Hong Kong Baptist University
Department of Computer Science

COMP 7810/4096 Business Intelligence (2019-20)

Structured Query Language (SQL)

Introduction

SQL is a standard language for storing, manipulating and retrieving data in databases. Here is the syntax for getting data:

SQL SELECT Syntax

```
SELECT column_name,column_name
FROM table_name;
```

and

```
SELECT * FROM table_name;
```

Learning Outcomes

By finishing this lab session, you should be able to

- Write Transact-SQL(T-SQL) in SSMS to retrieve data from the SalesOrder database

Tools

- Microsoft SQL Server Management Studio 2012

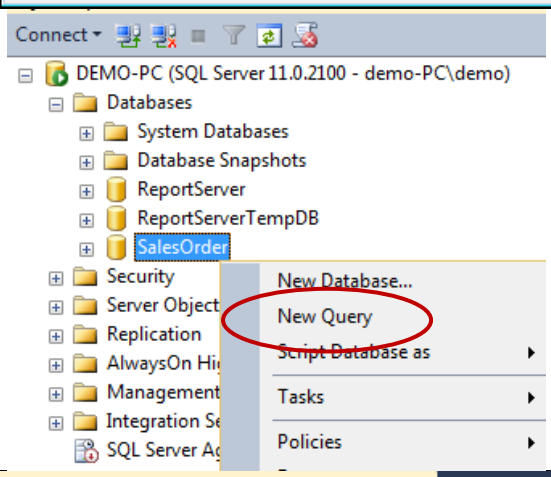
Part A: Create queries in SSMS

I. Export reports from the SQL server

1. Open the program **SQL Server Management Studio (SSMS)** and connect to **localhost**.

2. **Right Click** the **Sales Order** database and select **New Query**, type the following sql statement and press **Execute** to run the results:

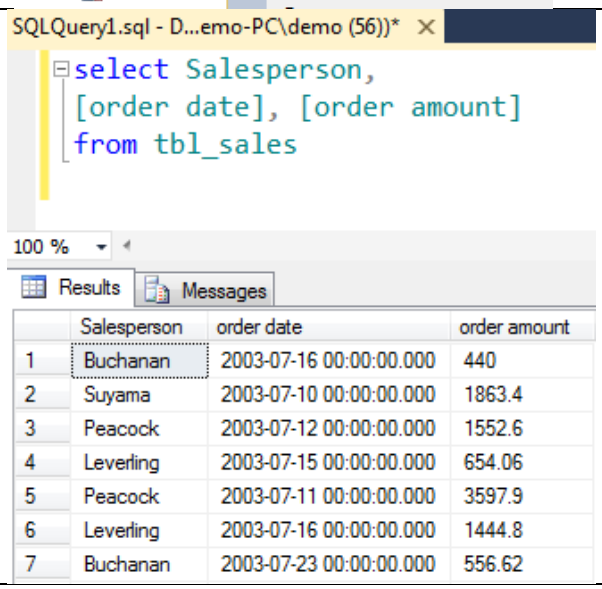
   select * from tbl_sales



3. Type another SQL statement as follows and press **Execute** to run the results:

   select Salesperson,
   [order date], [order amount]
   from tbl_sales

   Note: [] is used because there is space for the column name.



	Salesperson	order date	order amount
1	Buchanan	2003-07-16 00:00:00.000	440
2	Suyama	2003-07-10 00:00:00.000	1863.4
3	Peacock	2003-07-12 00:00:00.000	1552.6
4	Leverling	2003-07-15 00:00:00.000	654.06
5	Peacock	2003-07-11 00:00:00.000	3597.9
6	Leverling	2003-07-16 00:00:00.000	1444.8
7	Buchanan	2003-07-23 00:00:00.000	556.62

4. To restrict the records in UK country.

   WHERE clause is used to filter records, or to extract only those records that fulfill a specified condition.

   ‘ ’ (single quotes) are used for string, but no ‘ ’ for numbers.

```
SELECT Salesperson, country, [order date],
[order amount]
FROM tbl_sales
WHERE country = 'UK' AND [order amount]>5000
```

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```
SELECT Salesperson, country, [order date],
[order amount]
FROM tbl_sales
WHERE country = 'UK' AND [order amount]>5000
```

100 %

Results | Messages

	Salesperson	country	order date	order amount
1	Dodsworth	UK	2003-10-10 00:00:00.000	5275.71
2	King	UK	2003-11-25 00:00:00.000	8593.28
3	Buchanan	UK	2003-12-09 00:00:00.000	9210.9
4	King	UK	2004-01-27 00:00:00.000	9194.56
5	Buchanan	UK	2004-07-25 00:00:00.000	6475.4
6	King	UK	2004-08-18 00:00:00.000	5510.59
7	King	UK	2004-10-16 00:00:00.000	5256.5
8	Dodsworth	UK	2005-02-23 00:00:00.000	11380
9	Dodsworth	UK	2005-02-20 00:00:00.000	5502.11
10	Dodsworth	UK	2005-04-20 00:00:00.000	6750
11	King	UK	2005-04-27 00:00:00.000	12615.05

5. To calculate the total order amount for each salesperson, use **GROUP BY** clause:

   AS keyword is used to assign an alias to a column

   GROUP BY statement is often used with aggregate functions (COUNT, MAX, MIN, SUM, AVG) to group the result-set by one or more columns

```
SELECT salesperson, sum([order amount]) AS
total_amount
FROM tbl_sales GROUP BY salesperson
```

SQLQuery1.sql - D...emo-PC\demo (56))*

```
SELECT salesperson, sum([order amount]) AS total_amount
FROM tbl_sales GROUP BY salesperson
```

100 %

Results | Messages

	salesperson	total_amount
1	Buchanan	68792.25
2	Callahan	123032.67
3	Davolio	182500.09
4	Dodsworth	75048.04
5	Fuller	162503.78
6	King	116962.99
7	Leverling	201196.27
8	Peacock	225763.68
9	Suyama	72527.63

6. To calculate the total order amount for each salesperson, and sort the results from largest to smallest sales, use **ORDER BY** clause.

```
SELECT salesperson, sum([order amount]) AS
total_amount
FROM tbl_sales GROUP BY salesperson
ORDER BY total_amount DESC
```

7. To find the salesperson with the <u>top one</u> sales order amount, you can add **TOP** statement.

   TOP (n) statement is used to retrieve top n records from the result set.

```
SELECT TOP (1) Salesperson, SUM([Order Amount])
AS total_amount
FROM tbl_sales
GROUP BY Salesperson
ORDER BY total_amount DESC
```

8. A **subquery** is a SQL query within a query. To retrieve country and salesperson information for the one who has the max sales order amount, you can use subquery. Must use () to enclose subquery	SELECT country, salesperson FROM tbl_sales WHERE [order amount] = (select max([order amount]) FROM tbl_sales)

II. Exercise 1 (Optional)

1. Find out the answers for the following questions using SQL statements, copy the SQL statements (the select statements) to a MS Word file named **lab2A-ans.docx** (using screen capture or copy & paste)
   A. Comparing the sum of order amount for different countries
   B. Calculating the sum of order amount for each salesperson, and sorting the results from largest to smallest sales
   C. Finding the five salespersons with the top five sales order amount
   D. Finding the three salespersons with the bottom three sales order amount
   E. Showing the total order amount for each salesperson, and calculating summarized order amounts as a percentage of the grand total

III. Answer Submission

1. Submit the file **lab2A-ans.docx** to the site **http://buelearning.hkbu.edu.hk/**