

## Database Design –Assignment 2

We would like to know which customers are buying which books. This requires data from two tables, tblCustomer and tblBook. SQL can only output data from one table so we must join the input tables together before we can select data for output. Joining tables requires telling SQL that the Primary Key (PK) of one table must always equal the Foreign Key (FK) in the other table. In this case, the PK of tblCustomer does not exist in tblBook so these two tables cannot be joined together.

Open the attached Access database and click on Database Tools and Relationships. This is basically an ER diagram of the database. This is the Sale model and will be the focus of the exams. As you can see, tblCustomer can only be joined to tblSale. Therefore, to gather information about which book titles customers are buying, we must join tblCustomer to tblSale then tblSale to tblSaleLineItem then tblSaleLineItem to tblBook. This is accomplished using three special Where statements we will call Join Conditions. Your text book uses the exact same name for the PK and FK to show you that these contain the same data. The disadvantage to this naming convention is that you must add the name of the table to the field name in the SQL code (for example, tblBook.CustID). Proper naming convention requires each field to have a unique name. This is often accomplished by adding a table prefix to each field (for example, Cust + field name). With unique names, using the table name is not necessary (except for recursive relationships). So a join condition would be:

Where PK = FK or Where CustID = SaleCustID

```
Set ansi_nulls on
Go
Set quoted_identifier off
Go
```

```
/*1. List all Customer contacts in the table. Only list ID, name (combined
into Last, First as one column
e.g. Smith, John), and city and state (combined into one column e.g. Green-
ville, NC). */
```

```
SELECT CustID, CustContactLastName + ", " + CustContactFirstName AS CustName,
CustCity + ", " + CustState AS CustLocation FROM MIS_4113_001.dbo.tblCustomer
ORDER BY CustContactLastName, CustContactFirstName ASC;
```

```
/*2. How many Customers live in Virginia? */
```

```
SELECT COUNT(*) AS CustomerCOUNT FROM MIS_4113_001.dbo.tblCustomer
WHERE CustState = "VA";
```

```
/*3. What is the average number of books (ItemQty) for sales from each state
in tblCustomer?
```

```
(use Group By to list the state and the average) (Review the Sale model in
Chapter 5)*/
```

```
SELECT AVG(BkQtyOnHand) AS BookQtyAvg, CustState FROM
MIS_4113_001.dbo.tblCustomer, MIS_4113_001.dbo.tblBook,
MIS_4113_001.dbo.tblSale, MIS_4113_001.dbo.tblSaleLineItem
WHERE CustID = SaleCustID
AND SaleID = ItemSaleID
AND ItemBookID = BkBookID
GROUP BY CustState
```

```
ORDER BY CustState ASC;
```

```
/*4. What is the lowest price we charged for a book last year?  
In the Criteria, calculate last year as this year -1 (see Sample SQL Code in  
How to ...).*/
```

```
SELECT MIN(ItemUnitPrice) AS LowestSale FROM  
MIS_4113_001.dbo.tblSaleLineItem, MIS_4113_001.dbo.tblSale  
WHERE SaleID = ItemSaleID  
and Year(SaleDate) = Year(DateAdd(YEAR,-1,GetDate()));
```

```
/*5. List the titles and prices (BkPrice) of the books whose price is greater  
than the average price (ItemUnitPrice)  
of all books sold this year (use the current date function). Remove dupli-  
cates by using Select Distinct BkTitle ...*/
```

```
SELECT DISTINCT BkTitle, BkPrice FROM MIS_4113_001.dbo.tblBook,  
MIS_4113_001.dbo.tblSaleLineItem, MIS_4113_001.dbo.tblSale  
WHERE BkBookID = ItemBookID  
and BkPrice > (SELECT AVG(ItemUnitPrice) AS ItemUnitPriceAvg FROM  
MIS_4113_001.dbo.tblSaleLineItem)  
and Year(SaleDate) = YEAR(GetDate())  
ORDER BY BkTitle ASC;
```

```
/*6. List the sale year, companies, their city and state (combined), and the  
total amount of sales (quantity times price) for each sale year in tblSale.*/
```

```
SELECT YEAR(SaleDate) AS SaleYear, CustCompanyName, CustCity + ", " + Cust-  
State As CustLocation, SUM(ItemQty*ItemUnitPrice) AS TotalSales FROM  
MIS_4113_001.dbo.tblSale, MIS_4113_001.dbo.tblSaleLineItem,  
MIS_4113_001.dbo.tblCustomer  
WHERE CustID = SaleCustID  
AND SaleID = ItemSaleID  
GROUP BY YEAR(SaleDate), CustCompanyName, CustCity, CustState  
ORDER BY YEAR(SaleDate), CustCompanyName ASC;
```