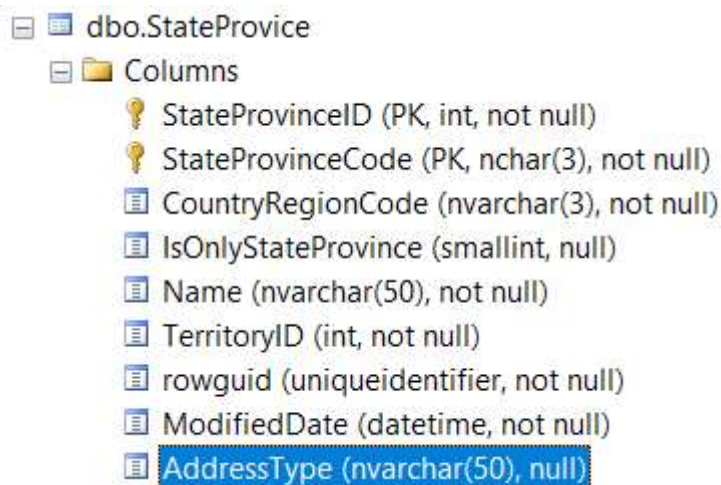


# Лабораторная работа 3

## Задание 1

1)добавьте в таблицу dbo.StateProvince поле AddressType типа nvarchar(50);

```
alter table dbo.StateProvince  
add AddressType nvarchar(50);  
go
```



2)объявите табличную переменную с такой же структурой как dbo.StateProvince и заполните ее данными из dbo.StateProvince. Поле AddressType заполните данными из таблицы Person.AddressType поля Name;

```
declare @dboStateProvince table (  
    StateProvinceID int not null,  
    StateProvinceCode nchar(3) not null,  
    CountryRegionCode nvarchar(3) not null,  
    IsOnlyStateProvince smallint,  
    Name nvarchar(50) not null,  
    TerritoryID int not null,  
    rowguid uniqueidentifier not null,  
    ModifiedDate datetime not null,  
    AddressType nvarchar(50));
```

```

insert into @dboStateProvice (
    StateProvinceID,
    StateProvinceCode,
    CountryRegionCode,
    IsOnlyStateProvince,
    Name,
    TerritoryID,
    rowguid,
    ModifiedDate,
    AddressType)
select
    sp.StateProvinceID,
    sp.StateProvinceCode,
    sp.CountryRegionCode,
    sp.IsOnlyStateProvince,
    sp.Name,
    sp.TerritoryID,
    sp.rowguid,
    sp.ModifiedDate,
    at.Name
from dbo.StateProvice as sp
inner join Person.Address as a
on sp.StateProvinceID = a.StateProvinceID
inner join Person.BusinessEntityAddress as bea
on a.AddressID = bea.AddressID
inner join Person.AddressType as at
on bea.AddressTypeID = at.AddressTypeID;

select * from @dboStateProvice;

```

Results		Messages							
	State...	State...	Coun...	IsO...	Name	T...	rowguid	ModifiedDate	AddressTy
1	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Home
2	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Home
3	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Home
4	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Home
5	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Home
6	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Home
7	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Home
8	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Home
9	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Shipping
10	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Home
11	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Shipping
12	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Shipping
13	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Shipping
14	79	WA	US	0	Washington	2	16274DF0-6F05-43A6-BC18-AD171017A1EB	2008-03-11 10:17:21.587	Home

3)обновите поле AddressType в dbo.StateProvince данными из табличной переменной, добавьте в начало названия каждого штата в поле Name название региона из Person.CountryRegion;

```
update dbo.StateProvince
set AddressType = varsp.AddressType,
    Name = (cr.Name + ' | ' + sp.Name)
from dbo.StateProvince as sp
inner join @dboStateProvince as varsp
on sp.StateProvinceID = varsp.StateProvinceID
inner join Person.CountryRegion as cr
on sp.CountryRegionCode = cr.CountryRegionCode;
go

select * from dbo.StateProvince;
go
```

	Sta...	Sta...	Countr...	IsOnly...	Name	Te...	rowguid	ModifiedDate	AddressTy...
1	6	AZ	US	0	United StatesArizona	2	FB8BE18E-...	2008-03-11 10:1...	Shipping
2	9	CA	US	0	United StatesCalifornia	2	3B2FF23C-...	2008-03-11 10:1...	Home
3	10	CO	US	0	United StatesColorado	2	292DF595-...	2008-03-11 10:1...	Main Office
4	15	FL	US	0	United StatesFlorida	2	EE8BA90D-...	2008-03-11 10:1...	Shipping
5	32	MD	US	0	United StatesMaryland	2	B3D8517D-...	2008-03-11 10:1...	Shipping
6	36	MN	US	0	United StatesMinnesota	2	553C8DAA-...	2008-03-11 10:1...	Home
7	63	QC	CA	0	CanadaQuebec	2	FF830158-...	2008-03-11 10:1...	Shipping
8	73	TX	US	0	United StatesTexas	2	99C542E0-...	2008-03-11 10:1...	Shipping
9	79	WA	US	0	United StatesWashington	2	16274DF0-...	2008-03-11 10:1...	Home

**\*\*!!! Забыл пробел вставить сначала(не заметил сразу). В коде все как надо.**

4) удалите данные из dbo.StateProvince, оставив по одной строке для каждого значения из AddressType с максимальным StateProvinceID;

```
delete from dbo.StateProvince
where StateProvinceID not in (
    select
        max(StateProvinceID) as StateProvinceID
    from dbo.StateProvince
    group by AddressType);
go

select * from dbo.StateProvince;
go
```

Results Messages		StateProvinc...	State...	Coun...	IsO...	Name	Te...	rowguid	ModifiedDate	AddressTy...
1		10	CO	US	0	United StatesColorado	2	292DF595-7D...	2008-03-11 10:17:21.587	Main Office
2		73	TX	US	0	United StatesTexas	2	99C542E0-5D...	2008-03-11 10:17:21.587	Shipping
3		79	WA	US	0	United StatesWashington	2	16274DF0-6F...	2008-03-11 10:17:21.587	Home



5)удалите поле AddressType из таблицы, удалите все созданные ограничения и значения по умолчанию.

```
alter table dbo.StateProvince  
drop column AddressType;  
go
```

```
select * from dbo.StateProvince;  
go
```

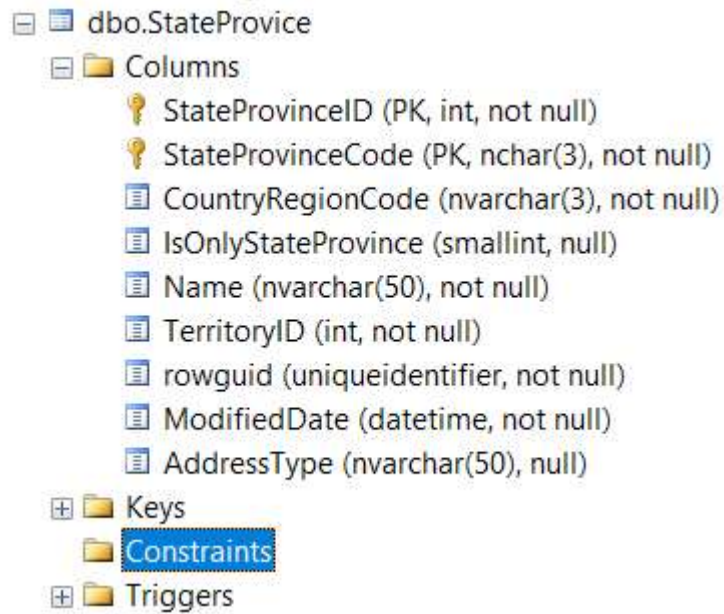
Results		Messages						
	StateProvinc...	StateProv...	Countr...	Is...	Name	Ter...	rowguid	ModifiedDate
1	10	CO	US	0	United StatesColorado	2	292DF595-7...	2008-03-11 10:17:21.587
2	73	TX	US	0	United StatesTexas	2	99C542E0-5...	2008-03-11 10:17:21.587
3	79	WA	US	0	United StatesWashington	2	16274DF0-6F...	2008-03-11 10:17:21.587

dbo.StateProvince

- Columns
  - StateProvinceID (PK, int, not null)
  - StateProvinceCode (PK, nchar(3), not null)
  - CountryRegionCode (nvarchar(3), not null)
  - IsOnlyStateProvince (smallint, null)
  - Name (nvarchar(50), not null)
  - TerritoryID (int, not null)
  - rowguid (uniqueidentifier, not null)
  - ModifiedDate (datetime, not null)
  - AddressType (nvarchar(50), null)
- Keys
- Constraints
  - CK\_StateProv\_\_Terri\_\_269AB60B
  - DF\_TerritoryID

```
alter table dbo.StateProvince  
drop constraint CK__StateProv__Terri__269AB60B;  
go
```

```
alter table dbo.StateProvince  
drop constraint DF_TerritoryID;  
go
```



6)удалите таблицу dbo.StateProvince.

```
drop table dbo.StateProvince;  
go
```

```
select * from dbo.StateProvince;  
go
```

---

Msg 208, Level 16, State 1, Line 2  
Invalid object name 'dbo.StateProvince'.

## Задание 2

1) выполните код, созданный во втором задании второй лабораторной работы. Добавьте в таблицу `dbo.StateProvince` поля `TaxRate` `SMALLMONEY`, `CurrencyCode` `NCHAR(3)` и `AverageRate` `MONEY`. Также создайте в таблице вычисляемое поле `IntTaxRate`, округляющее значение в поле `TaxRate` в большую сторону до ближайшего целого.

```
alter table dbo.StateProvince
add TaxRate smallmoney;
go
```

```
alter table dbo.StateProvince
add CurrencyCode nchar(3);
go
```

```
alter table dbo.StateProvince
add AverageRate money;
go
```

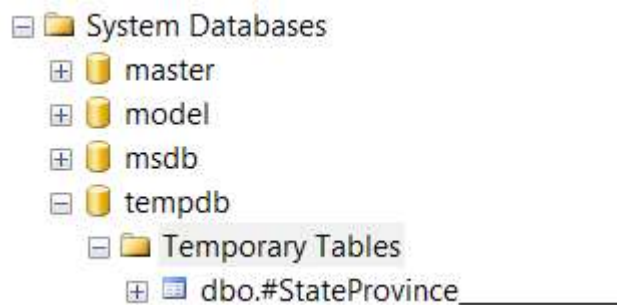
```
alter table dbo.StateProvince
add IntTaxRate as ceiling(TaxRate);
go
```

```
select * from dbo.StateProvince;
go
```

Results		Messages										
	Stat...	State...	Coun...	IsO...	Name	T...	rowguid	ModifiedDate	TaxR...	CurrencyCo...	AverageR...	IntTaxRate
1	6	AZ	US	0	Arizona	2	FB8BE18...	2008-03-11 ...	NULL	NULL	NULL	NULL
2	9	CA	US	0	California	2	3B2FF23C...	2008-03-11 ...	NULL	NULL	NULL	NULL
3	10	CO	US	0	Colorado	2	292DF595...	2008-03-11 ...	NULL	NULL	NULL	NULL
4	15	FL	US	0	Florida	2	EE8BA90...	2008-03-11 ...	NULL	NULL	NULL	NULL
5	32	MD	US	0	Maryland	2	B3D8517...	2008-03-11 ...	NULL	NULL	NULL	NULL
6	36	MN	US	0	Minnesota	2	553C8DA...	2008-03-11 ...	NULL	NULL	NULL	NULL
7	63	QC	CA	0	Quebec	2	FF830158...	2008-03-11 ...	NULL	NULL	NULL	NULL
8	73	TX	US	0	Texas	2	99C542E0...	2008-03-11 ...	NULL	NULL	NULL	NULL
9	79	WA	US	0	Washington	2	16274DF0...	2008-03-11 ...	NULL	NULL	NULL	NULL

2)создайте временную таблицу #StateProvince, с первичным ключом по полю StateProvinceID. Временная таблица должна включать все поля таблицы dbo.StateProvince за исключением поля IntTaxRate.

```
create table #StateProvince (  
    StateProvinceID int not null,  
    StateProvinceCode nchar(3) not null,  
    CountryRegionCode nvarchar(3) not null,  
    IsOnlyStateProvince smallint,  
    Name nvarchar(50) not null,  
    TerritoryID int not null,  
    rowguid uniqueidentifier not null,  
    ModifiedDate datetime not null,  
    TaxRate smallmoney,  
    CurrencyCode nchar(3),  
    AverageRate money);  
  
go  
  
alter table #StateProvince  
add constraint PK_StateProvince_StateProvinceID primary key (StateProvinceID);  
  
go
```



3)заполните временную таблицу данными из dbo.StateProvince. Поле CurrencyCode заполните данными из таблицы Sales.Currency. Поле TaxRate заполните значениями налоговой ставки к розничным сделкам (TaxType = 1) из таблицы Sales.SalesTaxRate. Если для какого-то штата налоговая ставка не найдена, заполните TaxRate нулем. Определите максимальное значение курса обмена валюты (AverageRate) в таблице Sales.CurrencyRate для каждой валюты (указанной в поле ToCurrencyCode) и заполните этими значениями поле AverageRate. Определение максимального курса для каждой валюты осуществите в Common Table Expression (CTE).

```
with AverageRates (CurrencyCode, MaxAverageRate) as (  
    select cr.ToCurrencyCode, max(cr.AverageRate)  
    from Sales.CurrencyRate as cr  
    group by cr.ToCurrencyCode)  
insert into #StateProvince (  
    StateProvinceID,  
    StateProvinceCode,  
    CountryRegionCode,  
    IsOnlyStateProvince,  
    Name,  
    TerritoryID,  
    rowguid,  
    ModifiedDate,  
    TaxRate,  
    CurrencyCode,  
    AverageRate)  
select  
    sp.StateProvinceID,  
    sp.StateProvinceCode,  
    sp.CountryRegionCode,  
    sp.IsOnlyStateProvince,  
    sp.Name,  
    sp.TerritoryID,  
    sp.rowguid,  
    sp.ModifiedDate,  
    isnull(tr.TaxRate, 0),  
    crc.CurrencyCode,  
    ar.MaxAverageRate  
from dbo.StateProvince as sp  
inner join Sales.CountryRegionCurrency as crc  
on sp.CountryRegionCode = crc.CountryRegionCode  
inner join Sales.SalesTaxRate as tr  
on sp.StateProvinceID = tr.StateProvinceID and tr.TaxType = 1  
inner join AverageRates as ar  
on crc.CurrencyCode = ar.CurrencyCode;  
go
```



	StatePr...	StatePr...	Countr...	IsOnly...	Name	Territor...	rowguid	ModifiedDate	TaxR...	Currenc...	AverageR...
1	6	AZ	US	0	Arizona	2	FB8BE18E-F4...	2008-03-11 1...	7.75	USD	1.00
2	9	CA	US	0	California	2	3B2FF23C-1C...	2008-03-11 1...	8.75	USD	1.00
3	15	FL	US	0	Florida	2	EE8BA90D-B...	2008-03-11 1...	8.00	USD	1.00
4	36	MN	US	0	Minnesota	2	553C8DAA-4...	2008-03-11 1...	6.75	USD	1.00
5	63	QC	CA	0	Quebec	2	FF830158-34...	2008-03-11 1...	14.25	CAD	1.6154
6	73	TX	US	0	Texas	2	99C542E0-5D...	2008-03-11 1...	7.50	USD	1.00
7	70	WA	US	0	Washington	2	16274D50-6F...	2008-03-11 1...	8.00	USD	1.00

4)удалите из таблицы dbo.StateProvince строки, где CountryRegionCode='CA'

	StateProvinc...	StateProvinceC...	CountryRegionC...	IsOnlyStateProvi...	Name	Territor...	rowguid
1	63	QC	CA	0	Quebec	2	FF830158-3466-495F-BFCF-8A1B82A65355

StateProvinc...	StateProvinceC...	CountryRegionC...	IsOnlyStateProvi...	Name	Territor...	rowg...	ModifiedD...	TaxR...	CurrencyCo...
-----------------	-------------------	-------------------	---------------------	------	-------------	---------	--------------	---------	---------------

```
select * from dbo.StateProvince
where CountryRegionCode = 'CA';
go
```

```
delete from dbo.StateProvince
where CountryRegionCode = 'CA';
go
```

```
select * from dbo.StateProvince
where CountryRegionCode = 'CA';
go
```

5)напишите Merge выражение, использующее dbo.StateProvince как target, а временную таблицу как source. Для связи target и source используйте StateProvinceID. Обновите поля TaxRate, CurrencyCode и AverageRate, если запись присутствует в source и target. Если строка присутствует во временной таблице, но не существует в target, добавьте строку в dbo.StateProvince. Если в dbo.StateProvince присутствует такая строка, которой не существует во временной таблице, удалите строку из dbo.StateProvince.

```
merge dbo.StateProvince t
using #StateProvince s
on (t.StateProvinceID = s.StateProvinceID)
when matched
    then update set
        t.TaxRate = s.TaxRate,
        t.CurrencyCode = s.CurrencyCode,
        t.AverageRate = s.AverageRate
when not matched by target
    then insert (
        StateProvinceID,
        StateProvinceCode,
        CountryRegionCode,
        IsOnlyStateProvince,
        Name,
        TerritoryID,
        rowguid,
        ModifiedDate,
        TaxRate,
        CurrencyCode,
        AverageRate)
    values (
        s.StateProvinceID,
        s.StateProvinceCode,
        s.CountryRegionCode,
        s.IsOnlyStateProvince,
        s.Name,
        s.TerritoryID,
        s.rowguid,
        s.ModifiedDate,
        s.TaxRate,
        s.CurrencyCode,
        s.AverageRate)
when not matched by source
    then delete;
go
```

Results		Messages										
	StateP...	StatePr...	Countr...	IsOnl...	Name	Territ...	rowguid	ModifiedDate	TaxR...	Curr...	AverageR...	IntTaxR...
1	6	AZ	US	0	Arizona	2	FB8BE18E...	2008-03-11 ...	7.75	USD	1.00	8.00
2	9	CA	US	0	California	2	3B2FF23C...	2008-03-11 ...	8.75	USD	1.00	9.00
3	15	FL	US	0	Florida	2	EE8BA90D...	2008-03-11 ...	8.00	USD	1.00	8.00
4	36	MN	US	0	Minnesota	2	553C8DAA...	2008-03-11 ...	6.75	USD	1.00	7.00
5	63	QC	CA	0	Quebec	2	FF830158-...	2008-03-11 ...	14.25	CAD	1.6154	15.00
6	73	TX	US	0	Texas	2	99C542E0...	2008-03-11 ...	7.50	USD	1.00	8.00
7	79	WA	US	0	Washington	2	1A274DF0...	2008-03-11 ...	8.80	USD	1.00	9.00