Лабораторная работа 2

Задание 1

1. Вывести на экран название отдела, где работает каждый сотрудник в настоящий момент

```
SELECT EmployeeDepartmentHistory.BusinessEntityID,
      Employee.JobTitle,
      EmployeeDepartmentHistory.DepartmentID,
      Department.Name
FROM AdventureWorks2012.HumanResources.EmployeeDepartmentHistory
        JOIN AdventureWorks2012.HumanResources.Employee
             ON EmployeeDepartmentHistory.BusinessEntityID = Employee.BusinessEntityID AND
                EmployeeDepartmentHistory.EndDate is NULL
        JOIN AdventureWorks2012.HumanResources.Department
             ON EmployeeDepartmentHistory.DepartmentID = Department.DepartmentID;
GO
```

	BusinessEntityID	JobTitle	DepartmentID	Name
1	1	Chief Executive Officer	16	Executive
2	2	Vice President of Engineering	1	Engineering
3	3	Engineering Manager	1	Engineering
4	4	Senior Tool Designer	2	Tool Design
5	5	Design Engineer	1	Engineering
6	6	Design Engineer	1	Engineering
7	7	Research and Development Manager	6	Research and Development
8	8	Research and Development Engineer	6	Research and Development
9	9	Research and Development Engineer	6	Research and Development
10	10	Research and Development Manager	6	Research and Development
11	11	Senior Tool Designer	2	Tool Design

2. Вывести на экран количество сотрудников в каждом отделе

```
SELECT Department.DepartmentID,
      Department.Name,
      COUNT(*) AS EmpCount
FROM AdventureWorks2012.HumanResources.Department
        JOIN AdventureWorks2012.HumanResources.EmployeeDepartmentHistory
             ON Department.DepartmentID = EmployeeDepartmentHistory.DepartmentID
        JOIN AdventureWorks2012.HumanResources.Employee
             ON EmployeeDepartmentHistory.BusinessEntityID =
                AdventureWorks2012.HumanResources.Employee.BusinessEntityID
                 AND EndDate is null
GROUP BY Department.Name, Department.DepartmentID;
GO
```

	DepartmentID	Name	EmpCount
1	1	Engineering	6
2	2	Tool Design	4
3	3	Sales	18
4	4	Marketing	9
5	5	Purchasing	12
6	6	Research and Development	4
7	7	Production	179
8	8	Production Control	6
9	9	Human Resources	6
10	10	Finance	10
11	11	Information Services	10

3. Вывести на экран отчет истории изменения почасовых ставок как показано в примере.

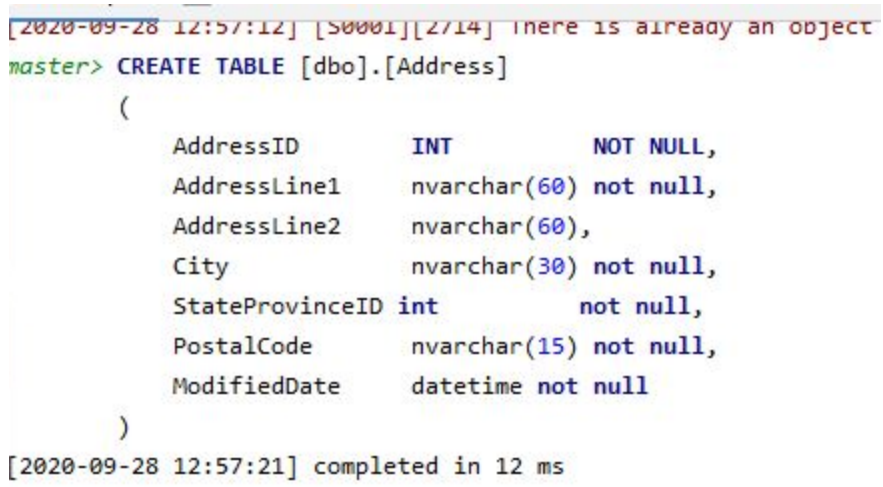
```
SELECT JobTitle,
      Rate,
      RateChangeDate,
      'The rate for' + JobTitle + 'was set to ' + LTRIM(CAST(Rate as char(20))) + '
at ' +
      FORMAT(RateChangeDate, 'dd MMM yyyy') as Date
FROM AdventureWorks2012.HumanResources.Employee
        JOIN AdventureWorks2012.HumanResources.EmployeePayHistory
             ON Employee.BusinessEntityID = EmployeePayHistory.BusinessEntityID;
GO
```

	JobTitle	Rate	RateChangeDate	Date
1	Chief Executive Officer	125.5000	2003-02-15 00:00:00.000	The rate forChief Executive Officerwas set to 125.50 at 15 Feb 2003
2	Vice President of Engineering	63.4615	2002-03-03 00:00:00.000	The rate forVice President of Engineeringwas set to 63.46 at 03 Mar 2002
3	Engineering Manager	43.2692	2001-12-12 00:00:00.000	The rate forEngineering Managerwas set to 43.27 at 12 Dec 2001
4	Senior Tool Designer	8.6200	2002-01-05 00:00:00.000	The rate forSenior Tool Designerwas set to 8.62 at 05 Jan 2002
5	Senior Tool Designer	23.7200	2004-07-01 00:00:00.000	The rate forSenior Tool Designerwas set to 23.72 at 01 Jul 2004
6	Senior Tool Designer	29.8462	2006-01-15 00:00:00.000	The rate forSenior Tool Designerwas set to 29.85 at 15 Jan 2006
7	Design Engineer	32.6923	2002-02-06 00:00:00.000	The rate forDesign Engineerwas set to 32.69 at 06 Feb 2002
8	Design Engineer	32.6923	2002-02-24 00:00:00.000	The rate forDesign Engineerwas set to 32.69 at 24 Feb 2002
9	Research and Development Manager	50.4808	2003-03-12 00:00:00.000	The rate forResearch and Development Managerwas set to 50.48 at 12 Mar 2003
10	Research and Development Engineer	40.8654	2003-01-30 00:00:00.000	The rate forResearch and Development Engineerwas set to 40.87 at 30 Jan 2003

Задание 2

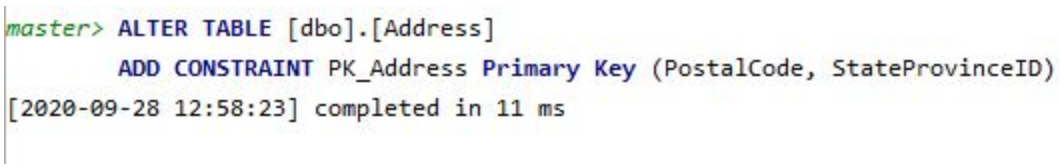
1. создайте таблицу dbo.Address с такой же структурой как Person.Address, кроме полей geography, uniqueidentifier, не включая индексы, ограничения и триггеры;

```
CREATE TABLE [dbo].[Address]
(
   AddressID         INT           NOT NULL,
   AddressLine1      nvarchar(60) not null,
   AddressLine2      nvarchar(60),
   City              nvarchar(30) not null,
   StateProvinceID int           not null,
   PostalCode        nvarchar(15) not null,
   ModifiedDate      datetime not null
)
```



2. используя инструкцию ALTER TABLE, создайте для таблицы dbo.Address составной первичный ключ из полей StateProvinceID и PostalCode;

```
ALTER TABLE [dbo].[Address]
ADD CONSTRAINT PK_Address Primary Key (PostalCode, StateProvinceID);
```



3. используя инструкцию ALTER TABLE, создайте для таблицы dbo.Address ограничение для поля PostalCode, запрещающее заполнение этого поля буквами;

```
ALTER TABLE [dbo].[Address]
ADD CONSTRAINT CHK_Address_PostalCode_Is_Digit CHECK (LOWER(PostalCode) not like '%[a-z]%');
GO
```

```
master> ALTER TABLE [dbo].[Address]
        ADD CONSTRAINT CHK_Address_PostalCode_Is_Digit CHECK (LOWER(PostalCode) not like '%[a-z]%')
[2020-09-28 13:00:23] completed in 11 ms
```

4. используя инструкцию ALTER TABLE, создайте для таблицы dbo.Address ограничение DEFAULT для поля ModifiedDate, задайте значение по умолчанию текущую дату и время;

```
ALTER TABLE [dbo].[Address]
ADD CONSTRAINT DF_Address_ModifiedDate DEFAULT GETDATE() FOR ModifiedDate;
GO
```

```
master> ALTER TABLE [dbo].[Address]
        ADD CONSTRAINT DF_Address_ModifiedDate DEFAULT GETDATE() FOR ModifiedDate
[2020-09-28 13:00:34] completed in 10 ms
```

5. заполните новую таблицу данными из Person.Address. Выберите для вставки только те адреса, где значение поля CountryRegionCode = ‘US’ из таблицы StateProvince. Также исключите данные, где PostalCode содержит буквы. Для группы данных из полей StateProvinceID и PostalCode выберите только строки с максимальным AddressID (это можно осуществить с помощью оконных функций);

```
INSERT INTO dbo.Address
(AddressID,
AddressLine1,
AddressLine2,
City,
StateProvinceID,
PostalCode,
ModifiedDate)
```

```
SELECT T.AddressID,
       T.AddressLine1,
       T.AddressLine2,
       T.City,
       T.StateProvinceID,
       T.PostalCode,
       T.ModifiedDate
FROM (
        SELECT AddressID,
                  MAX(AddressID)    OVER    (    PARTITION    BY    PostalCode,
Address.StateProvinceID) as MaxAddressId,
                Address.AddressLine1,
                Address.AddressLine2,
                Address.City,
                Address.StateProvinceID,
                PostalCode,
                Address.ModifiedDate
        FROM AdventureWorks2012.Person.Address) T
         JOIN AdventureWorks2012.Person.StateProvince as A on T.StateProvinceID
= A.StateProvinceID
   AND A.CountryRegionCode = 'US' AND (LOWER(T.PostalCode) not like '%[a-z]%')
AND MaxAddressId = AddressID;
GO
```

```
            AND A.CountryRegionCode = 'US' AND (LOWE
[2020-09-28 13:03:14] 399 rows affected in 112 ms
```

6. уменьшите размер поля City на NVARCHAR(20).

```
ALTER TABLE Address
   ALTER COLUMN City NVARCHAR(20);
GO
```

```
master> ALTER TABLE Address
            ALTER COLUMN City NVARCHAR(20)
[2020-09-28 13:04:16] completed in 38 ms
```