**Task 1:**

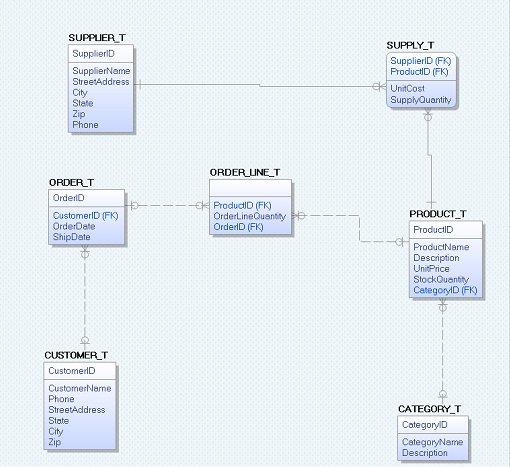
- Data Dictionary

|  |  |  |  |
| --- | --- | --- | --- |
| **Entity** | **Attribute** | **Key** | **Data Type** |
| CATEGORY\_T | CategoryID | PK | Number/ Integer |
|  | CategoryName |  | String / varchar(50) |
|  | Description |  | String / varchar (200) |
| PRODUCT\_T | ProductID | PK | Number/ Integer |
|  | ProductName |  | String/ varchar(100) |
|  | CategoryID | FK | Number/ Integer |
|  | UnitPrice |  | Number/ Decimal(13,2) |
|  | StockQuantity |  | Number/ Integer |
| CUSTOMER\_T | CustomerID | PK | Number/Integer |
|  | CustomerName |  | String/ varchar(50) |
|  | Street |  | String / varchar(50) |
|  | City |  | String / varchar(50) |
|  | State |  | String / varchar(30) |
|  | Zip |  | String / varchar(15) |
|  | PhoneNumber |  | String/varchar(15) |
| ORDER\_T | OrderID | PK | Number/Integer |
|  | CustomerID | FK | Number/Integer |
|  | OrderDate |  | Time/ Date |
|  | ShipDate |  | Time/Date |
| ORDER\_LINE\_T | OrderID | PK, FK | Number/Integer |
|  | ProductID | PK, FK | Number/Integer |
|  | OrderLineQuantity |  | Number/Integer |
| SUPPLIER\_T | SupplierID | PK | Number/Integer |
|  | SupplierName |  | String/varchar(100) |
|  | Street |  | String / varchar(70) |
|  | City |  | String / varchar(50) |
|  | State |  | String / varchar(30) |
|  | Zip |  | String / varchar(15) |
|  | PhoneNumber |  | String / varchar(15) |
| SUPPLY\_T | SupplierID | PK, FK | Number/Integer |
|  | ProductID | PK, FK | Number/Integer |
|  | Price |  | Number/Decimal(13,2) |
|  | SupplyQuantity |  | Number/Integer |

- Table 2: Referential Integrity

| **Relationship** | **Candidate Constraints** |
| --- | --- |
| CATEGORY\_T -> PRODUCT\_T | Mandatory Many |
| PRODUCT\_T -> CATEGORY\_T | Mandatory One |
| CUSTOMER\_T -> ORDER\_T | Mandatory Many |
| ORDER\_T -> CUSTOMER\_T | Mandatory One |
| ORDER\_T -> ORDER\_LINE\_T | Mandatory Many |
| ORDER\_LINE\_T -> ORDER\_T | Mandatory One |
| ORDER\_LINE\_T -> PRODUCT\_T | Mandatory One |
| PRODUCT\_T -> ORDER\_LINE\_T | Mandatory Many |
| PRODUCT\_T -> SUPPLY\_T | Mandatory Many |
| SUPPLY\_T -> PRODUCT\_T | Mandatory Many |
| SUPPLY\_T -> SUPPLIER\_T | Optional One |
| SUPPLIER\_T -> SUPPLY\_T | Mandatory Many |

- Erwin Diagram Screenshot



**Task 2. Create Database in SQL Server Using ERwin Forward Engineering**

**Task 3. Normalize and populate the data**

3.1 Normalize the data in 3rd NF

| **Customer\_T** | | |
| --- | --- | --- |
| **Column** | **Key** | **Data Type** |
| CustomerID | Primary | Int |
| CustomerName |  | Varchar(50) |
| StreetAddress |  | Varchar(50) |
| City |  | Varchar(50) |
| State |  | Varchar(50) |
| Zip |  | Varchar(15) |
| Phone |  | Varchar(15) |

| **Product\_T** | | |
| --- | --- | --- |
| **Column** | **Key** | **Data Type** |
| ProductID | Primary | Int |
| CategoryID | Foreign | Int |
| ProductName |  | Varchar(100) |
| UnitPrice |  | Decimal(13,2) |
| StockQuantity |  | Int |
| Description |  | Varchar(200) |

| **Category\_T** | | |
| --- | --- | --- |
| **Column** | **Key** | **Data Type** |
| CateogryID | Primary | Int |
| CategoryName |  | Varchar(50) |
| Description |  | Varchar(200) |

| **Supplier\_T** | | |
| --- | --- | --- |
| **Column** | **Key** | **Data Type** |
| SupplierID | Primary | Int |
| SupplierName | Foreign | Varchar(100) |
| StreetAddress |  | Varchar(70) |
| City |  | Varchar(50) |
| State |  | Varchar(50) |
| Zip |  | Varchar(15) |
| Phone |  | Varchar(20) |

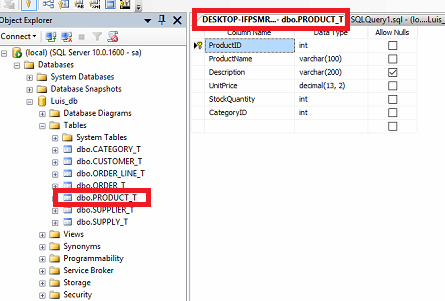
| **Order\_T** | | |
| --- | --- | --- |
| **Column** | **Key** | **Data Type** |
| OrderID | Primary | Int |
| CustomerID | Foreign | Int |
| OrderDate |  | Date |
| ShipDate |  | Date |

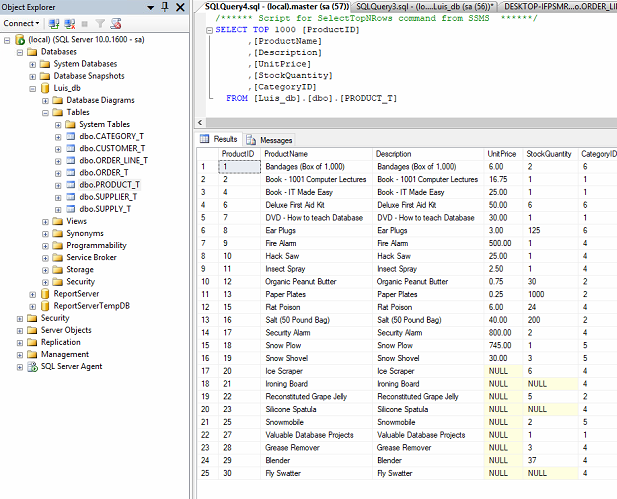
| **OrderLine\_T** | |  |
| --- | --- | --- |
| **Column** | **Key** | **Data Type** |
| OrderID | Primary, Foreign | Int |
| ProductID | Primary, Foreign | Int |
| OrderLineQuantity |  | Int |

| **Supply\_T** | | |
| --- | --- | --- |
| **Column** | **Key** | **Data Type** |
| SupplierID | Primary,Foreign | Int |
| ProductID | Primary,Foreign | Int |
| UnitCost |  | Decimal(13,2) |
| OrderLineQuantity |  | Int |

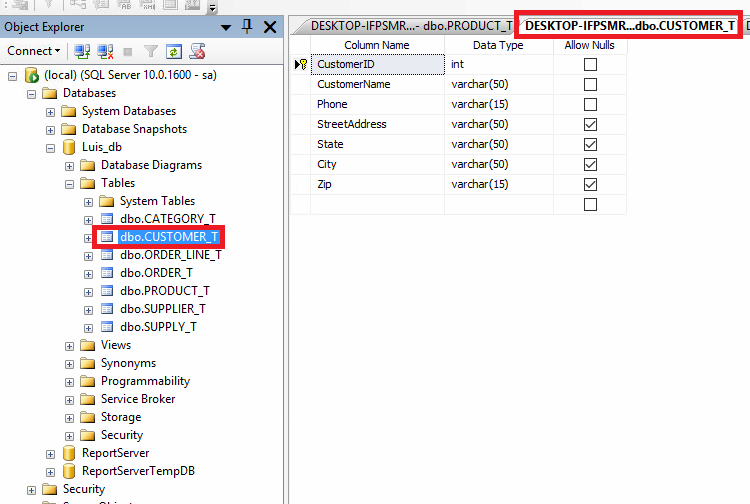
3.2 Populate the data in MS SQL Server using SQL

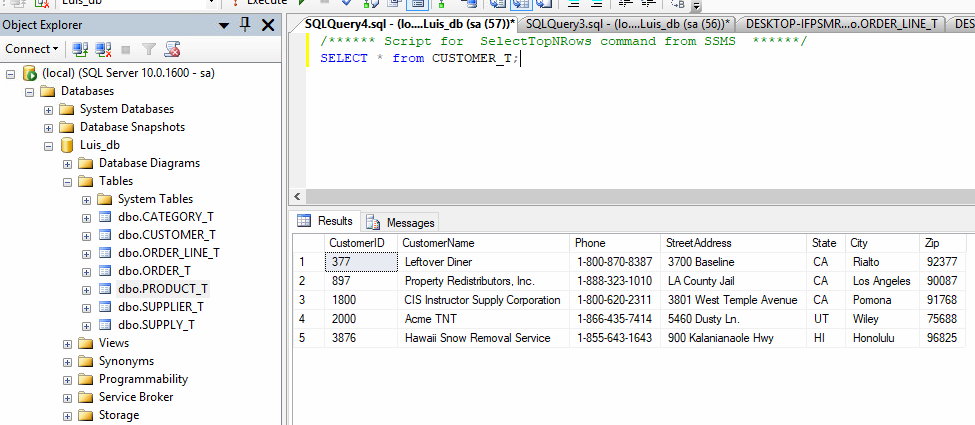
- PRODUCT\_T Table

****

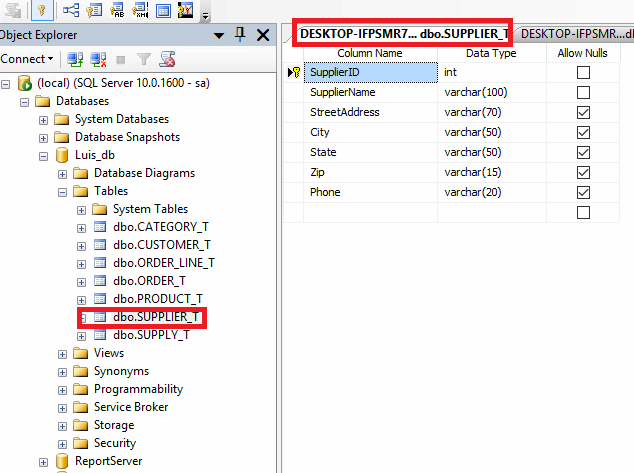
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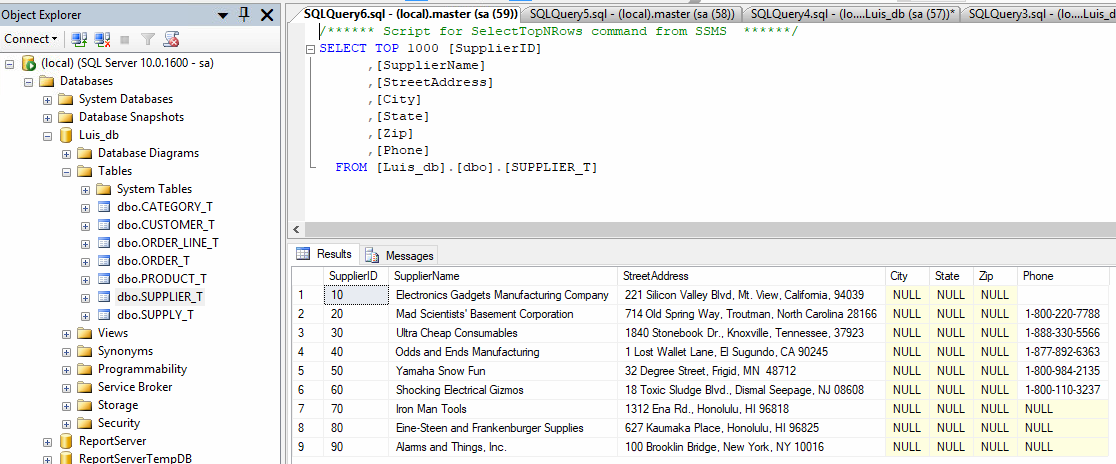
- CUSTOMER\_T Table



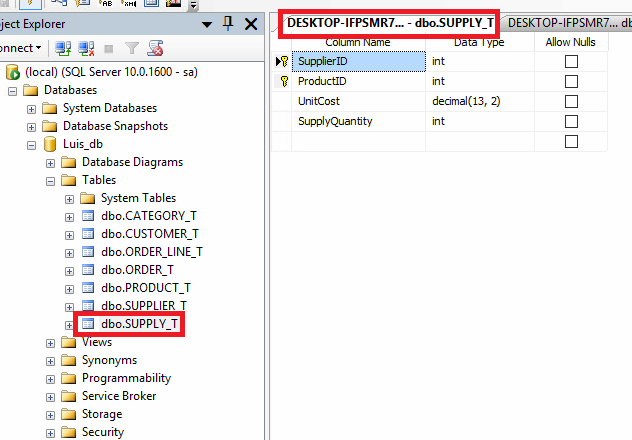


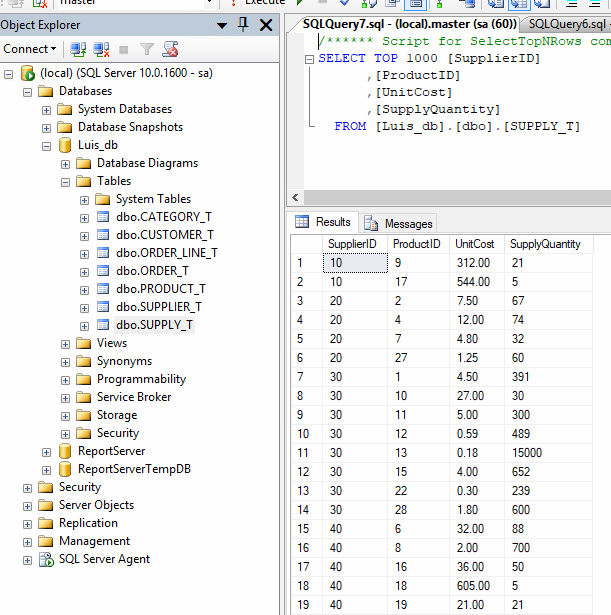
- SUPPLIER\_T Table

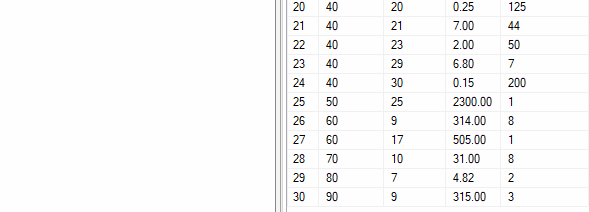




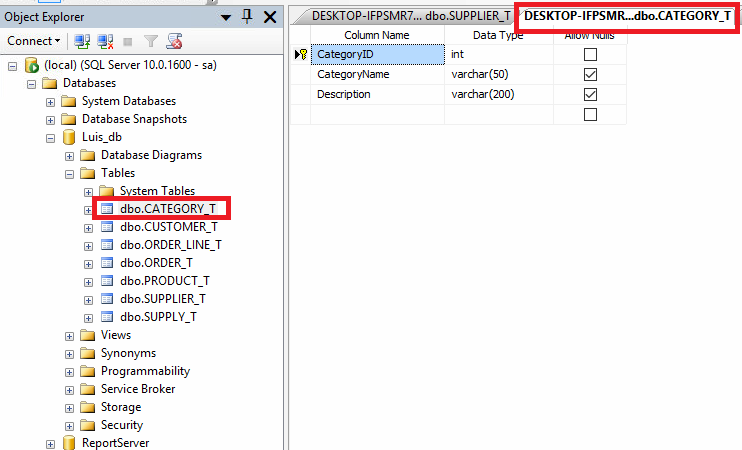
- SUPPLY\_T

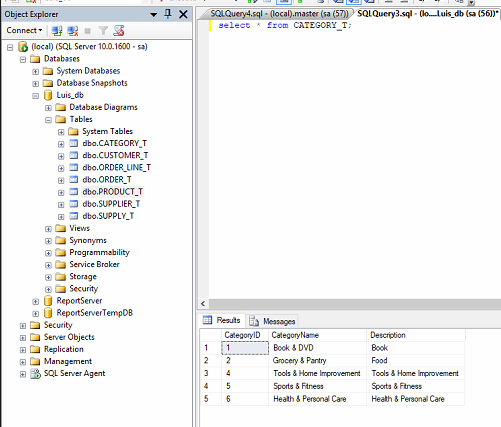




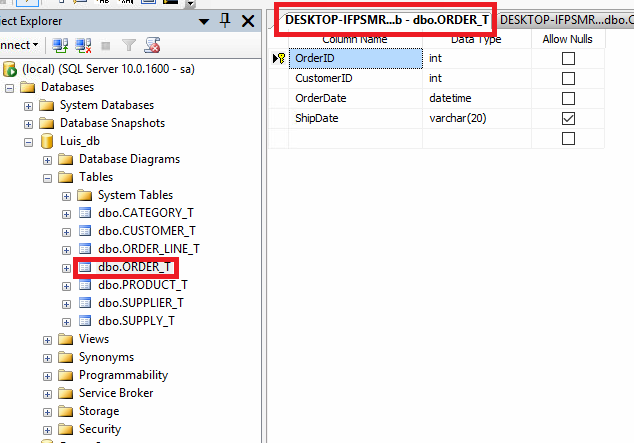


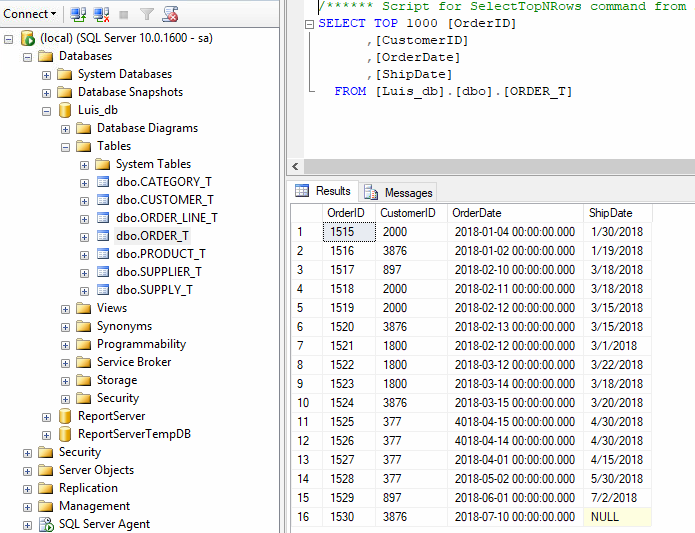
- CATEGORY\_T Table





- ORDER\_T Table





- ORDER\_LINE\_T Table

