Федеральное государственное бюджетное образовательное учреждение

высшего образования

«Российский экономический университет им. Г.В. Плеханова»

Московский приборостроительный техникум

Специальность: 09.02.07 Информационные системы и программирование

Квалификация: Программист

Общепрофессиональная дисциплина: ОП 08 Основы проектирования баз данных

МПТ.09.02.07-П.ОП.08.ОПБД.П50-5-20.05.22

Отчёт к практической работе № 6

«Реализация манипулирования данными и выборки данных из базы данных».

Тема: Разработка базы данных на примере предметной области «Организация наземных

грузоперевозок». Реализация подсистем: учёт автомобильного парка, организация доставки грузов.

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| «\_\_\_»\_\_\_\_\_\_\_\_\_\_\_\_\_2022г. | \_\_\_\_\_\_\_\_\_\_\_\_Атаниязов А.А. |
|  | «\_\_\_»\_\_\_\_\_\_\_\_\_\_\_\_\_2022г. |

2022

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1. ЦЕЛИ ПРАКТИЧЕСКОЙ РАБОТЫ

На основании разработанной структуры базы данных с помощью языка DDL, произвести заполнение структуры базы данных и выборку данных из таблиц базы данных.

2. ЭТАПЫ ВЫПОЛНЕНИЯ

1) Общее представление манипулирования над данными в таблицах:

|  |  |  |
| --- | --- | --- |
| Таблица | | Изменение структуры таблицы |
| create table [dbo].[Type\_Organization]  (  [ID\_Type\_Organization] [int] not null identity(1,1),  [Type\_Name] [varchar] (max) not null  constraint [PK\_Type\_Organization] primary key clustered  ([ID\_Type\_Organization] ASC) on [PRIMARY]  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Type\_Organization] ([Type\_Name])  values ('ААА'), ('НПАО'), ('ЕЕЕ')  go | |
| Запросы на выборку данных | |
| Задача: Вывести типы организации, отсортировав по возрастанию | |
| select [Type\_Name] as 'Тип организации' from [dbo].[Type\_Organization]  order by [Type\_Name] ASC  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Brand]  (  [ID\_Brand] [int] not null identity(1,1),  [Name\_Brand] [varchar] (50) not null  constraint [PK\_Brand] primary key clustered  ([ID\_Brand] ASC) on [PRIMARY],  constraint [UQ\_Name\_Brand] unique ([Name\_Brand])  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Brand] ([Name\_Brand])  values ('Man'), ('Volvo')  go | |
| Запросы на выборку данных | |
| Задача: Вывести Марку, отсортировав по возрастанию | |
| select [Name\_Brand] as 'Марка' from [dbo].[Brand]  order by [Name\_Brand] DESC  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Delivery\_Points]  (  [ID\_Delivery\_Point] [int] not null identity(1,1),  [Delivery\_Address] [varchar] (max) not null  constraint [PK\_Delivery\_Point] primary key clustered  ([ID\_Delivery\_Point] ASC) on [PRIMARY]  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Delivery\_Points] ([Delivery\_Address])  values ('Ул. Вернадского, д. 3, стр. 4'), ('Ул. Витебская, д. 8, к. 5'), ('Ул. Вернадского, д. 6, к. 3'), ('Ул. Арбат, д. 8, к. 3'), ('Ул. Арбат, д. 1, стр. 3')  go | |
| Запросы на выборку данных | |
| Задача: Вывести Точки Доставки | |
| select [Delivery\_Address] as 'Адрес точки доставки' from [dbo].[Delivery\_Points]  order by [Delivery\_Address] ASC  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[License]  (  [ID\_License] [int] not null identity(1,1),  [Type\_License] [varchar] (10) not null  constraint [PK\_License] primary key clustered  ([ID\_License] ASC) on [PRIMARY],  constraint [UQ\_Type\_License] unique ([Type\_License])  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[License] ([Type\_License])  values ('A'), ('B'), ('C')  go | |
| Запросы на выборку данных | |
| Задача: Вывести права | |
| select [Type\_License] as 'Категория' from [dbo].[License]  order by [Type\_License] ASC  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Country]  (  [ID\_Country] [int] not null identity(1,1),  [Name\_Country] [varchar] (50) not null  constraint [PK\_Country] primary key clustered  ([ID\_Country] ASC) on [PRIMARY],  constraint [UQ\_Name\_Country] unique ([Name\_Country])  )  go go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Country] ([Name\_Country])  values ('Германия'), ('Шведция')  go | |
| Запросы на выборку данных | |
| Задача: Вывести Страны | |
| select [Name\_Country] as 'Должность' from [dbo].[Country]  order by [Name\_Country] ASC  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Post]  (  [ID\_Post] [int] not null identity(1,1),  [Name\_Post] [varchar] (50) not null  constraint [PK\_Post] primary key clustered  ([ID\_Post] ASC) on [PRIMARY],  constraint [UQ\_Name\_Post] unique ([Name\_Post])  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Post] ([Name\_Post])  values ('Водитель'),('Менеджер по заказам'),('Менеджер по продажам'),('Директор')  go | |
| Запросы на выборку данных | |
| Задача: Вывести Должности | |
| select [Name\_Post] as 'Должность' from [dbo].[Post]  order by [Name\_Post] ASC  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблицы | Изменение структуры таблицы | |
| create table [dbo].[Model]  (  [ID\_Model] [int] not null identity(1,1),  [Name\_Model] [varchar] (50) not null,  [Brand\_ID] [int] not null  constraint [PK\_Model] primary key clustered  ([ID\_Model] ASC) on [PRIMARY],  constraint [UQ\_Name\_Model] unique ([Name\_Model]),  constraint [FK\_Brand\_Model] foreign key ([Brand\_ID])  references [dbo].[Brand] ([ID\_Brand])  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Model] ([Name\_Model], [Brand\_ID])  values ('F2000', 1), ('FL7', 2)  go | |
| Запросы на выборку данных | |
| Задача: Вывести Модели | |
| select [Name\_Model] as 'Модель', [Name\_Brand] as 'Марка' from [dbo].[Model]  inner join [dbo].[Brand] on [ID\_Brand] = [Brand\_ID]  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Transport]  (  [ID\_Transport] [int] not null identity(1,1),  [Length\_Transport] [varchar] (8) not null,  [Width\_Transport] [varchar] (8) not null,  [Height\_Transport] [varchar] (8) not null,  [Load\_Copacity] [varchar] (8) not null,  [Copacity] [varchar] (9) not null,  [Number\_Transport] [varchar] (10) not null,  [Model\_ID] [int] not null  constraint [PK\_Transport] primary key clustered  ([ID\_Transport] ASC) on [PRIMARY],  constraint [CH\_Length\_Transport] check ([Length\_Transport] like ('[0-9][0-9][0-9][0-9]')),  constraint [CH\_Width\_Transport] check ([Width\_Transport] like ('[0-9][0-9][0-9][0-9]')),  constraint [CH\_Height\_Transport] check ([Height\_Transport] like ('[0-9][0-9][0-9][0-9]')),  constraint [CH\_Load\_Copacity] check ([Load\_Copacity] like ('[0-9][0-9][0-9][0-9]')  or [Load\_Copacity] like ('[0-9][0-9][0-9][0-9][0-9]')),  constraint [CH\_Copacity] check ([Copacity] like ('[0-9][0-9]')),  constraint [CH\_Number\_Transport] check ([Number\_Transport] like ('[А-Я][0-9][0-9][0-9][А-Я][А-Я]')),  constraint [UQ\_Number\_Transport] unique ([Number\_Transport]),  constraint [FK\_Model\_Transport] foreign key ([Model\_ID])  references [dbo].[Model] ([ID\_Model])  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Transport] ([Model\_ID], [Length\_Transport],[Width\_Transport],[Height\_Transport],[Load\_Copacity],[Copacity],[Number\_Transport])  values (1, '2342', '2342', '2342', '9000', '55', 'Х213ЫМ'), (2, '3211', '3223', '1115', '7000', '44', 'Х058ЕА'),  (2, '3211', '3223', '1115', '7000', '44', 'Е824ТС'), (1, '2342', '2342', '2342', '9000', '55', 'Т595ХЕ'),  (1, '2342', '2342', '2342', '9000', '55', 'У995ОО')  go | |
| Запросы на выборку данных | |
| Задача: Вывести Транспорт | |
| select [Length\_Transport]+' '+[Width\_Transport]+' '+[Height\_Transport] as 'Габариты', [Load\_Copacity] as 'Грузоподъемность', [Copacity] as 'Вместимость',  [Number\_Transport] as 'Номер', [Name\_Model] as 'Модель' from [dbo].[Transport]  inner join [dbo].[Model] on [ID\_Model] = [Model\_ID]  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Cargo]  (  [ID\_Cargo] [int] not null identity(1,1),  [Description\_Cargo] [varchar] (max) not null,  [Weight\_Cargo] [varchar] (8) not null,  [Length\_Cargo] [varchar] (8) not null,  [Width\_Cargo] [varchar] (8) not null,  [Height\_Cargo] [varchar] (8) not null  constraint [PK\_Cargo] primary key clustered  ([ID\_Cargo] ASC) on [PRIMARY],  constraint [CH\_Weight\_Cargo] check ([Weight\_Cargo] like ('[0-9][0-9][0-9]')  or [Weight\_Cargo] like ('[0-9][0-9][0-9][0-9]') or [Weight\_Cargo] like ('[0-9][0-9][0-9][0-9][0-9]')),  constraint [CH\_Length\_Cargo] check ([Length\_Cargo] like ('[0-9][0-9][0-9]')  or [Length\_Cargo] like ('[0-9][0-9][0-9][0-9]') or [Length\_Cargo] like ('[0-9][0-9][0-9][0-9][0-9]')),  constraint [CH\_Width\_Cargo] check ([Width\_Cargo] like ('[0-9][0-9][0-9]')  or [Width\_Cargo] like ('[0-9][0-9][0-9][0-9]') or [Width\_Cargo] like ('[0-9][0-9][0-9][0-9][0-9]')),  constraint [CH\_Height\_Cargo] check ([Height\_Cargo] like ('[0-9][0-9][0-9]')  or [Height\_Cargo] like ('[0-9][0-9][0-9][0-9]') or [Height\_Cargo] like ('[0-9][0-9][0-9][0-9][0-9]'))  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Cargo] ([Description\_Cargo], [Weight\_Cargo], [Length\_Cargo], [Width\_Cargo], [Height\_Cargo])  values ('Цистерны', '4000', '1000', '2000', '1000'), ('Древисина', '1000', '8000', '2000', '1000'),  ('Древисина', '1000', '8000', '2000', '1000'), ('Цистерны', '4000', '1000', '2000', '1000'), ('Цистерны', '4000', '1000', '2000', '1000')  go | |
| Запросы на выборку данных | |
| Задача: Вывести таблицу Груз | |
| select [Description\_Cargo] as 'Описание', [Weight\_Cargo] as 'Вес', [Length\_Cargo]+' '+[Width\_Cargo]+' '+[Height\_Cargo] as 'Габариты' from [dbo].[Cargo]  order by [Description\_Cargo] ASC  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Carrier]  (  [ID\_Carrier] [int] not null identity(1,1),  [Name\_Carrier] [varchar] (50) not null,  [Type\_Organization\_ID] [int] not null  constraint [PK\_Carrier] primary key clustered  ([ID\_Carrier] ASC) on [PRIMARY],  constraint [UQ\_Name\_Carrier] unique ([Name\_Carrier]),  constraint [FK\_Type\_Organization\_Carrier] foreign key ([Type\_Organization\_ID])  references [dbo].[Type\_Organization] ([ID\_Type\_Organization])  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Carrier] ([Name\_Carrier], [Type\_Organization\_ID])  values ('"Экспресс-доставка"', 1), ('"МаксФорт"', 3), ('"ГрузиВезу"', 2),  ('"ГрузовичОк"', 3), (' "ГрузиВезу"', 3)  go | |
| Запросы на выборку данных | |
| Задача: Вывести таблицу Перевозчик | |
| select [Name\_Carrier] as 'Название организации', [Type\_Name] as 'Тип организации' from [dbo].[Carrier]  inner join [dbo].[Type\_Organization] on [ID\_Type\_Organization] = [Type\_Organization\_ID]  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Employee]  (  [ID\_Employee] [int] not null identity(1,1),  [Name\_Employee] [varchar] (32) not null,  [Surname\_Employee] [varchar] (32) not null,  [Lastname\_Employee] [varchar] (32) null default('-'),  [SNILS] [varchar] (14) not null,  [FOMS] [varchar] (16) not null,  [Login\_Employee] [varchar] (50) not null,  [Password\_Employee] [varchar] (32) not null,  [Carrier\_ID] [int] not null  constraint [PK\_Employee] primary key clustered  ([ID\_Employee] ASC) on [PRIMARY],  constraint [UQ\_SNILS] unique ([SNILS]),  constraint [CH\_SNILS] check  ([SNILS] like ('[0-9][0-9][0-9]-[0-9][0-9][0-9]-[0-9][0-9][0-9] [0-9][0-9]')),  constraint [UQ\_FOMS] unique ([FOMS]),  constraint [CH\_FOMS] check  ([FOMS] like ('[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]')),  constraint [UQ\_Login\_Employee] unique ([Login\_Employee]),  constraint [CH\_Login\_Employee] check (len([Login\_Employee])>=8),  constraint [CH\_Password\_Employee] check  (len([Password\_Employee]) >=4),  constraint [FK\_Carrier\_Employee] foreign key ([Carrier\_ID])  references [dbo].[Carrier] ([ID\_Carrier])  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Employee] ([Name\_Employee], [Surname\_Employee], [Lastname\_Employee], [SNILS], [FOMS], [Login\_Employee], [Password\_Employee], [Carrier\_ID])  values ('Августин', 'Тарасов', 'Натанович', '155-144-737 00', '7849123112311240', 'Driver\_\_1', '1234567', 1),  ('Дмитрий', 'Дмитриев', 'Дмитриевич', '152-512-232 00', '2384198471152980', 'Driver\_\_2', '1234567', 2),  ('Олег', 'Олегов', 'Олегович', '124-512-535 00', '8712638716238760', 'Driver\_\_3', '1234567', 3),  ('Олег', 'Олегов', 'Олегович', '654-412-123 00', '4739247392487910', 'Driver\_\_4', '1234567', 4),  ('Павел', 'Павлов', 'Павлович', '412-123-321 00', '3487162487619280', 'Driver\_\_5', '1234567', 5)  go | |
| Запросы на выборку данных | |
| Задача: Вывести таблицу Сотрудника | |
| select [Name\_Employee]+' '+[Surname\_Employee]+' '+[Lastname\_Employee] as 'ФИО сотрудника', [SNILS] as 'СНИЛС', [FOMS] as 'ФОМС', [Login\_Employee] as 'Логин',  [Password\_Employee] as 'Пароль', [Name\_Carrier] as 'Название организации перевозчика' from [dbo].[Employee]  inner join [dbo].[Carrier] on [ID\_Carrier] = [Carrier\_ID]  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Route\_Sheet]  (  [ID\_Route\_Sheet] [int] not null identity(1,1),  [Number\_Route\_Sheet] [varchar] (max) not null,  [Date\_Route\_Sheet] [date] not null default(getdate()),  [Time\_Route\_Sheet] [time] not null default(getdate()),  [Carrier\_ID] [int] not null,  [Transport\_ID] [int] not null  constraint [PK\_Route\_Sheet] primary key clustered  ([ID\_Route\_Sheet] ASC) on [PRIMARY],  constraint [CH\_Number\_Route\_Sheet] check  ([Number\_Route\_Sheet] like ('[0-9][0-9][0-9][0-9]-[0-9][0-9]')),  constraint [FK\_Carrier\_Route\_Sheet] foreign key ([Carrier\_ID])  references [dbo].[Carrier] ([ID\_Carrier]),  constraint [FK\_Transport\_Route\_Sheet] foreign key ([Transport\_ID])  references [dbo].[Transport] ([ID\_Transport]),  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Route\_Sheet] ([Number\_Route\_Sheet], [Date\_Route\_Sheet], [Time\_Route\_Sheet], [Carrier\_ID], [Transport\_ID])  values ('0001-21', Convert(date, '24.12.2021'), Convert(time, '17:43:00'), 1, 1),  ('0002-21', Convert(date, '28.12.2021'), Convert(time, '18:22:00'), 2, 2),  ('0003-22', Convert(date, '01.01.2022'), Convert(time, '05:23:00'), 3, 3),  ('0004-22', Convert(date, '01.12.2022'), Convert(time, '23:32:00'), 4, 4),  ('0005-22', Convert(date, '03.12.2022'), Convert(time, '20:21:00'), 5, 5)  go | |
| Запросы на выборку данных | |
| Задача: Вывести таблицу Маршрутный лист | |
| select [Number\_Route\_Sheet] as 'Номер', [Date\_Route\_Sheet] as 'Дата', [Time\_Route\_Sheet] as 'Время', [Name\_Carrier] as 'Перевозчик',  [Name\_Model]+' '+[Number\_Transport] from [dbo].[Route\_Sheet]  inner join [dbo].[Carrier] on [ID\_Carrier] = [Carrier\_ID]  inner join [dbo].[Transport] on [ID\_Transport] = [Transport\_ID] inner join [dbo].[Model] on [ID\_Model] = [Model\_ID]  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Customer]  (  [ID\_Customer] [int] not null identity(1,1),  [Name\_Customer\_Organization] [varchar] (50) not null,  [Organization\_Address] [varchar] (max) not null,  [TIN] [varchar] (12) not null,  [BIC] [varchar] (9) not null,  [OKPO] [varchar] (8) not null,  [Login\_Customer] [varchar] (50) not null,  [Password\_Customer] [varchar] (32) not null,  [Name\_Customer] [varchar] (32) not null,  [Surname\_Customer] [varchar] (32) not null,  [Lastname\_Customer] [varchar] (32) null default('-'),  [Type\_Organization\_ID] [int] not null  constraint [PK\_Customer] primary key clustered  ([ID\_Customer] ASC) on [PRIMARY],  constraint [CH\_TIN] check  ([TIN] like ('[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]')),  constraint [UQ\_TIN] unique ([TIN]),  constraint [CH\_BIC] check ([BIC] like ('[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]')),  constraint [CH\_OKPO] check ([OKPO] like ('[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]')),  constraint [UQ\_OKPO] unique ([OKPO]),  constraint [CH\_Login\_Customer] check  (len([Login\_Customer]) >=4),  constraint [UQ\_Login\_Customer] unique ([Login\_Customer]),  constraint [CH\_Password\_Customer] check  (len([Password\_Customer]) >=4),  constraint [FK\_Type\_Organization\_Customer] foreign key ([Type\_Organization\_ID])  references [dbo].[Type\_Organization] ([ID\_Type\_Organization])  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Customer] ([Type\_Organization\_ID], [Name\_Customer\_Organization], [Organization\_Address], [TIN], [BIC], [OKPO],  [Login\_Customer], [Password\_Customer], [Name\_Customer], [Surname\_Customer], [Lastname\_Customer])  values (3, '"РоялТранс"', 'Ул. Чертановская, д. 3, стр. 3', '623874628773', '487238473', '00432445', 'Qwerty1', '1234567', 'Егор', 'Брагин', 'Петрович'),  (3, '"МакТранс"', 'Ул. Степановская, д. 6, к. 1', '584638576223', '004342561', '21123156', 'Qwerty2', '1234567', 'Рубен', 'Родионов', 'Дамирович'),  (2, '"Центр грузоперевозки"', 'Ул. Чертановская, д. 2, стр. 1', '464736767782', '000423213', '32847234', 'Qwerty3', '1234567', 'Бронислав', 'Пестов', 'Максимович'),  (1, '"С-Грузов"', 'Ул. Арбат, д. 2, к. 6', '784738748772', '762314876', '00345343', 'Qwerty4', '1234567', 'Игнатий', 'Зиновьев', 'Андреевич'),  (3, '"Груз-сервис"', 'Ул. Молочная, д. 13, к. 5', '723847282341', '594823589', '00232312', 'Qwerty5', '1234567', 'Станислав', 'Лазарев', 'Валерьянович')  go | |
| Запросы на выборку данных | |
| Задача: Вывести таблицу Заказчика | |
| select [Name\_Customer]+' '+[Surname\_Customer]+' '+[Lastname\_Customer] as 'Фио покупателя', [Login\_Customer] as 'Логин', [Password\_Customer] as 'Пароль',  [TIN] as 'ИНН', [BIC] as 'БИК', [OKPO] as 'ОКПО', [Type\_Name] as 'Тип организации', [Name\_Customer\_Organization] as 'Название организации',  [Organization\_Address] as 'Адрес организации' from [dbo].[Customer]  inner join [dbo].[Type\_Organization] on [ID\_Type\_Organization] = [Type\_Organization\_ID]  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Application]  (  [ID\_Application] [int] not null identity(1,1),  [Number\_Application] [varchar] (max) not null,  [Date\_Application] [date] not null default(getdate()),  [Time\_Application] [time] not null default(getdate()),  [Status\_Application] [varchar] (15) not null,  [Customer\_ID] [int] not null,  [Route\_Sheet\_ID] [int] not null  constraint [PK\_Application] primary key clustered  ([ID\_Application] ASC) on [PRIMARY],  constraint [CH\_Status\_Application] check  ([Status\_Application] in ('Обработан', 'Обрабатывается', 'Отменен')),  constraint [FK\_Customer\_Application] foreign key ([Customer\_ID])  references [dbo].[Customer] ([ID\_Customer]),  constraint [FK\_Route\_Sheet\_Application] foreign key ([Route\_Sheet\_ID])  references [dbo].[Route\_Sheet] ([ID\_Route\_Sheet])  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Application] ([Number\_Application], [Date\_Application], [Time\_Application], [Status\_Application], [Customer\_ID], [Route\_Sheet\_ID])  values ('1', Convert(date, '23.12.2021'), Convert(time, '17:43'), 'Обработан', 1, 1),  ('2', Convert(date, '28.12.2021'), Convert(time, '16:23'), 'Обработан', 2, 2),  ('3', Convert(date, '01.01.2022'), Convert(time, '00:00'), 'Обработан', 3, 3),  ('4', Convert(date, '01.01.2022'), Convert(time, '19:32'), 'Обработан', 4, 4),  ('5', Convert(date, '03.01.2022'), Convert(time, '17:21'), 'Обрабатывается', 5, 5)  go | |
| Запросы на выборку данных | |
| Задача: Вывести информацию о заявке. | |
| select [Number\_Application] as 'Номер заявки', [Date\_Application] as 'Дата', [Time\_Application] as 'Время', [Status\_Application] as 'Статус',  [Name\_Customer]+' '+[Surname\_Customer]+' '+[Lastname\_Customer] as 'ФИО покупателя', [Number\_Route\_Sheet] as 'Номер маршрутного листа' from [dbo].[Application]  inner join [dbo].[Customer] on [ID\_Customer] = [Customer\_ID]  inner join [dbo].[Route\_Sheet] on [ID\_Route\_Sheet] = [Route\_Sheet\_ID]  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Post\_Customer]  (  [ID\_Post\_Customer] [int] not null identity(1,1),  [Post\_ID] [int] not null,  [Customer\_ID] [int] not null  constraint [PK\_Post\_Customer] primary key clustered  ([ID\_Post\_Customer] ASC) on [PRIMARY],  constraint [FK\_Post] foreign key ([Post\_ID])  references [dbo].[Post] ([ID\_Post]),  constraint [FK\_Customer] foreign key ([Customer\_ID])  references [dbo].[Customer] ([ID\_Customer]),  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Post\_Customer] ([Post\_ID], [Customer\_ID])  values (2,1), (2,2), (4,3), (3,4), (4,5)  go | |
| Запросы на выборку данных | |
| Задача: Вывести таблицу о должности сотрудника. | |
| select [Name\_Customer]+' '+[Surname\_Customer]+' '+[Lastname\_Customer] as 'ФИО заказчика', [Name\_Post] as 'Должность' from [dbo].[Post\_Customer]  inner join [dbo].[Customer] on [ID\_Customer] = [Customer\_ID]  inner join [dbo].[Post] on [ID\_Post] = [Post\_ID]  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Country\_Trasnport]  (  [ID\_Country\_Transport] [int] not null identity(1,1),  [Country\_ID] [int] not null,  [Transport\_ID] [int] not null  constraint [PK\_Country\_Transport] primary key clustered  ([ID\_Country\_Transport] ASC) on [PRIMARY],  constraint [FK\_Country] foreign key ([Country\_ID])  references [dbo].[Country] ([ID\_Country]),  constraint [FK\_Transport] foreign key ([Transport\_ID])  references [dbo].[Transport] ([ID\_Transport]),  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Country\_Trasnport] ([Country\_ID], [Transport\_ID])  values (1,1), (1,2), (2,3), (2,4), (2,5)  go | |
| Запросы на выборку данных | |
| Задача: Вывести таблицу страна транспорта | |
| select [Number\_Transport] as 'Номер', [Name\_Country] as 'Страна' from [dbo].[Country\_Trasnport]  inner join [dbo].[Country] on [ID\_Country] = [Country\_ID]  inner join [dbo].[Transport] on [ID\_Transport] = [Transport\_ID]  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Points\_Route\_Sheet]  (  [ID\_Point\_Route\_Sheet] [int] not null identity(1,1),  [Delivery\_Point\_ID] [int] not null,  [Route\_Sheet\_ID] [int] not null  constraint [PK\_Point\_Route\_Sheet] primary key clustered  ([ID\_Point\_Route\_Sheet] ASC) on [PRIMARY],  constraint [FK\_Delivery\_Point] foreign key ([Delivery\_Point\_ID])  references [dbo].[Delivery\_Points] ([ID\_Delivery\_Point]),  constraint [FK\_Route\_Sheet] foreign key ([Route\_Sheet\_ID])  references [dbo].[Route\_Sheet] ([ID\_Route\_Sheet]),  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Points\_Route\_Sheet] ([Delivery\_Point\_ID], [Route\_Sheet\_ID])  values (1,1), (2,1), (1,2), (4,2), (1,3), (1,4), (3,4), (1,5), (5,5)  go | |
| Запросы на выборку данных | |
| Задача: Вывести таблицу точки маршрутного листа | |
| select [Delivery\_Address] as 'Адрес доставки', [Number\_Route\_Sheet] as 'Номер маршрутного листа' from [dbo].[Points\_Route\_Sheet]  inner join [dbo].[Delivery\_Points] on [ID\_Delivery\_Point] = [Delivery\_Point\_ID]  inner join [dbo].[Route\_Sheet] on [ID\_Route\_Sheet] = [Route\_Sheet\_ID]  order by [Number\_Route\_Sheet] ASC  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Cargo\_Application]  (  [ID\_Cargo\_Application] [int] not null identity(1,1),  [Cargo\_ID] [int] not null,  [Application\_ID] [int] null  constraint [PK\_Cargo\_Application] primary key clustered  ([ID\_Cargo\_Application] ASC) on [PRIMARY],  constraint [FK\_Cargo] foreign key ([Cargo\_ID])  references [dbo].[Cargo] ([ID\_Cargo]),  constraint [FK\_Application] foreign key ([Application\_ID])  references [dbo].[Application] ([ID\_Application])  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Cargo\_Application] ([Cargo\_ID], [Application\_ID])  values (1,1), (2,2), (3,3), (4,4), (5,5)  go | |
| Запросы на выборку данных | |
| Задача: Вывести таблицу Заявка Груза | |
| select [Description\_Cargo] as 'Название товара', [Number\_Application] as 'Номер заявки' from [dbo].[Cargo\_Application]  inner join [dbo].[Cargo] on [ID\_Cargo] = [Cargo\_ID]  inner join [dbo].[Application] on [ID\_Application] = [Application\_ID]  go | |
| Результат запроса на выборку данных | | |
|  | | |
| Таблица | Изменение структуры таблицы | |
| create table [dbo].[Cargo\_Application]  (  [ID\_Cargo\_Application] [int] not null identity(1,1),  [Cargo\_ID] [int] not null,  [Application\_ID] [int] null  constraint [PK\_Cargo\_Application] primary key clustered  ([ID\_Cargo\_Application] ASC) on [PRIMARY],  constraint [FK\_Cargo] foreign key ([Cargo\_ID])  references [dbo].[Cargo] ([ID\_Cargo]),  constraint [FK\_Application] foreign key ([Application\_ID])  references [dbo].[Application] ([ID\_Application])  )  go | - | |
| Запросы на добавление данных | |
| insert into [dbo].[Cargo\_Application] ([Cargo\_ID], [Application\_ID])  values (1,1), (2,2), (3,3), (4,4), (5,5)  go | |
| Запросы на выборку данных | |
| Задача: Вывести название товара и номер заявки. | |
| select [Description\_Cargo] as 'Название товара', [Number\_Application] as 'Номер заявки' from [dbo].[Cargo\_Application]  inner join [dbo].[Cargo] on [ID\_Cargo] = [Cargo\_ID]  inner join [dbo].[Application] on [ID\_Application] = [Application\_ID]  go | |
| Результат запроса на выборку данных | | |
|  | | |

2) Общее представление манипулирования над данными в таблицах.

|  |  |
| --- | --- |
| Таблица | Изменение структуры таблицы |
| create table [dbo].[Type\_Organization]  (  [ID\_Type\_Organization] [int] not null identity(1,1),  [Type\_Name] [varchar] (max) not null  constraint [PK\_Type\_Organization] primary key clustered  ([ID\_Type\_Organization] ASC) on [PRIMARY]  )  go | update [dbo].[Type\_Organization] set [Type\_Name] = 'ЮЮЮ'  where [ID\_Type\_Organization] = 3  go |
|  |
| Удаление данных |
| delete [dbo].[Type\_Organization] where [ID\_Type\_Organization] = 2  go |
|  |
| Таблица | Изменение структуры таблицы |
| create table [dbo].[Brand]  (  [ID\_Brand] [int] not null identity(1,1),  [Name\_Brand] [varchar] (50) not null  constraint [PK\_Brand] primary key clustered  ([ID\_Brand] ASC) on [PRIMARY],  constraint [UQ\_Name\_Brand] unique ([Name\_Brand])  )  go | update [dbo].[Brand] set [Name\_Brand] = 'BMW'  where [ID\_Brand] = 1  go |
|  |
| Удаление данных |
| delete [dbo].[Brand] where [ID\_Brand] = 1  go |
|  |
| Таблица | Изменение структуры таблицы |
| create table [dbo].[Post]  (  [ID\_Post] [int] not null identity(1,1),  [Name\_Post] [varchar] (50) not null  constraint [PK\_Post] primary key clustered  ([ID\_Post] ASC) on [PRIMARY],  constraint [UQ\_Name\_Post] unique ([Name\_Post])  )  go | update [dbo].[Post] set [Name\_Post] = 'Строитель'  where [ID\_Post] = 1  go |
|  |
| Удаление данных |
| delete [dbo].[Post] where [ID\_Post] = 1  go |
|  |
| Таблица | Изменение структуры таблицы |
| create table [dbo].[Customer]  (  [ID\_Customer] [int] not null identity(1,1),  [Name\_Customer\_Organization] [varchar] (50) not null,  [Organization\_Address] [varchar] (max) not null,  [TIN] [varchar] (12) not null,  [BIC] [varchar] (9) not null,  [OKPO] [varchar] (8) not null,  [Login\_Customer] [varchar] (50) not null,  [Password\_Customer] [varchar] (32) not null,  [Name\_Customer] [varchar] (32) not null,  [Surname\_Customer] [varchar] (32) not null,  [Lastname\_Customer] [varchar] (32) null default('-'),  [Type\_Organization\_ID] [int] not null  constraint [PK\_Customer] primary key clustered  ([ID\_Customer] ASC) on [PRIMARY],  constraint [CH\_TIN] check  ([TIN] like ('[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]')),  constraint [UQ\_TIN] unique ([TIN]),  constraint [CH\_BIC] check ([BIC] like ('[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]')),  constraint [CH\_OKPO] check ([OKPO] like ('[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]')),  constraint [UQ\_OKPO] unique ([OKPO]),  constraint [CH\_Login\_Customer] check  (len([Login\_Customer]) >=4),  constraint [UQ\_Login\_Customer] unique ([Login\_Customer]),  constraint [CH\_Password\_Customer] check  (len([Password\_Customer]) >=4),  constraint [FK\_Type\_Organization\_Customer] foreign key ([Type\_Organization\_ID])  references [dbo].[Type\_Organization] ([ID\_Type\_Organization])  )  go | update [dbo].[Customer] set [Name\_Customer] = 'Иван'  where [ID\_Customer] = 1  go |
|  |
| Удаление данных |
| delete [dbo].[Customer] where [ID\_Customer] = 1  go |
|  |

3) Фильтрация данных.

|  |  |
| --- | --- |
| Таблица | Запросы и результаты |
| create table [dbo].[Country]  (  [ID\_Country] [int] not null identity(1,1),  [Name\_Country] [varchar] (50) not null  constraint [PK\_Country] primary key clustered  ([ID\_Country] ASC) on [PRIMARY],  constraint [UQ\_Name\_Country] unique ([Name\_Country])  )  go | Задача: Вывести страну «Германия» |
| select [Name\_Country] as 'Название страны' from [dbo].[Country]  where [Name\_Country] = 'Германия'  go |
|  |
| Таблица | Запросы и результаты |
| create table [dbo].[Customer]  (  [ID\_Customer] [int] not null identity(1,1),  [Name\_Customer\_Organization] [varchar] (50) not null,  [Organization\_Address] [varchar] (max) not null,  [TIN] [varchar] (12) not null,  [BIC] [varchar] (9) not null,  [OKPO] [varchar] (8) not null,  [Login\_Customer] [varchar] (50) not null,  [Password\_Customer] [varchar] (32) not null,  [Name\_Customer] [varchar] (32) not null,  [Surname\_Customer] [varchar] (32) not null,  [Lastname\_Customer] [varchar] (32) null default('-'),  [Type\_Organization\_ID] [int] not null  constraint [PK\_Customer] primary key clustered  ([ID\_Customer] ASC) on [PRIMARY],  constraint [CH\_TIN] check  ([TIN] like ('[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]')),  constraint [UQ\_TIN] unique ([TIN]),  constraint [CH\_BIC] check ([BIC] like ('[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]')),  constraint [CH\_OKPO] check ([OKPO] like ('[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]')),  constraint [UQ\_OKPO] unique ([OKPO]),  constraint [CH\_Login\_Customer] check  (len([Login\_Customer]) >=4),  constraint [UQ\_Login\_Customer] unique ([Login\_Customer]),  constraint [CH\_Password\_Customer] check  (len([Password\_Customer]) >=4),  constraint [FK\_Type\_Organization\_Customer] foreign key ([Type\_Organization\_ID])  references [dbo].[Type\_Organization] ([ID\_Type\_Organization])  )  go | Задача: Вывести все имена «Бронислав» |
| select [Name\_Customer] as 'Название модели'  from [dbo].[Customer]  where [Name\_Customer] = 'Бронислав'  go |
|  |

3. ВЫВОД

В ходе данной практической работы, на основании разработанной структуры базы данных с помощью языка DDL, была заполнена структура базы данных и выборка данных из таблиц базы данных.

4. СПИСОК ИСПОЛЬЗУЕМОЙ ЛИТЕРАТУРЫ

1. Теоретические сведения к выполнению практической работы.