

# Lab 03 – SQL – Single Table Queries

## Objectives

The purpose of this lab is to start learning SQL by writing basic DML statements involving a single table. You will learn to create basic CRUD statements (queries as well as insert, update and delete).

## Submission:

***Your submission will be a single Word file with the solutions provided. (with a .docx file extension)***

## Setup

Create a new worksheet in SQL developer and add an appropriate comment header that includes your name, student id, the date and the purpose of the file (i.e. DBS211 – Lab 03). After every command and result in each question paste them in your Word file

Immediately under the comment header, enter the following line and then execute it:

```
SET AUTOCOMMIT ON;
```

You will need to execute this statement each time you login to the server until the completion of this lab.

Save the script as: DBS211\_L03\_LastName\_FirstName.sql

## Style Guide

Your SQL should be written using the standard coding style:

- all keywords are to be upper case,
- all user-defined names are to be lower case, (example: table and field names)
- there should be a carriage return before each major part of the SQL statements (i.e. before SELECT, FROM, WHERE and ORDER BY)

Using comments to number the question answers, write the SQL code to complete the following tasks.

## Tasks:

1. Display the first 10 rows of data for the RETAILPAYMENTS table. (query and results in Word file).

```
SELECT * FROM RETAILPAYMENTS
```

```
ORDER BY CUSTOMERNUMBER
```

```
FETCH FIRST 10 ROWS ONLY  
OR
```

```
SELECT * FROM RETAILPAYMENTS
```

```
WHERE rownum>=1 and rownum<=10
```

```
ORDER BY CUSTOMERNUMBER  
Or
```

```
SELECT * FROM RETAILPAYMENTS
```

WHERE rownum between 1 and 10

ORDER BY CUSTOMERNUMBER

	CUSTOMERNUMBER	CHECKNUMBER	PAYMENTDATE	AMOUNT
1	103	AAA123	20-APR-21	647.18
2	103	OM314933	18-DEC-04	1676.14
3	103	JM555205	05-JUN-03	14571.44
4	103	HO336336	19-OCT-04	6066.78
5	112	BBAA123	20-APR-22	5647.18
6	112	BO864823	17-DEC-04	14191.12
7	112	HO55022	06-JUN-03	32641.98
8	112	ND748579	20-AUG-04	33347.88
9	114	GG31455	20-MAY-03	45864.03
10	114	MA765515	15-DEC-04	82261.22

- Display the full name of RETAILEMLOYEE (in 2 ways) and their email using the RETAILEMPOYEEs table whose office code is 6.

SELECT CONCAT(FIRSTNAME,CONCAT(' ',LASTNAME)) AS FULLNAME,EMAIL

FROM RETAILEMPOYEEs

WHERE OFFICECODE=6

SELECT FIRSTNAME||' '||LASTNAME AS FULLNAME,EMAIL FROM RETAILEMPOYEEs

WHERE OFFICECODE=6

	FULLNAME	EMAIL
1	William Patterson	wpatterson@classicmodelcars.com
2	Andy Fixter	afixter@classicmodelcars.com
3	Peter Marsh	pmarsh@classicmodelcars.com
4	Tom King	tking@classicmodelcars.com

3. Display RETAILCUSTOMER number, RETAILCUSTOMER name, contact first name and contact last name, and phone for all RETAILCUSTOMERs in Paris. (**hint**: be wary of case sensitivity)

```
SELECT customerNumber, customerName, contactFirstName, contactLastName, phone
FROM RETAILCUSTOMERS
where LOWER(city) LIKE 'paris'--3 rows selected
```

	CUSTOMERNUMBER	CUSTOMERNAME	CONTACTFIRSTNAME	CONTACTLASTNAME	PHONE
1	172	La Corne 'abondance, Co.	Marie	Bertrand	(1) 42.34.2555
2	250	Lyon Souvenirs	Daniel	Da Silva	+33 1 46 62 7555
3	406	Auto Canal+ Petit	Dominique	Perrier	(1) 47.55.6555

4. Repeat the previous Query with a couple small changes:
- The contact's first and last name should be in a single column in the format "lastname, firstname".
  - Show customers who are in Canada

```
SELECT customerNumber, customerName, contactlastname || ', ' || contactfirstname as
"lastname,firstname ", phone
```

```
FROM retailcustomers
```

```
where UPPER(country) = 'CANADA'
--3 rows selected
```

	CUSTOMERNUMBER	CUSTOMERNAME	lastname,firstname	PHONE
1	202	Canadian Gift Exchange Network	Tamuri, Yoshi	(604) 555-3392
2	233	Québec Home Shopping Network	Fresnière, Jean	(514) 555-8054
3	260	Royal Canadian Collectables, Ltd.	Lincoln, Elizabeth	(604) 555-4555

5. Display RETAILCUSTOMER number for RETAILCUSTOMERs who have payments. Do not included any repeated values. (**hints**: how do you know a RETAILCUSTOMER has made a payment? You will need to access only one table for this query)

```
SELECT DISTINCT customerNumber
```

```
FROM retailpayments
```

```
WHERE amount IS NOT NULL
```

--98 rows selected

	CUSTOMERNUMBER
4	119
5	121
6	124
7	128
8	129
9	131
10	141
11	144
12	145
13	146
14	148
15	151
16	157
17	161
18	166
19	167
20	171
21	172
22	173
23	175
24	177

6. List RETAILCUSTOMER numbers, check number, and amount for RETAILCUSTOMERs whose payment amount is not in the range of \$30,000 to \$65,000. Sort the output by top payments amount first.

```
SELECT customerNumber,checkNumber,amount
FROM retailpayments
WHERE amount<=30000 or amount>=65000
ORDER BY amount desc
```

```
Or
SELECT customerNumber, checkNumber, amount
FROM retailpayments
WHERE amount NOT BETWEEN 30000 AND 65000
ORDER BY amount DESC;
```

--144 rows selected

	CUSTOMERNUMBER	CHECKNUMBER	AMOUNT
1	141	JE105477	120166.58
2	141	ID10962	116208.4
3	124	KI131716	111654.4
4	148	KM172879	105743
5	124	AE215433	101244.59
6	321	DJ15149	85559.12
7	124	BG255406	85410.87
8	167	GN228846	85024.46
9	124	ET64396	83598.04
10	114	MA765515	82261.22
11	239	NO865547	80375.24
12	323	AL493079	75020.13
13	141	IN446258	65071.26
14	487	AH612904	29997.09
15	276	OJ819725	29848.52
16	334	HH517378	29716.86
17	324	FP443161	29429.14
18	260	NH776924	29284.42
19	233	BOFA23232	29070.38
20	175	CTTT3434344	28500.78

7. Display the order information for all RETAILORDERS that are cancelled.

```
SELECT * FROM retailorders WHERE lower(status)='cancelled'
```

--6 rows selected

	ORDERNUMBER	ORDERDATE	REQUIREDDATE	SHIPPEDDATE	STATUS	COMMENTS
1	1016723	30-OCT-03	30-OCT-03	(null)	Cancelled	Customer called to cancel. The
2	1017911	17-NOV-03	17-NOV-03	13-NOV-03	Cancelled	Customer cancelled due to urgent
3	1024807	14-MAY-04	14-MAY-04	(null)	Cancelled	Order was mistakenly placed. The
4	1025301	09-JUN-04	09-JUN-04	02-JUN-04	Cancelled	Customer disputed the order and
5	1026016	22-JUN-04	22-JUN-04	(null)	Cancelled	Customer heard complaints from
6	1026224	01-JUL-04	01-JUL-04	(null)	Cancelled	This customer found a better o

8. The company needs to know the percentage markup for each RETAILPRODUCT sold. Produce a query that outputs the ProductCode, ProductName, BuyPrice, MSRP in addition to

- The difference between MSRP and BuyPrice (i.e. MSRP-BuyPrice) called *markup*
- The percentage markup (100 \* calculated by difference / BuyPrice) called *percm Markup* rounded to 1 decimal place.

```
SELECT ProductCode, ProductName, buyPrice, MSRP, MSRP-buyPrice AS markup
FROM RETAILPRODUCTS
```

--111 rows with markup

```
SELECT ProductCode, ProductName, buyPrice, MSRP, MSRP-buyPrice AS markup, ROUND((100
*(MSRP-buyPrice)/buyPrice),1) AS percm Markup
FROM RETAILPRODUCTS
```

--111 rows with percm Markup ROUNDED TO 1 DECIMAL

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	PRODUCTCODE	PRODUCTNAME	BUYPRICE	MSRP	MARKUP	PERCMARKUP
1	S24 3969	1936 Mercedes Benz 500k Roadster	21.75	41.03	19.28	88.6
2	S24 4048	1992 Porsche Cayenne Turbo Silver	69.78	118.28	48.5	69.5
3	S24 4258	1936 Chrysler Airflow	57.46	97.39	39.93	69.5
4	S24 4278	1900s Vintage Tri-Plane	36.23	72.45	36.22	100
5	S24 4620	1961 Chevrolet Impala	32.33	80.84	48.51	150
6	S32 1268	1980's GM Manhattan Express	53.93	96.31	42.38	78.6
7	S32 1374	1997 BMW F650 ST	66.92	99.89	32.97	49.3
8	S32 2206	1982 Ducati 996 R	24.14	40.23	16.09	66.7
9	S32 2509	1954 Greyhound Scenicruiser	25.98	54.11	28.13	108.3
10	S32 3207	1950's Chicago Surface Lines Streetcar	26.72	62.14	35.42	132.6
11	S32 3522	1996 Peterbilt 379 Stake Bed with Outrigger	33.61	64.64	31.03	92.3
12	S32 4289	1928 Ford Phaeton Deluxe	33.02	68.79	35.77	108.3
13	S32 4485	1974 Ducati 350 Mk3 Desmo	56.13	102.05	45.92	81.8
14	S50 1341	1930 Buick Marquette Phaeton	27.06	43.64	16.58	61.3
15	S50 1392	Diamond T620 Semi-Skirted Tanker	68.29	115.75	47.46	69.5
16	S50 1514	1962 City of Detroit Streetcar	37.40	50.50	31.00	50.0

9. Display the information of all RETAILPRODUCTs with string 'co' in their product name. (c and o can be lower or upper case).

```
SELECT *
FROM RETAILPRODUCTS
where upper(productName) like '%CO%'
```

--16 rows affected

	PRODUCTCODE	PRODUCTNAME	PRODUCTLINE	RETAILPRODUCTSCALE	PRODUCTVENDOR
1	S700 2610	The USS Constitution Ship	Ships	1:700	Red Start Diecast
2	S12 3148	1969 Corvair Monza	Classic Cars	1:18	Welly Diecast Productions
3	S12 3891	1969 Ford Falcon	Classic Cars	1:12	Second Gear Diecast
4	S18 1342	1937 Lincoln Berline	Vintage Cars	1:18	Motor City Art Classics
5	S18 1662	1980s Black Hawk Helicopter	Planes	1:18	Red Start Diecast
6	S18 2325	1932 Model A Ford J-Coupe	Vintage Cars	1:18	Autoart Studio Design
7	S18 2957	1934 Ford V8 Coupe	Vintage Cars	1:18	Min Lin Diecast
8	S18 3259	Collectable Wooden Train	Trains	1:18	Carousel DieCast Legends
9	S18 4721	1957 Corvette Convertible	Classic Cars	1:18	Classic Metal Creations
10	S24 1444	1970 Dodge Coronet	Classic Cars	1:24	Highway 66 Mini Classics
11	S24 1628	1966 Shelby Cobra 427 S/C	Classic Cars	1:24	Carousel DieCast Legends
12	S24 1937	1939 Chevrolet Deluxe Coupe	Vintage Cars	1:24	Motor City Art Classics
13	S24 2840	1958 Chev Corvette Limited Edition	Classic Cars	1:24	Carousel DieCast Legends
14	S24 3432	2002 Chev Corvette	Classic Cars	1:24	Gearbox Collectibles
15	S24 3856	1956 Porsche 356A Coupe	Classic Cars	1:18	Classic Metal Creations
16	S24 3949	Corsair F4U ( Bird Cage)	Planes	1:24	Second Gear Diecast

10. Display all RETAILCUSTOMERs whose contact first name starts with letter s (both lowercase and uppercase) and includes letter e (both lowercase and uppercase).

```
SELECT *
FROM RETAILCUSTOMERS
where UPPER(contactFirstName) like 'S%E%'
```

--6 rows selected Steve,Sue,Sven ,Sean,Steve,Sue

	CUSTOMERNUMBER	CUSTOMERNAME	CONTACTLASTNAME	CONTACTFIRSTNAME	PHONE	ADDRESSLINE1	ADDRESSLINE2	CITY	STATE	POSTALCODE	COUNTRY
1	319	Mini Classics	Frick	Steve	9145554562	3758 North Pendale Street	(null)	White Plains	NY	24067	USA
2	450	The Sharp Gifts Warehouse	Frick	Sue	4085553659	3086 Ingle Ln.	(null)	San Jose	CA	94217	USA
3	459	Warburg Exchange	Ottlieb	Sven	0241-039123	Walserweg 21	(null)	Aachen	(null)	52066	Germ
4	471	Australian Collectables, Ltd	Clenahan	Sean	61-9-3844-6555	7 Allen Street	(null)	Glen Waverly	Victoria	3150	Aust
5	475	West Coast Collectables Co.	Thompson	Steve	3105553722	3675 Furth Circle	(null)	Burbank	CA	94019	USA
6	487	Signal Collectibles Ltd.	Taylor	Sue	4155554312	2793 Furth Circle	(null)	Brisbane	CA	94217	USA

11. Create a statement that will insert yourself as an RETAILEMLOYEE of the company.

- Use a unique employee number of your choice
- Use your school email address
- Your job title will be "Cashier"
- Office code will be 4
- You will report to employee 1088

```
INSERT INTO
```

```

RETAILEMPOYEEES(employeeNumber,lastName,firstName,extension,email,officeCode,reportsTo,jobTitle)
values(55555,'GNA','rr',152,'r@senecacollege.ca',4,1088,'cashier')

```

	EMPLOYEENUMBER	LASTNAME	FIRSTNAME	EXTENSION	EMAIL	OFFICECODE	REPORTSTO	JOBTITLE
1	55555	GNA	rr	152	r@senecacollege.ca	4	1088	cashier

```
--1 row inserted with above info
```

12. Create a query that displays your, and only your, RETAILEMPOYEE data

```

SELECT *
FROM RETAILEMPOYEEES
WHERE employeeNumber=55555
--new info selected

```

	EMPLOYEENUMBER	LASTNAME	FIRSTNAME	EXTENSION	EMAIL	OFFICECODE	REPORTSTO	JOBTITLE
1	55555	GNA	rr	152	r@senecacollege.ca	4	1088	cashier

13. Create a statement to update your job title to “Head Cashier”

```

UPDATE RETAILEMPOYEEES SET jobTitle='Head Cashier'
WHERE employeeNumber=55555

```

```

SELECT *
FROM RETAILEMPOYEEES WHERE employeeNumber=55555

```

	EMPLOYEENUMBER	LASTNAME	FIRSTNAME	EXTENSION	EMAIL	OFFICECODE	REPORTSTO	JOBTITLE
1	55555	GNA	rr	152	r@senecacollege.ca	4	1088	Head Cashier

14. Create a statement to insert another fictional RETAILEMPOYEE into the database. This RETAILEMPOYEE will be a “Cashier” and will report to you. Make up fake data for the other fields.

```

INSERT INTO
RETAILEMPOYEEES
(employeeNumber,lastName,firstName,extension,email,officeCode,reportsTo,jobTitle)
values(65555,'GNAN','rRr',152,'r@senecacollege.ca',4,55555,'cashier')

```

```

SELECT *
FROM RETAILEMPOYEEES
WHERE employeeNumber=65555

```

	EMPLOYEENUMBER	LASTNAME	FIRSTNAME	EXTENSION	EMAIL	OFFICECODE	REPORTSTO	JOBTITLE
1	65555	GNAN	rRr	152	r@senecacollege.ca	4	55555	cashier

15. Create a statement to Delete yourself from the database. Did it work? If not, why?

```

DELETE
FROM RETAILEMPOYEEES
WHERE employeeNumber=55555

```

```

--REPORTSTO FOREIGN KEY CONFLICT
FROM RETAILEMPOYEEES
WHERE employeeNumber=55555
Error report -
ORA-02292: integrity constraint (RGNANAOLIVU.EMP_RTEMP_FK) violated - child record found

```

16. Create a statement to delete the fake employee from the database and then rerun the statement to delete yourself. Did it work?

```
DELETE
FROM RETAILEMPOYEEES
WHERE employeeNumber=65555
```

```
--1 ROW DELETED
```

```
DELETE
FROM RETAILEMPOYEEES WHERE employeeNumber=55555
--NOW it deleted my record because FOREIGN KEY RECORD IS DELETED
```

17. Create a **single** statement that will insert both yourself and the fake employee at the same time. This time the fake employee will report to 1088 as well.

```
INSERT ALL
INTO RETAILEMPOYEEES
(employeeNumber,lastName,firstName,extension,email,officeCode,reportsTo,job
Title)
values(55555,'GNA','rr',152,'r@senecacollege.ca',4,1088,'cashier')
INTO RETAILEMPOYEEES
(employeeNumber,lastName,firstName,extension,email,officeCode,reportsTo,job
Title)
values(65555,'GNAN','rRr',152,'r@senecacollege.ca',4,1088,'cashier')
SELECT * FROM DUAL;

--2 ROWS INSERTED
```

18. Create a **single** statement to delete both yourself and the fake employee.

```
DELETE
FROM RETAILEMPOYEEES
WHERE employeeNumber=55555 OR employeeNumber=65555

--2 ROWS DELETED
```

19. Create a new order in RETAILORDER table with required date Sep 22<sup>nd</sup>, 2021 and order date as Sep 17<sup>th</sup>, 2021. Make up the rest of the fields and then display the only the new order that you have created just now.

```
INSERT INTO
RETAILORDERS (orderNumber,orderDate,requiredDate,shippedDate,status,comments,custom
erNumber)
VALUES (655555,to_date('2021-09-17','yyyy-mm-dd'),to_date('2021-09-21','yyyy-mm-
dd'),to_date('2021-09-20','yyyy-mm-dd'),'Shipped','order created',103)
COMMIT;

--1 ROW INSERTED
```

Commit complete.



	ORDERNUMBER	ORDERDATE	REQUIREDDATE	SHIPPEDDATE	STATUS	COMMENTS
1	10422	30-MAY-05	11-JUN-05	(null)	In Process	(null)
2	10423	30-MAY-05	05-JUN-05	(null)	In Process	(null)
3	10424	31-MAY-05	08-JUN-05	(null)	In Process	(null)
4	10425	31-MAY-05	07-JUN-05	(null)	In Process	(null)
5	655555	17-SEP-21	21-SEP-21	20-SEP-21	Shipped	order create
6	10100	06-JAN-03	13-JAN-03	10-JAN-03	Shipped	(null)

20. Insert a new product into product table with product name as “2020 Bugatti Veyron” and productcode as “S111\_111” and make up the rest of the fields.

INSERT INTO

RETAILPRODUCTS(productCode,productName,productLine,productScale,productVendor,productDescription,quantityInStock,buyPrice,MSRP)

VALUES('S111\_111','2020 Bugatti Veyron','CLASSIC CARS','1:10','Second Gear Diecast','This beast of an engine employs four turbochargers to generate a mighty 1500 horsepower',1,119,120)  
--1 ROW INSERTED

31	S72 3212	Pont Yacht	Ships	1:72	U
32	S111 111	2020 Bugatti Veyron	Classic Cars	1:10	S
33	S10 1678	1969 Harley Davids...	Motorcycles	1:10	M