005553535', 'Ленина 58/2', 'Иванов Иван Иванович'),

('89536538659', 'Зубарева 4', 'Суворов Вячеслав Игоревич'),

('85459234957', 'Губкина 81', 'Макаров Станислав Валерьевич');

insert into "MainSchema"."Product" ("Title", "Availability") values

('Gel pen', 10),

('Book', 12),

('Book', 28),

('Notebook', 21),

('Book', 30);

insert into "MainSchema"."Book" ("Genre", "Title", "Author", "Publisher", "Sales") values

('Фантастика', 'Попадос', 'Sunmen', 'СИ', 0),

('Фантастика', 'Колян. Дилогия', 'Евгений Щепетнов', 'неизвестно', 0),

('Фантастика', 'Пенсионер', 'Евгений Месюрин', 'Литагент', 0);

insert into "MainSchema"."Stock" ("Address", "Phone") values

('Костюкова 4/9', '83629573485'),

('Попова 31', '83640385323')

('Попова 32', '89237586424'),

('Горбачева 41/1');