

## Lab 2-2

Connection values:

Server Type = Database Engine

Server Name = is-swang01.ischool.uw.edu

Authentication = SQL Server Authentication

Login = INF06210

Password = NEUHusky!

Note:

Two ways to specify comments in SQL commands:

Use -- for a line of comments

or use /\* \*/ for a block of comments.

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

-- 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;
```

```
-- 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

```
-- 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;
```

```
-- 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 AdventureWorks sample database for each of
the following questions. Submit the SQL queries to Blackboard in
a single .sql file. */
```

2-1

```
/* Select product id, name and selling start date for all products
that started selling after 02/01/2006 and had a yellow color.
Use the CAST function to display the date only. Sort the returned
data by the selling start date.
```

```
Hint: a: You need to work with the Production.Product 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. */
```

2-2

```
/* List the latest order date and total number of orders for each
customer. Include only the customer ID, account number, latest
order date and the total number of orders in the report.
Use column aliases to make the report more presentable.
Sort the returned data by the customer id.
```

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

2-3

```
/* Write a query to select the product id, name, and list price
for the products that have a list price greater than the average
list price. Sort the returned data by the product id.
```

```
Hint: You'll need to use a simple subquery to get the average
list price and use it in a WHERE clause. */
```

2-4

```
/* Write a query to retrieve the total sold quantity
   for each product. Include only the products that have
   a total great than 50. Use a column alias to make the report
   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 salespersons who have sold
   more than 70 different products in a single order.
   Include the salesperson id, sales order id, and total of
   different products columns in the returned data.
   Sort the returned data by the sales person id. */
```

2-6

```
/* Provide a unique list of product ids and product names that
   were not ordered by any customer during 2007 and
   sort the list by product id. */
```



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

## **CAST and CONVERT**

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