

Лабораторная работа №3

Задание №1

Вариант 2

- a) добавьте в таблицу dbo.PersonPhone поле HireDate типа date;

```
ALTER TABLE dbo.PersonPhone ADD HireDate DATE;  
GO
```

dbo.PersonPhone
Columns
BusinessEntityID (int, not null)
PhoneNumber (nvarchar(25), null)
PhoneNumberTypeID (int, not null)
ModifiedDate (datetime, not null)
ID (bigint, not null)
HireDate (date, null)

- b) объявите табличную переменную с такой же структурой как dbo.PersonPhone и заполните ее данными из dbo.PersonPhone. Заполните поле HireDate значениями из поля HireDate таблицы HumanResources.Employee;

```
DECLARE @personPhone TABLE (  
    BusinessEntityID INT NOT NULL,  
    PhoneNumber NVARCHAR(25) NULL,  
    PhoneNumberTypeID BIGINT NOT NULL,  
    ModifiedDate DATETIME NOT NULL,  
    ID BIGINT NOT NULL,  
    HireDate DATE NULL);  
INSERT INTO @personPhone  
SELECT  
    PersonPhone.BusinessEntityID,  
    PhoneNumber,  
    PhoneNumberTypeID,  
    PersonPhone.ModifiedDate,  
    ID,  
    HumanResources.Employee.HireDate  
FROM dbo.PersonPhone  
INNER JOIN HumanResources.Employee  
ON dbo.PersonPhone.BusinessEntityID = HumanResources.Employee.BusinessEntityID;  
GO
```

Messages

(286 rows affected)

	BusinessEntityID	PhoneNumber	PhoneNumberTypeID	ModifiedDate	ID	HireDate
1	1	697-555-0142	1	2003-02-08 00:00:00.000	1146	2003-02-15
2	2	819-555-0175	3	2002-02-24 00:00:00.000	1148	2002-03-03
3	3	212-555-0187	1	2001-12-05 00:00:00.000	1150	2001-12-12
4	4	612-555-0100	1	2001-12-29 00:00:00.000	1152	2002-01-05
5	5	849-555-0139	1	2002-01-30 00:00:00.000	1154	2002-02-06
6	6	122-555-0189	3	2002-02-17 00:00:00.000	1156	2002-02-24
7	7	181-555-0156	3	2003-03-05 00:00:00.000	1158	2003-03-12

DAB019J\SQLEXPRESS ... | DESKTOP-DAB019J\Any (54) | AdventureWorks2012 | 00:00:00 | 286 rows

- c) обновите HireDate в dbo.PersonPhone данными из табличной переменной, добавив к HireDate один день;

```

UPDATE dbo.PersonPhone
SET dbo.PersonPhone.HireDate = DATEADD(DAY, 1, pPhone.HireDate)
FROM dbo.PersonPhone
INNER JOIN @personPhone AS pPhone
ON dbo.PersonPhone.BusinessEntityID = pPhone.BusinessEntityID;

SELECT * FROM dbo.PersonPhone;

```

	BusinessEntityID	PhoneNumber	PhoneNumberTypeID	ModifiedDate	ID	HireDate
1	246	117-555-0185	3	2003-03-08 00:00:00.000	1410	2003-03-16
2	247	393-555-0186	3	2003-03-26 00:00:00.000	1412	2003-04-03
3	248	927-555-0150	3	2003-04-02 00:00:00.000	1414	2003-04-10
4	249	248-555-0134	3	2003-01-19 00:00:00.000	1416	2003-01-27
5	250	210-555-0193	3	2005-03-21 00:00:00.000	1418	2005-03-29
6	251	309-555-0170	3	2003-03-07 00:00:00.000	1420	2003-03-15
7	252	848-555-0163	1	2003-03-25 00:00:00.000	1422	2003-04-02
8	253	916-555-0165	1	2004-01-11 00:00:00.000	1424	2004-01-19
9	254	520-555-0177	3	2004-01-29 00:00:00.000	1426	2004-02-06
10	255	220-555-0144	1	2004-02-05 00:00:00.000	1428	2004-02-13

- d) удалите данные из dbo.PersonPhone, для тех сотрудников, у которых почасовая ставка в таблице HumanResources.EmployeePayHistory больше 50;

```

DELETE FROM dbo.PersonPhone
WHERE EXISTS (
    SELECT BusinessEntityID
    FROM HumanResources.EmployeePayHistory
    WHERE dbo.PersonPhone.BusinessEntityID = HumanResources.EmployeePayHistory.BusinessEntityID AND Rate > 50
);
GO

```

Messages

(7 rows affected)

```

SELECT * FROM HumanResources.EmployeePayHistory
WHERE Rate > 50;

```

	BusinessEntityID	RateChangeDate	Rate	PayFrequency	ModifiedDate
1	1	2003-02-15 00:00:00.000	125.50	2	2008-07-31 00:00:00.000
2	2	2002-03-03 00:00:00.000	63,4615	2	2008-07-31 00:00:00.000
3	7	2003-03-12 00:00:00.000	50,4808	2	2008-07-31 00:00:00.000
4	25	2003-03-07 00:00:00.000	84,1346	2	2008-07-31 00:00:00.000
5	234	2006-03-01 00:00:00.000	60,0962	2	2006-02-15 00:00:00.000
6	263	2003-01-12 00:00:00.000	50,4808	2	2008-07-31 00:00:00.000
7	273	2005-03-18 00:00:00.000	72,1154	2	2008-07-31 00:00:00.000

- e) удалите все созданные ограничения и значения по умолчанию. После этого, удалите поле ID. Имена значений по умолчанию найдите самостоятельно, приведите код, которым пользовались для поиска;

```

SELECT *
FROM AdventureWorks2012.INFORMATION_SCHEMA.CONSTRAINT_TABLE_USAGE
WHERE TABLE_SCHEMA = 'dbo' AND TABLE_NAME = 'PersonPhone';

```

	TABLE_CATALOG	TABLE_SCHEMA	TABLE_NAME	CONSTRAINT_CATALOG	CONSTRAINT_SCHEMA	CONSTRAINT_NAME
1	AdventureWorks2012	dbo	PersonPhone	AdventureWorks2012	dbo	UQ__PersonPh__3214EC260E75607B
2	AdventureWorks2012	dbo	PersonPhone	AdventureWorks2012	dbo	Check_PhoneNumber

```

SELECT *
FROM AdventureWorks2012.INFORMATION_SCHEMA.CHECK_CONSTRAINTS
WHERE CONSTRAINT_SCHEMA = 'dbo';

```

Results		Messages		
	CONSTRAINT_CATALOG	CONSTRAINT_SCHEMA	CONSTRAINT_NAME	CHECK_CLAUSE
1	AdventureWorks2012	dbo	Check_PhoneNumber	(patindex('%[a-zA-Z]%', [PhoneNumber])=(0))

```
ALTER TABLE dbo.PersonPhone
DROP CONSTRAINT Check_PhoneNumber, DF_PhoneNumberTypeID;
GO
```

- [-] dbo.PersonPhone
 - [+] Columns
 - [+] Keys
 - Constraints
 - [+] Triggers
 - Indexes
 - [+] Statistics

```
ALTER TABLE dbo.PersonPhone
DROP COLUMN ID;
```

- [-] dbo.PersonPhone
 - [-] Columns
 - BusinessEntityID (int, not null)
 - PhoneNumber (nvarchar(25), null)
 - PhoneNumberTypeID (int, not null)
 - ModifiedDate (datetime, not null)
 - HireDate (date, null)

f) удалите таблицу dbo.PersonPhone.

```
DROP TABLE dbo.PersonPhone;
GO
```

- [-] Tables
 - [+] System Tables
 - [+] FileTables
 - [+] dbo.AWBuildVersion
 - [+] dbo.DatabaseLog
 - [+] dbo.ErrorLog
 - [+] HumanResources.Dep
 - [+] HumanResources Emn

Задание №2

Вариант 2

- a) выполните код, созданный во втором задании второй лабораторной работы. Добавьте в таблицу dbo.PersonPhone поля JobTitle NVARCHAR(50), BirthDate DATE и HireDate DATE. Также создайте в таблице вычисляемое поле HireAge, считающее количество лет, прошедших между BirthDate и HireDate.

```
ALTER TABLE dbo.PersonPhone
ADD
    JobTitle NVARCHAR(50),
    BirthDate DATE,
    HireDate DATE,
    HireAge AS DATEDIFF(YEAR, BirthDate, HireDate)
;
GO
```

dbo.PersonPhone
Columns
BusinessEntityID (int, not null)
PhoneNumber (nvarchar(25), null)
PhoneNumberTypeID (int, not null)
ModifiedDate (datetime, not null)
ID (bigint, not null)
JobTitle (nvarchar(50), null)
BirthDate (date, null)
HireDate (date, null)
HireAge (Computed, int, null)

- b) создайте временную таблицу #PersonPhone, с первичным ключом по полю BusinessEntityID. Временная таблица должна включать все поля таблицы dbo.PersonPhone за исключением поля HireAge.

```
CREATE TABLE #PersonPhone (
    BusinessEntityID INT NOT NULL PRIMARY KEY,
    PhoneNumber NVARCHAR(25) NULL,
    PhoneNumberTypeID INT NOT NULL,
    ModifiedDate DATETIME NOT NULL,
    ID BIGINT NOT NULL,
    JobTitle NVARCHAR(25) NULL,
    BirthDate DATE NULL,
    HireDate DATE NULL
);
GO
```

tempdb
Tables
Temporary Tables
dbo.#PersonPhone

- c) заполните временную таблицу данными из dbo.PersonPhone. Поля JobTitle, BirthDate и HireDate заполните значениями из таблицы HumanResources.Employee. Выберите только сотрудников с JobTitle = 'Sales Representative'. Выборку данных для вставки в табличную переменную осуществите в Common Table Expression (CTE).

```
WITH cte AS (
    SELECT
        dbo.PersonPhone.BusinessEntityID,
        dbo.PersonPhone.PhoneNumber,
        dbo.PersonPhone.PhoneNumberTypeID,
        dbo.PersonPhone.ModifiedDate,
        dbo.PersonPhone.ID,
        HumanResources.Employee.JobTitle,
        HumanResources.Employee.BirthDate,
        HumanResources.Employee.HireDate
    FROM dbo.PersonPhone
    INNER JOIN HumanResources.Employee
    ON HumanResources.Employee.BusinessEntityID = dbo.PersonPhone.BusinessEntityID
    WHERE HumanResources.Employee.JobTitle = 'Sales Representative'
)
INSERT INTO #PersonPhone
SELECT * FROM cte;
```

Messages

(10 rows affected) `SELECT * FROM #PersonPhone;`

	BusinessEntityID	PhoneNumber	PhoneNumberTypeID	ModifiedDate	ID	JobTitle	BirthDate	HireDate
1	275	257-555-0154	1	2005-06-24 00:00:00.000	322	Sales Representative	1963-01-26	2005-07-01
2	276	883-555-0116	3	2005-06-24 00:00:00.000	324	Sales Representative	1974-03-30	2005-07-01
3	277	517-555-0117	3	2005-06-24 00:00:00.000	326	Sales Representative	1956-09-29	2005-07-01
4	278	922-555-0165	3	2005-06-24 00:00:00.000	328	Sales Representative	1969-03-07	2005-07-01
5	279	664-555-0112	3	2005-06-24 00:00:00.000	330	Sales Representative	1968-02-19	2005-07-01
6	280	340-555-0193	1	2005-06-24 00:00:00.000	332	Sales Representative	1969-01-06	2005-07-01
7	281	330-555-0120	1	2005-06-24 00:00:00.000	334	Sales Representative	1962-04-10	2005-07-01
8	282	185-555-0169	3	2005-06-24 00:00:00.000	336	Sales Representative	1958-01-11	2005-07-01
9	283	740-555-0182	3	2005-06-24 00:00:00.000	338	Sales Representative	1968-03-14	2005-07-01
10	284	615-555-0153	3	2006-10-25 00:00:00.000	340	Sales Representative	1972-02-06	2006-11-01

d) удалите из таблицы `dbo.PersonPhone` одну строку (где `BusinessEntityID = 275`)

Messages

```
DELETE FROM dbo.PersonPhone
WHERE BusinessEntityID = 275; (1 row affected)
```

```
SELECT COUNT(*) FROM dbo.PersonPhone
WHERE BusinessEntityID = 275;
```

	(No column name)
1	0

e) напишите Merge выражение, использующее `dbo.PersonPhone` как target, а временную таблицу как source. Для связи target и source используйте `BusinessEntityID`. Обновите поля `JobTitle`, `BirthDate` и `HireDate`, если запись присутствует и в source и в target. Если строка присутствует во временной таблице, но не существует в target, добавьте строку в `dbo.PersonPhone`. Если в `dbo.PersonPhone` присутствует такая строка, которой не существует во временной таблице, удалите строку из `dbo.PersonPhone`.

```
SET IDENTITY_INSERT dbo.PersonPhone ON;
GO

MERGE dbo.PersonPhone AS t
USING #PersonPhone AS s
ON t.BusinessEntityID = s.BusinessEntityID
WHEN MATCHED THEN
UPDATE SET
    t.JobTitle = s.JobTitle,
    t.BirthDate = s.BirthDate,
    t.HireDate = s.HireDate
WHEN NOT MATCHED BY TARGET THEN
INSERT (
    BusinessEntityID,
    PhoneNumber,
    PhoneNumberTypeID,
    ModifiedDate,
    ID,
    JobTitle,
    BirthDate,
    HireDate
)
VALUES (
    s.BusinessEntityID,
    s.PhoneNumber,
    s.PhoneNumberTypeID,
    s.ModifiedDate,
    s.ID,
    s.JobTitle,
    s.BirthDate,
    s.HireDate
)
WHEN NOT MATCHED BY SOURCE THEN
DELETE;
GO

SET IDENTITY_INSERT dbo.PersonPhone OFF;
GO
```

Results Messages

(286 rows affected)

```
SELECT COUNT(*) FROM dbo.PersonPhone
WHERE BusinessEntityID = 275;
GO
```

Results		Messages	
		(No column name)	
1	1		