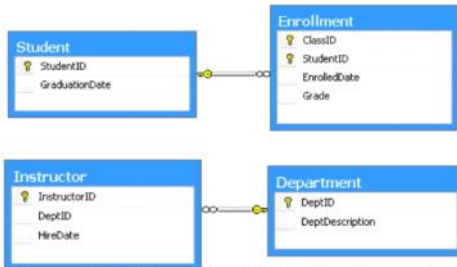


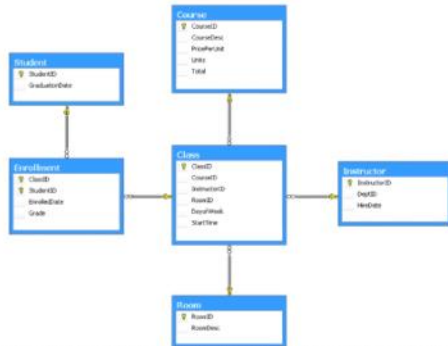
One-to-Many Relationships

- Primary key to non-primary key



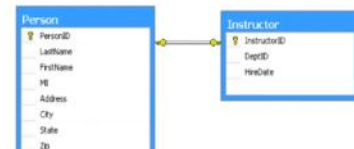
Many-to-Many Relationships

- Requires a third table



One-to-One Relationships

- In the School database, each person can be a student or instructor
- Student and Instructor tables contain only relevant columns

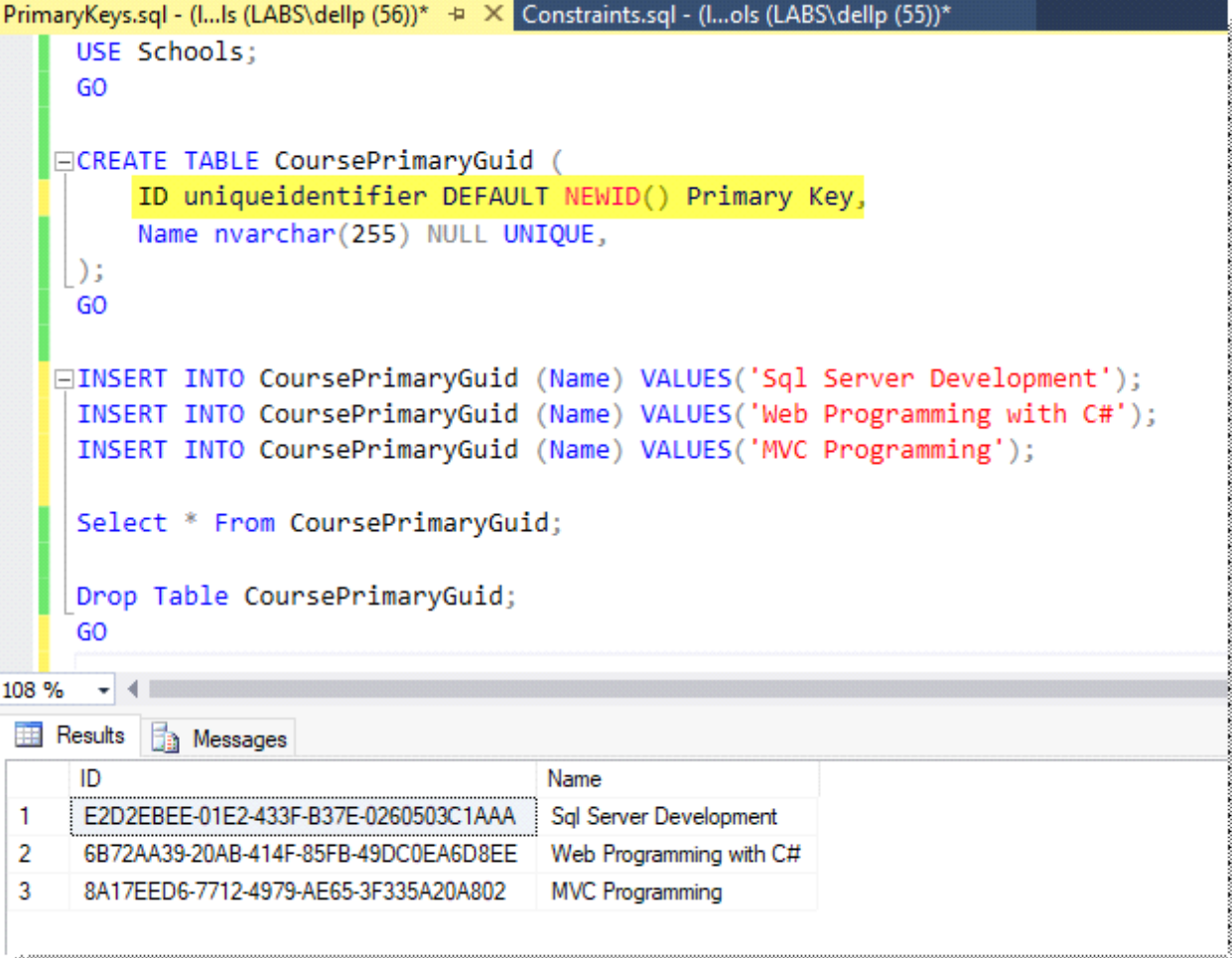


- Partitioning data for security
 - Locate confidential data elsewhere and restrict access (also accomplished with Views)
- Partitioning data for performance
 - Store data in separate tables (perhaps on separate disks) and retrieve only on demand

Primary Keys

Sunday, May 21, 2017 3:28 PM

Primary Guides



The screenshot displays a SQL Server Enterprise Manager interface. The top pane shows a script window with the following T-SQL code:

```
USE Schools;
GO

CREATE TABLE CoursePrimaryGuid (
    ID uniqueidentifier DEFAULT NEWID() Primary Key,
    Name nvarchar(255) NULL UNIQUE,
);
GO

INSERT INTO CoursePrimaryGuid (Name) VALUES('Sql Server Development');
INSERT INTO CoursePrimaryGuid (Name) VALUES('Web Programming with C#');
INSERT INTO CoursePrimaryGuid (Name) VALUES('MVC Programming');

Select * From CoursePrimaryGuid;

Drop Table CoursePrimaryGuid;
GO
```

The bottom pane shows the results of the SELECT statement, displaying a table with two columns: ID and Name.

	ID	Name
1	E2D2EBEE-01E2-433F-B37E-0260503C1AAA	Sql Server Development
2	6B72AA39-20AB-414F-85FB-49DC0EA6D8EE	Web Programming with C#
3	8A17EED6-7712-4979-AE65-3F335A20A802	MVC Programming

Primary Identity

PrimaryKeys.sql - (\\...ls (LABS\\dellp (56))* Constraints.sql - (\\...ols (LABS\\dellp (55))*

```
USE Schools;
GO

CREATE TABLE CoursePrimaryUniqueID (
    ID int Identity(1,1) Primary Key,
    Name nvarchar(255) NULL UNIQUE,
);
GO

INSERT INTO CoursePrimaryUniqueID (Name) VALUES('Sql Server Development');
INSERT INTO CoursePrimaryUniqueID (Name) VALUES('Web Programming with C#');
INSERT INTO CoursePrimaryUniqueID (Name) VALUES('MVC Programming');

Select * From CoursePrimaryUniqueID;

Drop Table CoursePrimaryUniqueID;
GO
```

108 %

Results Messages

	ID	Name
1	3	MVC Programming
2	1	Sql Server Development
3	2	Web Programming with C#

Primary Foreign Key

Monday, December 4, 2017 7:56 PM

```
PrimaryForeignKey.s...a (LABS\dellp (52)) X PrimaryForeignCasc...r (LABS\dellp (58)) UserDefinedType

CREATE TABLE dbo.Employee
(
  EmployeeID INT IDENTITY PRIMARY KEY,
  Name VARCHAR(25),
  Title varchar(25));

CREATE TABLE dbo.OrderDetail
(
  OrderID INT IDENTITY PRIMARY KEY,
  OrderNumber VARCHAR(255),
  EmployeeID INT FOREIGN KEY REFERENCES dbo.Employee(EmployeeID));
GO

Insert Into Employee Values ('Mickey Mouse', 'CEO');
Insert Into Employee Values ('Goofy Dog', 'COO');
Insert Into OrderDetail Values ('1011', 1);
Insert Into OrderDetail Values ('1012', 1);

Insert Into OrderDetail Values ('1013', 2);

Select * From Employee e
      Inner Join OrderDetail o On e.EmployeeID = o.EmployeeID;

Drop Table OrderDetail;
Drop Table Employee;
```

Sequences

Sunday, May 21, 2017 10:08 PM

File: Sequences.sql

The screenshot displays the SQL Server Enterprise Manager interface. In the Object Explorer on the left, the 'Sequences' folder under the 'Schools' database is highlighted, showing 'dbo.course_sequence'. A red arrow points from this folder to the SQL Query window on the right. The SQL Query window shows the following script:

```
USE Schools
GO

CREATE SEQUENCE course_sequence
AS INT
START WITH 100
INCREMENT BY 1
GO

CREATE TABLE CourseNextSequence(
    ID int Primary Key,
    Name nvarchar(255) NULL UNIQUE,
);
GO

INSERT INTO CourseNextSequence
(id, name)
VALUES
(NEXT VALUE FOR course_sequence, 'Reporting Services');
GO

INSERT INTO CourseNextSequence
(id, name)
VALUES
(NEXT VALUE FOR course_sequence, 'Querying a SQL Server');
GO

SELECT * FROM CourseNextSequence;

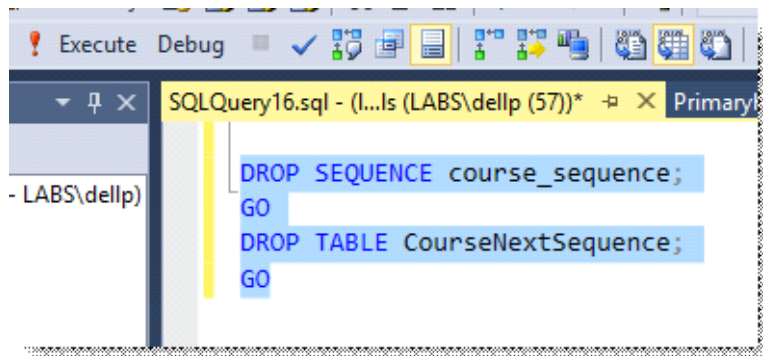
--DROP SEQUENCE course_sequence;
--GO
--DROP TABLE CourseNextSequence;
--GO
```

Below the SQL Query window, the 'Results' tab shows the output of the query:

	ID	Name
1	101	Querying a SQL Server
2	100	Reporting Services

The status bar at the bottom indicates: 'Query executed successfully. (local)\sqlexpress01 (13.0 ... LABS\dellp (54) Schools 00:00:00 2 rows

Check out Object in Explorer and then Drop



Primary-Foreign Cascade

Sunday, May 21, 2017 11:09 PM

Try with Cascade OFF

1) Create Tables

```
PrimaryForeignCasc...s (LABS\delip (56)) X Sequences.sql - (loc...ls (LABS\delip (60))
1  USE Schools;
2  GO
3
4  CREATE TABLE dbo.[Orders](
5      OrderID int NOT NULL,
6      OrderDate DateTime NOT Null
7      CONSTRAINT PK_Orders PRIMARY KEY
8      (
9          OrderID ASC
10     )) ON [PRIMARY]
11
12  CREATE TABLE dbo.OrderDetails(
13      OrderDetailID int NOT NULL,
14      OrderID int NOT NULL,
15      Quantity SmallMoney NOT Null,
16      Price SmallMoney NOT NULL,
17      CONSTRAINT PK_OrderDetails PRIMARY KEY
18      (
19          OrderDetailID ASC
20     )) ON [PRIMARY]
21  GO
22
23  ALTER TABLE dbo.OrderDetails ADD CONSTRAINT
24      FK_OrderDetails FOREIGN KEY(OrderID)
25      REFERENCES dbo.[Orders] (OrderID)
26  --ON UPDATE CASCADE
27  --ON DELETE CASCADE
28
```

2) Insert Tables

```

PrimaryForeignCasc...s (LABS\de1lp (56))  X Sequences.sql - (loc...ls (LABS\de1lp (60))
1  USE Schools;
2  GO
3
4  CREATE TABLE dbo.[Orders](
5      OrderID int NOT NULL,
6      OrderDate DateTime NOT Null
7      CONSTRAINT PK_Orders PRIMARY KEY
8      (
9          OrderID ASC
10     )) ON [PRIMARY]
11
12  CREATE TABLE dbo.OrderDetails(
13      OrderDetailID int NOT NULL,
14      OrderID int NOT NULL,
15      Quantity SmallMoney NOT Null,
16      Price SmallMoney NOT NULL,
17      CONSTRAINT PK_OrderDetails PRIMARY KEY
18      (
19          OrderDetailID ASC
20     )) ON [PRIMARY]
21  GO
22
23  ALTER TABLE dbo.OrderDetails ADD CONSTRAINT
24      FK_OrderDetails FOREIGN KEY(OrderID)
25      REFERENCES dbo.[Orders] (OrderID)
26  --ON UPDATE CASCADE
27  --ON DELETE CASCADE
28

```

3) Delete Product 1 - with Cascade Delete OFF (Default)

```

57  --Cascade Delete
58  DELETE
59      FROM Orders
60      WHERE OrderID = 1
61
62  SELECT *
63  FROM OrderDetails
64
65  DROP TABLE OrderDetails
66  DROP TABLE Orders

```



```
Msg 547, Level 16, State 0, Line 57
The DELETE statement conflicted with the REFERENCE constraint "FK_ProductDetails
The statement has been terminated.
```

4) Turn Cascade On

```
ALTER TABLE dbo.ProductDetails ADD CONSTRAINT
    FK_ProductDetails_Products FOREIGN KEY(ProductID)
    REFERENCES dbo.Products (ProductID)
ON UPDATE CASCADE
ON DELETE CASCADE
```

5) Drop Tables and Run Again

113 %

	ProductID	Description
1	1	Bike
2	2	Car
3	3	Books

	ProductDetailID	ProductID	Total
1	1	1	200
2	2	1	100
3	3	1	111
4	4	2	200
5	5	3	100
6	6	3	100
7	7	3	200

↓

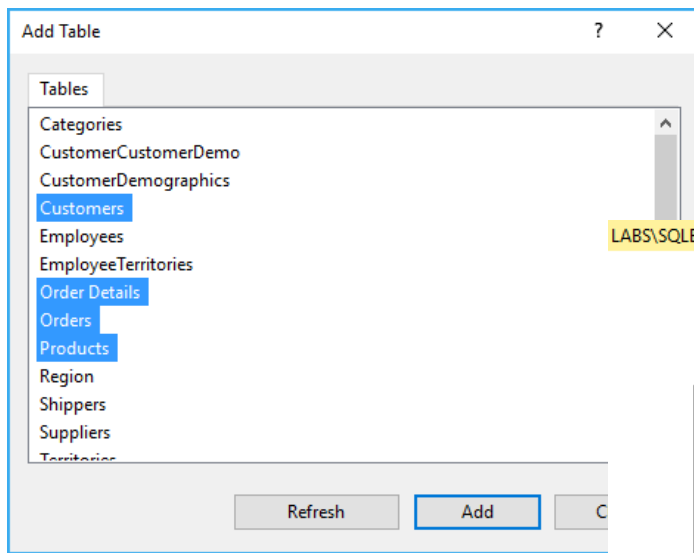
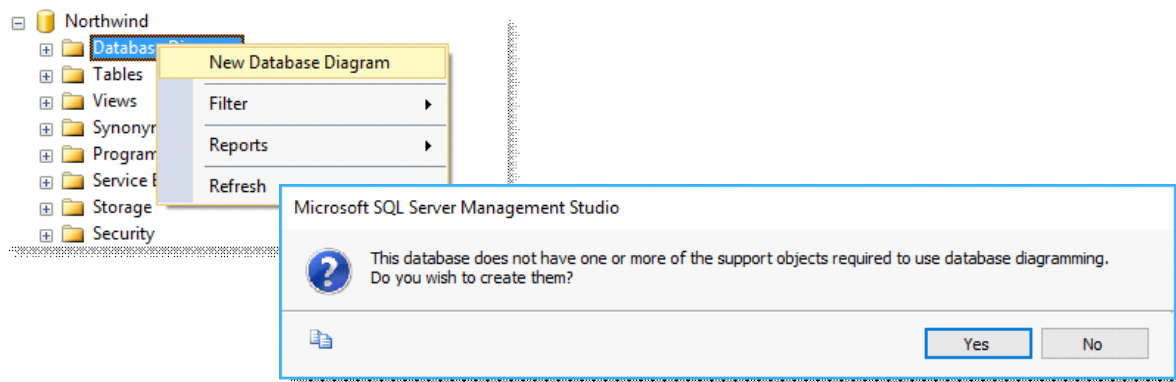
	ProductDetailID	ProductID	Total
1	4	2	200
2	5	3	100
3	6	3	100
4	7	3	200

Product 1 Deleted

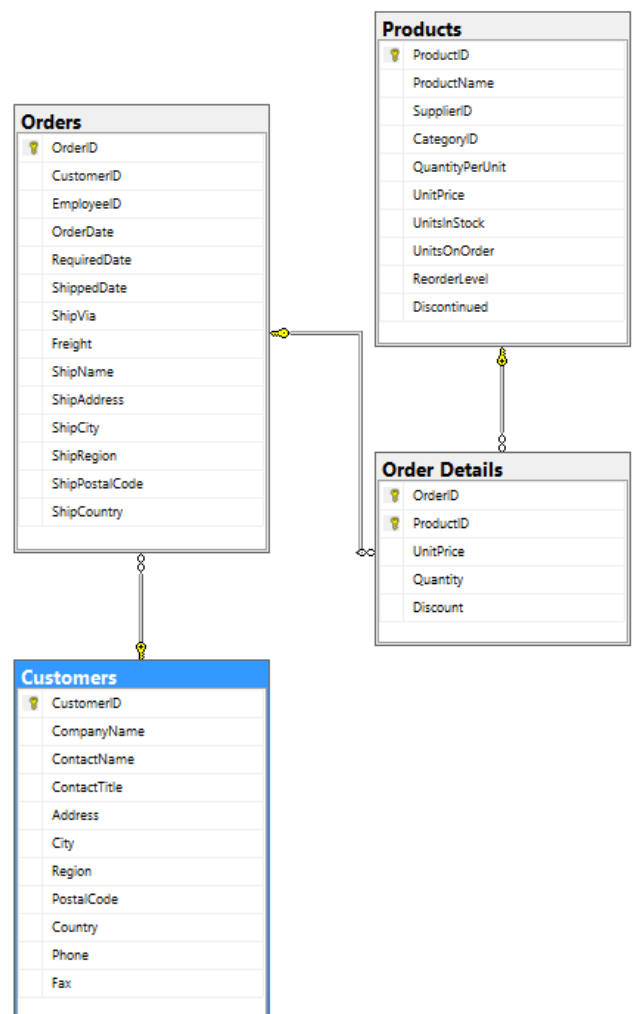
Query executed successfully (local)\sqlexpress01 (13.0) LARS\delin (57) Schools 00:00:00 14 rows

Database Diagrams

Tuesday, May 23, 2017 11:10 AM



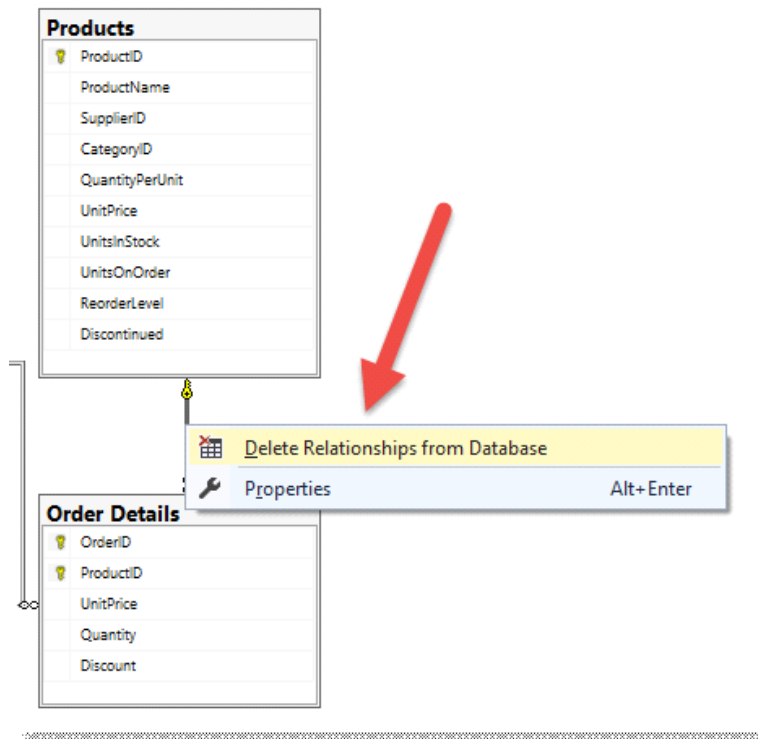
LABS\SQLEXPRESS0...hwind - Diagram_0* X LABS\SQLEXPRESS0...Forms - Diagram_0



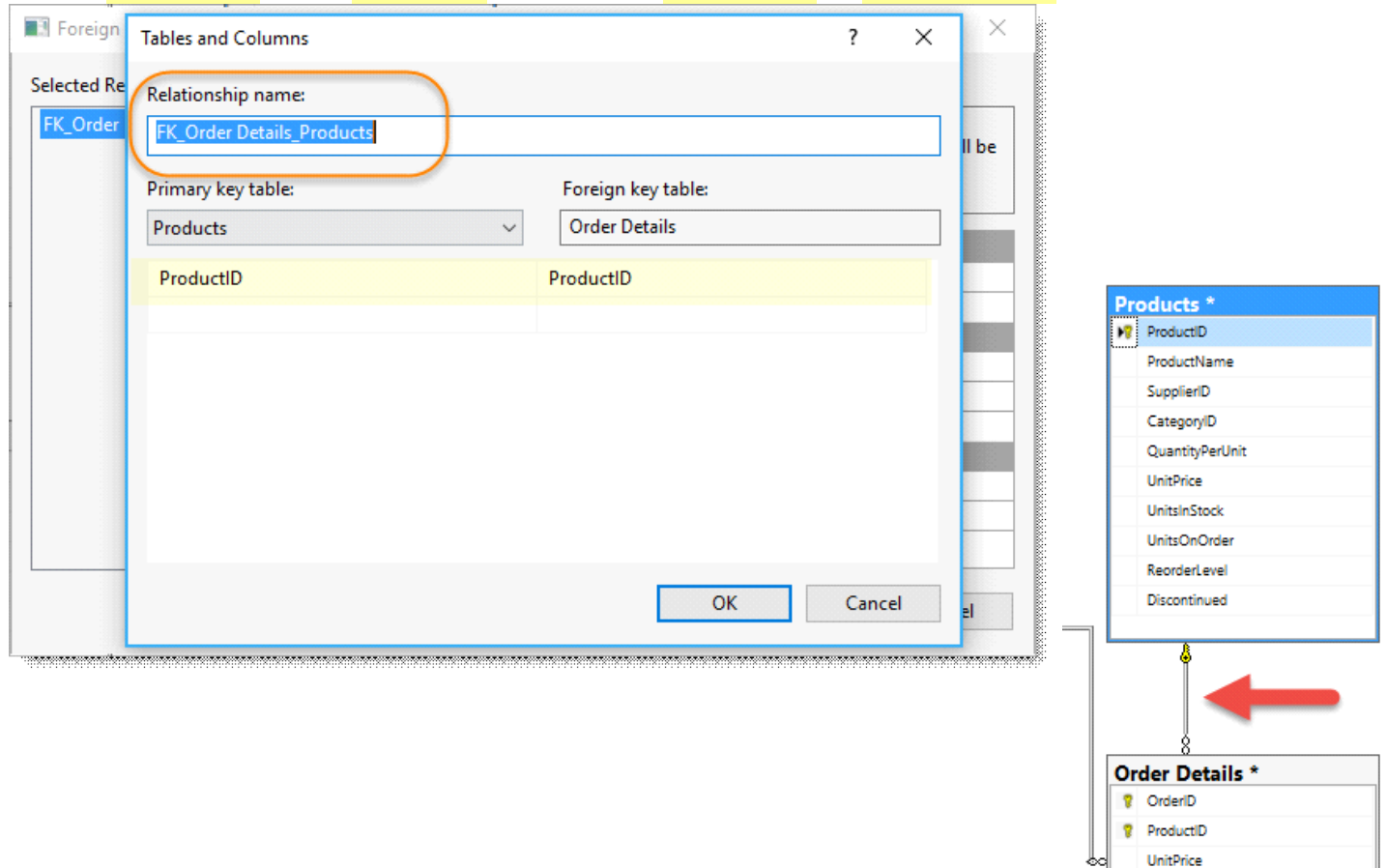
.....

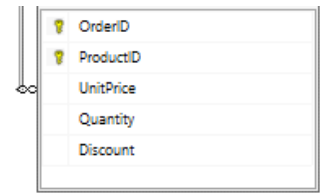
Create Relation



Tuesday, May 23, 2017 12:00 PM



DRAG ProductID from Products and Touch ProductID in OrderDetails





 OrderID
 ProductID
UnitPrice
Quantity
Discount