Lab 2-2

Connection values:

Server Type = Database Engine
Server Name = boyce.coe.neu.edu
Authentication = SQL Server Authentication
Login = INFO6210
Password = NEUHusky!

Note:
Two ways to specify comments in SQL commands:
Use -- for a line of comments
or use /* */ for a block of comments.

```sql
-- Set the database context
USE AdventureWorks2008R2;
-- Or any version of AdventureWorks after it

-- SQL JOINs are used to retrieve data from multiple tables.
-- INNER is the default when JOIN is the only keyword used.
-- INNER JOIN returns only matching rows from left and right tables.
-- c is the alias for the Sales.Customer table in the example.
-- oh is the alias for the Sales.SalesOrderHeader table.
-- ON lists the matching columns to JOIN on.

/*
   If two tables have the same column name in a query, we must
   designate where the column is from by using the format
   TableName.ColumnName.
   If a column name is unique between the JOINed tables,
   The TableName.ColumnName format is not required.
*/

SELECT c.CustomerID, c.AccountNumber, SalesOrderID, OrderDate
FROM Sales.Customer c
INNER JOIN Sales.SalesOrderHeader oh
ON c.CustomerID = oh.CustomerID;

/*
   LEFT OUTER JOIN returns all rows from the left table,
   but only the matching rows from the right table.
*/

SELECT c.CustomerID, c.AccountNumber, SalesOrderID, OrderDate
FROM Sales.Customer c
LEFT OUTER JOIN Sales.SalesOrderHeader oh
ON c.CustomerID = oh.CustomerID;

/*
   RIGHT OUTER JOIN returns all rows from the right table,
   but only the matching rows from the left table.
*/

SELECT c.CustomerID, c.AccountNumber, SalesOrderID, OrderDate
FROM Sales.Customer c
RIGHT OUTER JOIN Sales.SalesOrderHeader oh
ON c.CustomerID = oh.CustomerID;
```

```sql
-- Set the database context
USE AdventureWorks2008R2;

-- COUNT, GROUP BY, ORDER
-- GROUP BY aggregates on the column(s) we specify
-- ORDER BY does sorting


SELECT c.CustomerID,
       PersonID,
       COUNT(SalesOrderID) AS "Total Order"
FROM Sales.Customer c
INNER JOIN Sales.SalesOrderHeader oh
ON c.CustomerID = oh.CustomerID
GROUP BY c.CustomerID, PersonID
ORDER BY "Total Order" DESC;
```

```
--JOIN, COUNT, GROUP BY, HAVING, ORDER

--SELECT the order count for each customer
--WHERE the count > 20
--ORDER the counts in the descending order

/*
For regular filtering in a query, we use WHERE.
If we use GROUP BY in a query, then we use HAVING to do
the filtering for groups.
*/

SELECT c.CustomerID,
       PersonID,
       COUNT(SalesOrderID) AS "Total Order"
FROM Sales.Customer c INNER JOIN Sales.SalesOrderHeader oh
ON c.CustomerID = oh.CustomerID
GROUP BY c.CustomerID, PersonID
HAVING COUNT(SalesOrderID) > 20
ORDER BY "Total Order" DESC;
```

	CustomerID	PersonID	Total Order
1	11091	4515	28
2	11176	15994	28
3	11185	12569	27
4	11200	5409	27
5	11223	3197	27
6	11262	20532	27
7	11276	15449	27
8	11277	4855	27
9	11287	15978	27
10	11300	13098	27

```sql
-- Set the database context
USE AdventureWorks2008R2;

-- IN OPERATOR

-- Can be used with any data type

SELECT ProductID, Name, Color, ListPrice, SellStartDate
FROM Production.Product
WHERE Color IN ('Red', 'Blue', 'White') -- character comparison
ORDER BY Color, Name;

SELECT ProductID, Name, Color, ListPrice, SellStartDate
FROM Production.Product
WHERE ListPrice IN (337.22, 594.83, 63.50, 8.99) -- numeric comparison
ORDER BY ListPrice;


-- LIKE operator
-- Select any person whose last name begins with a
-- % is the wildcard symbol representing 0 to many characters
-- - is the wildcard symbol representing exactly one character

SELECT FirstName, MiddleName, LastName
FROM Person.Person
WHERE LastName LIKE 'a%'
ORDER BY LastName;

-- Select any person whose last name begins with a or c or e

SELECT FirstName, MiddleName, LastName
FROM Person.Person
WHERE LastName LIKE '[ace]%'
ORDER BY LastName;
```

```sql
-- Set the database context
USE AdventureWorks2008R2;


--Subqueries are queries that are embedded in another query.

SELECT Name [Product],
   ListPrice,
   (SELECT MAX(ListPrice) FROM Production.Product)
           AS [Max Price],
   (ListPrice / (SELECT MAX(ListPrice) FROM Production.Product)) * 100
           AS [Percent of MAX]
FROM Production.Product
WHERE ListPrice > 0
ORDER BY ListPrice DESC;
```

```
-- Lab 2 Questions


Note: 1 point for each question

/* Use the content of the AdventureWorks2008R2 database for each of
   the following questions. Submit the SQL queries to Canvas in
   a single .sql file. */


2-1

/* Write a query to retrieve all orders processed by salespersons 276
   or 277 which had an total due value greater than $100,000. Include
   the salesperson id, sales order id, order date and total due columns
   in the returned data.

   Use the CAST function in the SELECT clause to display the date
   only for the order date. Use ROUND to display only two decimal
   places for the total due amount. Use an alias to give a descriptive
   column heading if a column heading is missing. Sort the returned
   data first by the SalesPerson ID, then order date.

   Hint: (a) Use the Sales.SalesOrderHeader table.
         (b) The syntax for CAST is CAST(expression AS data_type),
             where expression is the column name we want to format and
             we can use DATE as data_type for this question to display
             just the date.
         (c) The syntax for ROUND is ROUND(expression, position_to_round),
             where expression is the column name we want to format and
             we can use 2 for position_to_round to display two decimal
             places. */



2-2
/* List the territory id, total number of orders and total sales amount
   for each sales territory. Use the TotalDue column for calculating the
   total sales amount. Include only the sales territories which
   have a total order count greater than 3500.

   Use a column alias to make the report look more presentable. Use ROUND and CAST
   to display the total sales amount as a rounded integer. Sort the returned
   data by the territory id.

   Hint: You need to work with the Sales.SalesOrderHeader table. */
```

```
2-3
/* Write a query to select the product id, name, list price, and
   sell start date for the product(s) that have a list price greater
   than the highest list price - $1,000. Display only the date
   for the sell start date and make sure all columns have a descriptive
   heading. Sort the returned data by the list price in descending.

   Hint: You'll need to use a simple subquery in a WHERE clause. */


2-4
/* Write a query to retrieve the total sold quantity for each product.
   Return only the products that have a total sold quantity greater than 3000
   and have the black color.

   Use a column alias to make the report look more presentable.
   Sort the returned data by the total sold quantity in the descending order.
   Include the product ID, product name and total sold quantity columns
   in the report.

   Hint: Use the Sales.SalesOrderDetail and Production.Product tables. */


2-5
/* Write a query to retrieve the dates in which there was
   at least one product sold but no product in red
   was sold.

   Return the "date" and "total product quantity sold
   for the date" columns. Use OrderQty in SalesOrderDetail
   for calculating "total product quantity sold for the date".

   Sort the returned data by the
   "total product quantity sold for the date" column in desc. */


2-6
/* Write a query to retrieve a customer's
   overall purchase and highest annual purchase.
   Use TotalDue in SalesOrderHeader for calculating purchase.

   Include the "Customer ID", "Last name", "First name",
   "Overall purchase" and "Highest annual purchase" columns
   in the returned data. Return only the customers who had
   a total purchase greater than $500,000.

   Sort the returned data by a customer's overall purchase in descending.  */
```

Useful Links

USE SQL Server Management Studio

http://msdn.microsoft.com/en-us/library/ms174173.aspx

Writing SQL Queries

http://technet.microsoft.com/en-us/library/bb264565(v=sql.90).aspx

SQL Aggregate Functions

http://msdn.microsoft.com/en-us/library/ms173454.aspx

Types of JOIN in SQL Server

http://www.codeproject.com/Tips/712941/Types-of-Join-in-SQL-Server

GROUP BY and HAVING
http://technet.microsoft.com/en-us/library/ms180199.aspx

Subquery Fundamentals

http://technet.microsoft.com/en-us/library/ms189575(v=sql.105).aspx

CAST and CONVERT

https://msdn.microsoft.com/en-us/library/ms187928.aspx