به نام خدا

ازمایشگاه 6 پایگاه داده

حدیث غفوری (9825413)

ساخت جدول ProductLog

```sql
CREATE TABLE ProductLog(
    [ProductID] [int] ,
    [Name] [dbo].[Name] ,
    [ProductNumber] [nvarchar](25) ,
    [MakeFlag] [dbo].[Flag] ,
    [FinishedGoodsFlag] [dbo].[Flag] ,
    [Color] [nvarchar](15) NULL,
    [SafetyStockLevel] [smallint] ,
    [ReorderPoint] [smallint],
    [StandardCost] [money] ,
    [ListPrice] [money],
    [Size] [nvarchar](5),
    [SizeUnitMeasureCode] [nchar](3) NULL,
    [WeightUnitMeasureCode] [nchar](3) NULL,
    [Weight] [decimal](8, 2) NULL,
    [DaysToManufacture] [int],
    [ProductLine] [nchar](2) NULL,
    [Class] [nchar](2) NULL,
    [Style] [nchar](2) NULL,
    [ProductSubcategoryID] [int] NULL,
    [ProductModelID] [int] NULL,
    [SellStartDate] [datetime],
    [SellEndDate] [datetime] NULL,
    [DiscontinuedDate] [datetime] NULL,
    [rowguid] [uniqueidentifier] ROWGUIDCOL  NOT NULL,
    [ModifiedDate] [datetime] NOT NULL,
    change varchar(10)
```

ساخت جدول ProductTemp به عنوان جایگزین برای جدول اصلی product و وارد
کردن داده های جدول اصلی

```sql
CREATE TABLE ProductTemp(
    [ProductID] [int] ,
    [Name] [dbo].[Name] ,
    [ProductNumber] [nvarchar](25) ,
    [MakeFlag] [dbo].[Flag] ,
    [FinishedGoodsFlag] [dbo].[Flag] ,
    [Color] [nvarchar](15) NULL,
    [SafetyStockLevel] [smallint] ,
    [ReorderPoint] [smallint],
    [StandardCost] [money] ,
    [ListPrice] [money],
    [Size] [nvarchar](5),
    [SizeUnitMeasureCode] [nchar](3) NULL,
    [WeightUnitMeasureCode] [nchar](3) NULL,
    [Weight] [decimal](8, 2) NULL,
    [DaysToManufacture] [int],
    [ProductLine] [nchar](2) NULL,
    [Class] [nchar](2) NULL,
    [Style] [nchar](2) NULL,
    [ProductSubcategoryID] [int] NULL,
    [ProductModelID] [int] NULL,
    [SellStartDate] [datetime],
    [SellEndDate] [datetime] NULL,
    [DiscontinuedDate] [datetime] NULL,
    [rowguid] [uniqueidentifier] ROWGUIDCOL  NOT NULL,
    [ModifiedDate] [datetime] NOT NULL
)

insert into ProductTemp
select * from Production.Product;
```

```sql
create trigger changes_trigger
on ProductTemp
after insert,delete ,update
as
begin
declare @type varchar(10)
if exists(select * from inserted)
    if exists(select * from deleted)
        begin
        select @type = 'update';
        insert into ProductLog
        select ProductID,Name,ProductNumber,MakeFlag,FinishedGoodsFlag,Color,SafetyStockLevel,ReorderPoint,StandardCost,
        ListPrice,Size,SizeUnitMeasureCode,WeightUnitMeasureCode,Weight,DaysToManufacture,ProductLine,Class,Style,
        ProductSubcategoryID,ProductModelID,SellStartDate,SellEndDate,DiscontinuedDate,rowguid,ModifiedDate,@type
        from deleted
        end
    else
        begin
        select @type = 'insert';
        insert into ProductLog
        select ProductID,Name,ProductNumber,MakeFlag,FinishedGoodsFlag,Color,SafetyStockLevel,ReorderPoint,StandardCost,
        ListPrice,Size,SizeUnitMeasureCode,WeightUnitMeasureCode,Weight,DaysToManufacture,ProductLine,Class,Style,
        ProductSubcategoryID,ProductModelID,SellStartDate,SellEndDate,DiscontinuedDate,rowguid,ModifiedDate,@type
        from inserted
        end
else



        end
else
    if exists (select * from deleted)
        begin
        select @type = 'delete'
        insert into ProductLog
        select ProductID,Name,ProductNumber,MakeFlag,FinishedGoodsFlag,Color,SafetyStockLevel,ReorderPoint,StandardCost,
        ListPrice,Size,SizeUnitMeasureCode,WeightUnitMeasureCode,Weight,DaysToManufacture,ProductLine,Class,Style,
        ProductSubcategoryID,ProductModelID,SellStartDate,SellEndDate,DiscontinuedDate,rowguid,ModifiedDate,@type
        from deleted
        end
    else
        begin
        select @type = 'unknown'
        end
end
```

ایجاد تغییرات برای تست کردن trigger :

```sql
insert into ProductTemp
values
(1400,'test','AR-6383',1,0,null,1000,750,0,0,null,null,null,null,
0,null,null,null,null,null,'2002-07-01',null,null,
'694215B7-08F7-4C0D-ACB1-D734BA44C0C8','2003-07-01');
```

162 %

Messages

(1 row affected)

(1 row affected)

Completion time: 2022-04-20T13:54:56.7644647+04:30

```sql
delete from ProductTemp
where ProductID =320;
```

162 %

Messages

(1 row affected)

(1 row affected)

```sql
update ProductTemp
set MakeFlag =1
where ProductID =4;
```

162 %

Messages

(1 row affected)

(1 row affected)

Completion time: 2022-04-20T13:56:51.5590321+04:30

```
delete from ProductLog;
select * from ProductLog;
```

162 %

Results | Messages

	ProductID	Name	ProductNumber	MakeFlag	FinishedGoodsFlag	Color	SafetyStockLevel
1	1400	test	AR-6383	1	0	NULL	1000
2	320	Chainring Bolts	CB-2903	0	0	Silver	1000
3	4	Headset Ball Bearings	BE-2908	0	0	NULL	800

```
select * from ProductLog;
```

162 %

Results | Messages

	dDate	DiscontinuedDate	rowguid	ModifiedDate	change
1		NULL	694215B7-08F7-4C0D-ACB1-D734BA44C0C8	2003-07-01 00:00:00 000	insert
2		NULL	7BE38E48-B7D6-4486-888E-F53C26735101	2008-03-11 10:01:36 827	delete
3		NULL	ECFED6CB-51FF-49B5-B06C-7D8AC834DB8B	2008-03-11 10:01:36 827	update

```sql
---------------soal2-----------------
drop table ProductLog2;
CREATE TABLE ProductLog2(
    [ProductID] [int] ,
    [Name] [dbo].[Name] ,
    [ProductNumber] [nvarchar](25) ,
    [MakeFlag] [dbo].[Flag] ,
    [FinishedGoodsFlag] [dbo].[Flag] ,
    [Color] [nvarchar](15) NULL,
    [SafetyStockLevel] [smallint] ,
    [ReorderPoint] [smallint],
    [StandardCost] [money] ,
    [ListPrice] [money],
    [Size] [nvarchar](5),
    [SizeUnitMeasureCode] [nchar](3) NULL,
    [WeightUnitMeasureCode] [nchar](3) NULL,
    [Weight] [decimal](8, 2) NULL,
    [DaysToManufacture] [int],
    [ProductLine] [nchar](2) NULL,
    [Class] [nchar](2) NULL,
    [Style] [nchar](2) NULL,
    [ProductSubcategoryID] [int] NULL,
    [ProductModelID] [int] NULL,
    [SellStartDate] [datetime],
    [SellEndDate] [datetime] NULL,
    [DiscontinuedDate] [datetime] NULL,
    [rowguid] [uniqueidentifier] ROWGUIDCOL  NOT NULL,
    [ModifiedDate] [datetime] NOT NULL,
    change varchar(10)
);
```

وارد کردن داده های جدول لاگ و ایجاد تغییرات:

```sql
insert into ProductLog2
select * from ProductLog;

select * from ProductLog2;
update ProductLog2
```

162 %

Messages

```
(3 rows affected)

Completion time: 2022-04-20T13:59:35.4221921+04:30
```

```sql
select * from ProductLog2;
```

162 %

Results | Messages

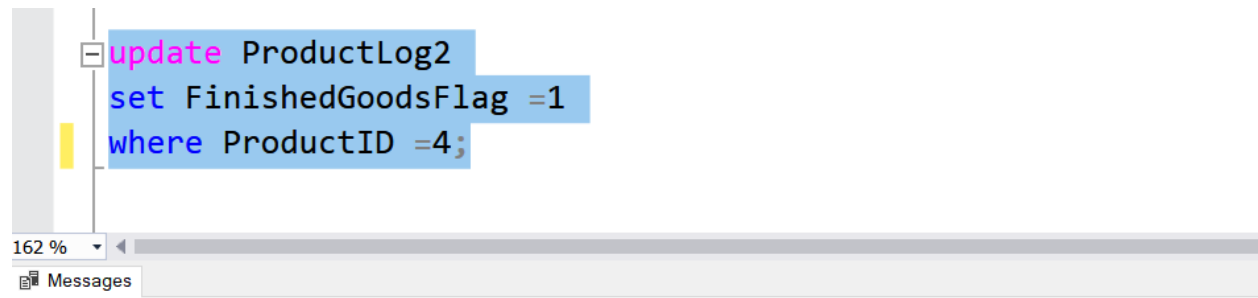|	ProductID	Name	ProductNumber	MakeFlag	FinishedGoodsFlag	Color	SafetyStockLevel
1	1400	test	AR-6383	1	0	NULL	1000
2	320	Chainring Bolts	CB-2903	0	0	Silver	1000
3	4	Headset Ball Bearings	BE-2908	0	0	NULL	800

```sql
update ProductLog2
set Name ='test2'
where ProductID =1400;
```

162 %

Messages

```
(1 row affected)

Completion time: 2022-04-20T14:01:14.1803632+04:30
```

```
update ProductLog2
set FinishedGoodsFlag =1
where ProductID =4;
```

162 %

Messages

(1 row affected)

Completion time: 2022-04-20T14:01:44.8267828+04:30
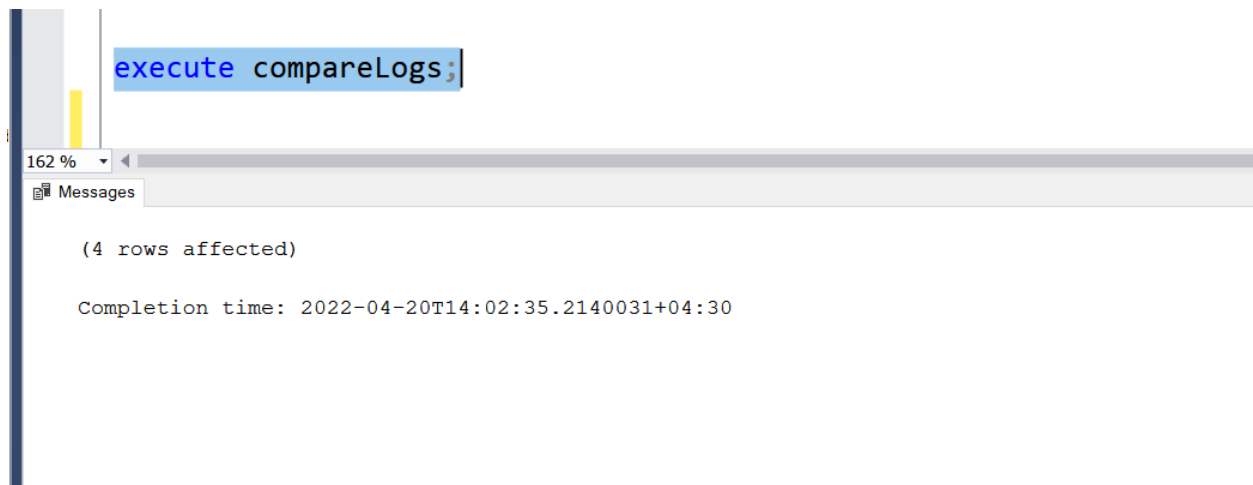
```
--------------soal3--------------
CREATE TABLE ProductLog3(
    [ProductID] [int] ,
    [Name] [dbo].[Name] ,
    [ProductNumber] [nvarchar](25) ,
    [MakeFlag] [dbo].[Flag] ,
    [FinishedGoodsFlag] [dbo].[Flag] ,
    [Color] [nvarchar](15) NULL,
    [SafetyStockLevel] [smallint] ,
    [ReorderPoint] [smallint],
    [StandardCost] [money] ,
    [ListPrice] [money],
    [Size] [nvarchar](5),
    [SizeUnitMeasureCode] [nchar](3) NULL,
    [WeightUnitMeasureCode] [nchar](3) NULL,
    [Weight] [decimal](8, 2) NULL,
    [DaysToManufacture] [int],
    [ProductLine] [nchar](2) NULL,
    [Class] [nchar](2) NULL,
    [Style] [nchar](2) NULL,
    [ProductSubcategoryID] [int] NULL,
    [ProductModelID] [int] NULL,
    [SellStartDate] [datetime],
    [SellEndDate] [datetime] NULL,
    [DiscontinuedDate] [datetime] NULL,
    [rowguid] [uniqueidentifier] ROWGUIDCOL  NOT NULL,
    [ModifiedDate] [datetime] NOT NULL,
    change varchar(10)
);
```

ساخت procedure :

```sql
create procedure compareLogs
as
begin
insert into ProductLog3
select * from ProductLog union  select * from ProductLog2
except
select * from ProductLog  intersect   select * from ProductLog2
end
```

اجرای رویه:
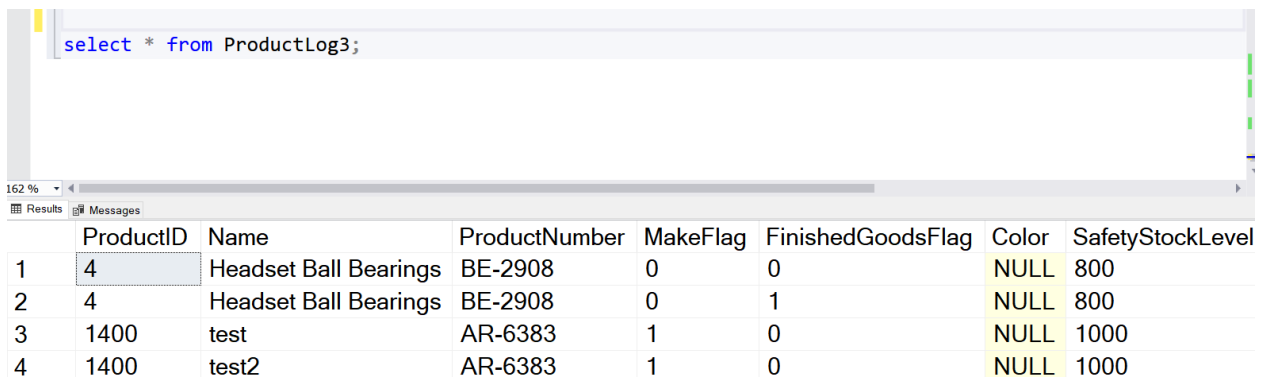
```sql
execute compareLogs;
```

162 % ◄

▦ Messages

```
(4 rows affected)

Completion time: 2022-04-20T14:02:35.2140031+04:30
```

نمایش داده های جدول سوم:

```sql
select * from ProductLog3;
```

162 % ▼ ◄

▦ Results ▦ Messages

	ProductID	Name	ProductNumber	MakeFlag	FinishedGoodsFlag	Color	SafetyStockLevel
1	4	Headset Ball Bearings	BE-2908	0	0	NULL	800
2	4	Headset Ball Bearings	BE-2908	0	1	NULL	800
3	1400	test	AR-6383	1	0	NULL	1000
4	1400	test2	AR-6383	1	0	NULL	1000