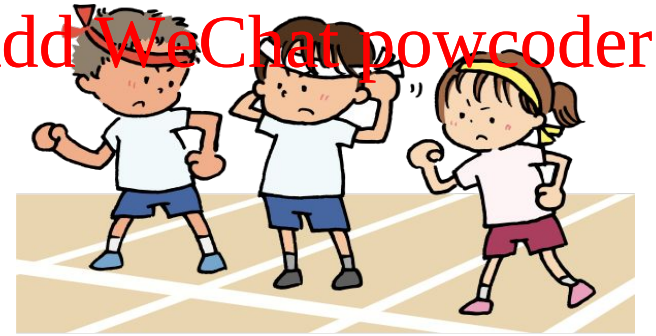
Preparation for the workshop - ready, set ……

Please

- connect to Flux - flux.qa and be ready to answer questions
- login to the Oracle database via **SQL Developer or ORDS** (you will need to run the CISCO or Global VPN first if you are off campus), or SQL Developer on MoVE (no VPN required)
- ORDS: https://ora-fit.ocio.monash.edu:8441/ords/sql-developer



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TECHNOLOGY

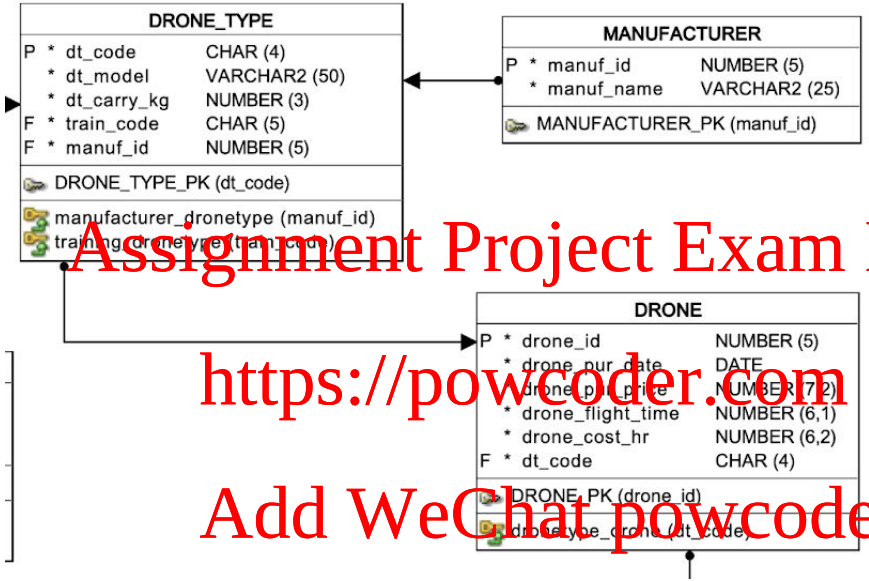
10 - SQL Advanced

Workshop 2022S1

GROUP OF EIGHT AUSTRALIA

Outline

- **CASE**
- Subquery – nested, inline, correlated
- Views
- Joins - self join, outer join
- Set Operators
- Oracle Functions



List the drone id, carry capacity and hire cost per hour for all drones

SQL CASE statement

The CASE statement (Applied Week 9 UPDATE) used in a select list enables a query to evaluate an attribute and output a particular value based on that evaluation.

Drones which can carry objects have been classified by HyFlying as:

- 'No Load' if the carrying capacity is 0 Kg,
- 'Light Loads' for carrying greater than 0 but less than 4 Kg, and
- 'Heavy Loads' for 4 Kg and greater.

For all drones display the drone id, the carrying capacity classification eg 'No load' and the drone cost per hour


```
CASE
    WHEN test  THEN value
    WHEN test  THEN value
    .....
    ELSE value
END AS column_name
```

SQL CASE statement

```
SELECT
    drone_id,
    CASE
        WHEN dt_carry_kg = 0  THEN
            'No load'
        WHEN dt_carry_kg < 4  THEN
            'Light Loads'
        ELSE
            'Heavy Loads'
    END AS carryingcapacity,
    drone_cost_hr
FROM
         drone.drone_type
    NATURAL JOIN drone.drone
ORDER BY
    drone_id;
```

Outline

- Case
- **Subquery – nested, inline, correlated**
- Views
- Joins - self join, outer join
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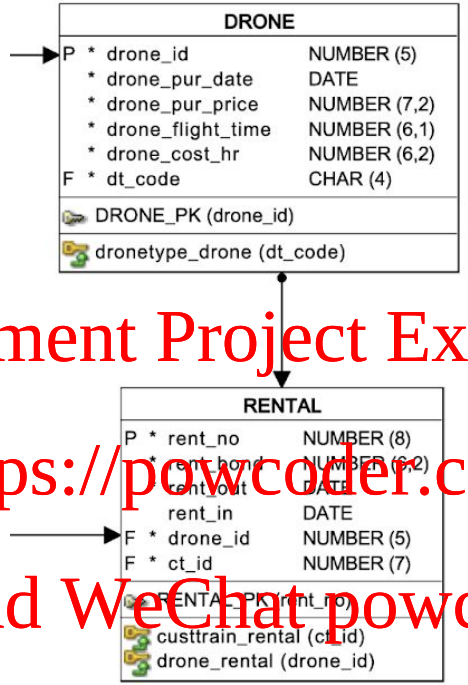
Query

For each drone find the customers (cust_id only) who rented the drone for the highest number of days



A. For each completed rental, list the number of days the drone was out

B. For each drone, list the maximum number of days the drone was out

```
SELECT
     drone_id,
     ( rent_in - rent_out )
FROM
     drone.rental
WHERE
     rent_in IS NOT NULL
ORDER BY
     drone_id;
```

DRONE_ID	(RENT_IN-RENT_OUT)
100	3
100	0
101	0
101	8
101	1
102	1
103	7
103	4
103	1
103	1
103	1
103	29
111	2
112	4
112	1
113	9
113	3
117	7
118	1
118	1
118	4
118	6


```
SELECT
     drone_id,
     MAX(rent_in - rent_out)
FROM
     drone.rental
WHERE
     rent_in IS NOT NULL
GROUP BY
     drone_id
ORDER BY
     drone_id;
```

DRONE_ID	MAX(RENT_IN-RENT_OUT)
100	3
101	8
102	1
103	29
111	2
112	4
113	9
117	7
118	6

Subquery (NESTED)

- The subquery is independent of the outer query and is executed only once.

```
SELECT
    drone_id,
    ( rent_in - rent_out ) AS maxdaysout,
    cust_id
FROM
        drone.cust_train
    NATURAL JOIN drone.rental
WHERE
    rent_in IS NOT NULL
    AND ( drone_id, ( rent_in - rent_out ) ) IN (
        SELECT
            drone_id, MAX(rent_in - rent_out)
        FROM
            drone.rental
        WHERE
            rent_in IS NOT NULL
        GROUP BY
            drone_id
    )
ORDER BY
    drone_id,
    cust_id;
```


DRONE_ID	MAX(RENT_IN-RENT_OUT)
100	3
101	8
102	1
103	29
111	2
112	4
113	9
117	7
118	6

Subquery (CORRELATED)

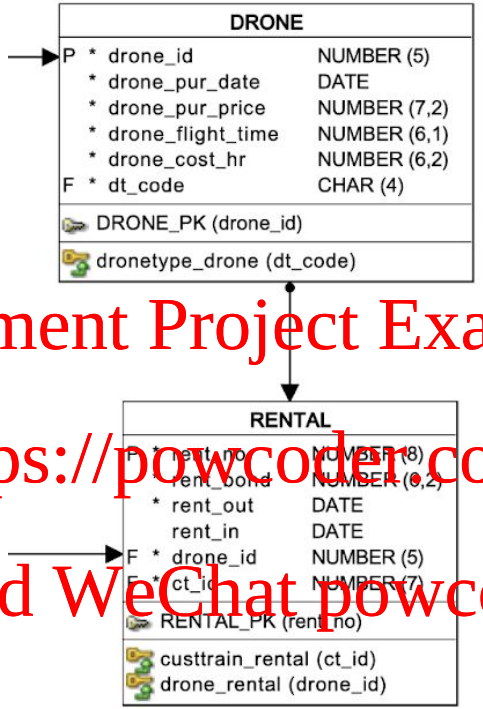
- the subquery is related to the outer query and is ***evaluated once for each row of the outer query***
- correlated subqueries can also be used within update statements
  - outer update occurs based on value returned from subquery


```
SELECT
    drone_id,
    ( rent_in - rent_out ) AS maxdaysout,
    cust_id
FROM
        drone.cust_train
    NATURAL JOIN drone.rental r1
WHERE
    rent_in IS NOT NULL
    AND ( rent_in - rent_out ) = (
        SELECT
            MAX(rent_in - rent_out)
        FROM
            drone.rental r2
        WHERE
            rent_in IS NOT NULL
            AND r1.drone_id = r2.drone_id
    )
ORDER BY
    drone_id,
    cust_id;
```

Subquery (INLINE) – Derived table

```
SELECT
    rental.drone_id,
    ( rent_in - rent_out ) AS maxdaysout,
    cust_id
FROM
    (
        (
            SELECT
                drone_id,
                MAX(rent_in - rent_out) AS maxout
            FROM
                drone.rental
            WHERE
                rent_in IS NOT NULL
            GROUP BY
                drone_id
        ) maxtable
        JOIN drone.rental
        ON maxtable.drone_id = rental.drone_id
           AND ( rent_in - rent_out ) = maxtable.maxout
    )
    JOIN drone.cust_train
    USING ( ct_id )
ORDER BY
    drone_id,
    cust_id;
```

DRONE_ID	MAX(RENT_IN-RENT_OUT)
100	3
101	8
102	1
103	29
111	2
112	4
113	9
117	7
118	6



How many completed rentals have been recorded?

List, for each drone, the number of times the drone has been rented in a completed rental

- For each drone **compute the percentage of the company's rentals contributed by that drone**

```
SELECT
     drone_id,
     COUNT(*) AS times_rented
FROM
     drone.rental
WHERE
     rent_in IS NOT NULL
GROUP BY
     drone_id
ORDER BY
     drone_id;
```

DRONE_ID	TIMES_RENTED
100	2
101	3
102	1
103	6
111	1
112	2
113	2
117	1
118	4


```
SELECT
     COUNT(*) AS totalrentals
FROM
     drone.rental
WHERE
     rent_in IS NOT NULL;
```

TOTALRENTALS
22

Subquery (INLINE)

```
SELECT
    drone_id,
    COUNT(*) AS times_rented,
    to_char(COUNT(*) * 100 /(
        SELECT
            COUNT(rent_in)
        FROM
            drone.rental
    ), '990.99') AS percent_overall
FROM
    drone.rental
WHERE
    rent_in IS NOT NULL
GROUP BY
    drone_id
ORDER BY
    percent_overall DESC;
```

Use of subquery in INSERT

```
CREATE TABLE drone_details (
    dd_id         NUMBER(5) NOT NULL,
    dd_pur_date   DATE NOT NULL,
    dd_model      VARCHAR2(50) NOT NULL,
    CONSTRAINT drone_details_pk PRIMARY KEY ( dd_id )
);
```

Assume table created


```
INSERT INTO drone_details
    ( SELECT
        drone_id,
        drone_pur_date,
        dt_model
    FROM
            drone.drone
        NATURAL JOIN drone.drone_type
    );
```


DD_ID	DD_PUR_DATE	DD_MODEL
100	13/JAN/2020	DJI Mavic Air 2 Flymore Combo
101	13/JAN/2020	DJI Mavic Air 2 Flymore Combo
102	13/JAN/2020	DJI Spark
103	13/JAN/2020	DJI Inspire 2
111	20/MAR/2020	Parrot Pro
112	20/MAR/2020	Parrot Pro
113	20/MAR/2020	Parrot Pro
117	20/MAR/2020	Parrot Pro
118	01/APR/2020	SwellPro Spry
119	01/APR/2021	DJI Inspire 2
120	01/APR/2021	DJI Inspire 2
121	17/APR/2021	DJI Mavic Air 2 Flymore Combo

If you need to both create and insert the data, is there a simpler way to achieve these two tasks?

Simpler approach (using week 7 Applied approach 7.3.4)

```
CREATE TABLE drone_details
    AS
        ( SELECT
            drone_id,
            drone_pur_date,
            dt_model
        FROM
                drone.drone
            NATURAL JOIN drone.drone_type
        );
```


DD_ID	DD_PUR_DATE	DD_MODEL
100	13/JAN/2020	DJI Mavic Air 2 Flymore Combo
101	13/JAN/2020	DJI Mavic Air 2 Flymore Combo
102	13/JAN/2020	DJI Spark
103	13/JAN/2020	DJI Inspire 2
111	20/MAR/2020	Parrot Pro
112	20/MAR/2020	Parrot Pro
113	20/MAR/2020	Parrot Pro
117	20/MAR/2020	Parrot Pro
118	01/APR/2020	SwellPro Spry
119	01/APR/2021	DJI Inspire 2
120	01/APR/2021	DJI Inspire 2
121	17/APR/2021	DJI Mavic Air 2 Flymore Combo

Note this table will need subsequent alter commands to, for example, set the PK

Outline

- Case
- Subquery – nested, inline, correlated
- **Views**
- Joins - self join, outer join
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Views

- A virtual table derived from one or more base tables.
- Sometimes used as "Access Control" to the database

CREATE OR REPLACE VIEW [view_name] AS

SELECT … ;


```
CREATE OR REPLACE VIEW maxdaysout_view AS
    SELECT
        drone_id,
        MAX(rent_in - rent_out) AS maxdays
    FROM
        drone.rental
    WHERE
        rent_in IS NOT NULL
    GROUP BY
        drone_id;
```


DRONE_ID	MAXDAYS
100	3
101	8
102	1
103	29
111	2
112	4
113	9
117	7
118	6

select * from maxdaysout_view
order by drone_id;

- What objects do I own?

```
select * from user_objects;
```

Using Views

- For each drone find the customers (cust_id only) who rented the drone for the highest number of days

```
SELECT
    drone_id,
    ( rent_in - rent_out ) AS maxdaysout,
    cust_id
FROM
        drone.cust_train
    NATURAL JOIN drone.rental
WHERE
    rent_in IS NOT NULL
    AND ( drone_id, ( rent_in - rent_out ) ) IN (
        SELECT
            drone_id, ( rent_in - rent_out )
        FROM
            maxdaysout_view
    )
ORDER BY
    drone_id,
    cust_id;
```


Please note VIEWS MUST NOT be used for Assignment 2 and Exam

Outline

- Case
- Subquery – nested, inline, correlated
- Views
- **Joins - self join, outer join**
- Set Operators
- Oracle Functions

Self Join

- Show the name of the manager for each employee.

```
SELECT
    empno,
    empname,
    empinit,
    mgrno
FROM
    emp.employee;
```


	EMPNO	EMPNAME	EMPINIT	MGRNO
1	7839	KING	CC	(null)
2	7566	JONES	JM	7839
3	7902	FORD	MG	7566
4	7369	SMITH	N	7902
5	7698	BLAKE	R	7839
6	7499	ALLEN	JAM	7698
7	7521	WARD	TF	7698
8	7654	MARTIN	P	7698
9	7782	CLARK	AB	7839
10	7788	SCOTT	SCJ	7566
11	7844	TURNER	JJ	7698
12	7876	ADAMS	AA	7788
13	7900	JONES	R	7698
14	7934	MILLER	TJA	7782

```
SELECT *
FROM emp.employee e1 JOIN emp.employee e2
ON e1.mgrno = e2.empno;
```

e1 e2

	EMPNO	EMPNAME	EMPUNIT	MGRNO	EMPNO_1	EMPNAME_1	EMPUNIT_1	MGRNO_1
1	7902	FORD	MG	7566	7566	JONES	JM	7839
2	7788	SCOTT	SCJ	7566	7566	JONES	JM	7839
3	7900	JONES	R	7698	7698	BLAKE	R	7839
4	7499	ALLEN	JAM	7698	7698	BLAKE	R	7839
5	7521	WARD	TF	7698	7698	BLAKE	R	7839
6	7654	MARTIN	P	7698	7698	BLAKE	R	7839
7	7844	TURNER	JJ	7698	7698	BLAKE	R	7839
8	7934	MILLER	TJA	7782	7782	CLARK	AB	7839
9	7876	ADAMS	AA	7788	7788	SCOTT	SCJ	7566
10	7782	CLARK	AB	7839	7839	KING	CC	(null)
11	7698	BLAKE	R	7839	7839	KING	CC	(null)
12	7566	JONES	JM	7839	7839	KING	CC	(null)
13	7369	SMITH	N	7902	7902	FORD	MG	7566

Joined rows
1,12
2,12
3,11

Note some columns have been hidden

Why now only 13 rows?

```
SELECT e1.empno, e1.empname, e1.empinit, e1.mgrno,
       e2.empname AS MANAGER
FROM emp.employee e1  JOIN emp.employee e2
       ON e1.mgrno = e2.empno
ORDER BY e1.empname;
```


	EMPNO	EMPNAME	EMPINIT	MGRNO	MANAGER
1	7876	ADAMS	AA	7788	SCOTT
2	7499	ALLEN	JAM	7698	BLAKE
3	7698	BLAKE	P	7839	KING
4	7782	CLARK	AB	7839	KING
5	7902	FORD	MG	7566	JONES
6	7900	JONES	P	7698	BLAKE
7	7566	JONES	JM	7839	KING
8	7654	MARTIN	P	7698	BLAKE
9	7934	MILLER	TJA	7782	CLARK
10	7788	SCOTT	SCJ	7566	JONES
11	7369	SMITH	N	7902	FORD
12	7844	TURNER	JJ	7698	BLAKE
13	7521	WARD	TF	7698	BLAKE

INNER JOIN

Student

ID	NAME
1	Alice
2	Bob
3	Chris

Mark

ID	SUBJECT	MARK
1	1004	95
2	1045	55
1	1045	90
4	1004	100

Inner Join gives no information for Chris and the student with ID 4

ID	NAME	ID_1	SUBJECT	MARK
1	Alice	1	1004	95
2	Bob	2	1045	55
1	Alice	1	1045	90

Select * from student s join mark m on s.id = m.id;
***Note that this is an EQUI JOIN* (an inner join)**

FULL OUTER JOIN

Student

ID	NAME
1	Alice
2	Bob
3	Chris

Mark

ID	SUBJECT	MARK
1	1004	95
2	1045	55
1	1045	90
4	1004	100

Get (incomplete) information of both Chris and student with ID 4

ID	NAME	ID_1	SUBJECT	MARK
1	Alice	1	1004	95
2	Bob	2	1045	55
1	Alice	1	1045	90
(null)	(null)	4	1004	100
3	Chris	(null)	(null)	(null)

```
select * from
student s full outer join mark m on s.id = m.id;
```

LEFT OUTER JOIN

Student

ID	NAME
1	Alice
2	Bob
3	Chris

Mark

ID	SUBJECT	MARK
1	1004	95
2	1045	55
1	1045	90
4	1004	100

Get (incomplete) information of only Chris

ID	NAME	ID_1	SUBJECT	MARK
1	Alice	1	1004	95
2	Bob	2	1045	55
1	Alice	1	1045	90
3	Chris	(null)	(null)	(null)

```
select * from
student s left outer join mark m
on s.id = m.id;
```

RIGHT OUTER JOIN

Student

ID	NAME
1	Alice
2	Bob
3	Chris

Mark

ID	SUBJECT	MARK
1	1004	95
2	1045	55
1	1045	90
4	1004	100

Get (incomplete) information of the student with ID 4

ID	NAME	ID_1	SUBJECT	MARK
1	Alice	1	1045	90
1	Alice	1	1004	95
2	Bob	2	1045	55
(null)	(null)	4	1004	100

```
select * from
student s right outer join mark m
on s.id = m.id;
```

Employee

emp_id	emp_name	manager_id
1	Alice	2
2	Bob	3
3	Chris	

Q1. What is the output from the following SQL:

```
select e1.emp_name as name, e2.emp_name as manager
from employee e1 right outer join employee e2
        on e1.manager_id = e2.emp_id;
```


(A)

NAME	MANAGER
Alice	Bob
Bob	Chris
	Alice

(B)

NAME	MANAGER
Alice	Bob
Bob	Chris
Chris	

Employee

emp_id	emp_name	emp_salary
1	Alice	100,000
2	Bob	150,000
3	Chris	200,000

Project

project_name	project_cost	emp_id
Alpha	4000	1
Beta	3000	2
Gamma	5000	2

Q2. Which of the following shows, for *each* employee, the total amount of projects they are assigned to? (e.g., Alice is assigned to Alpha with total cost 4000, Bob is assigned to Beta and Gamma with total cost 8000)

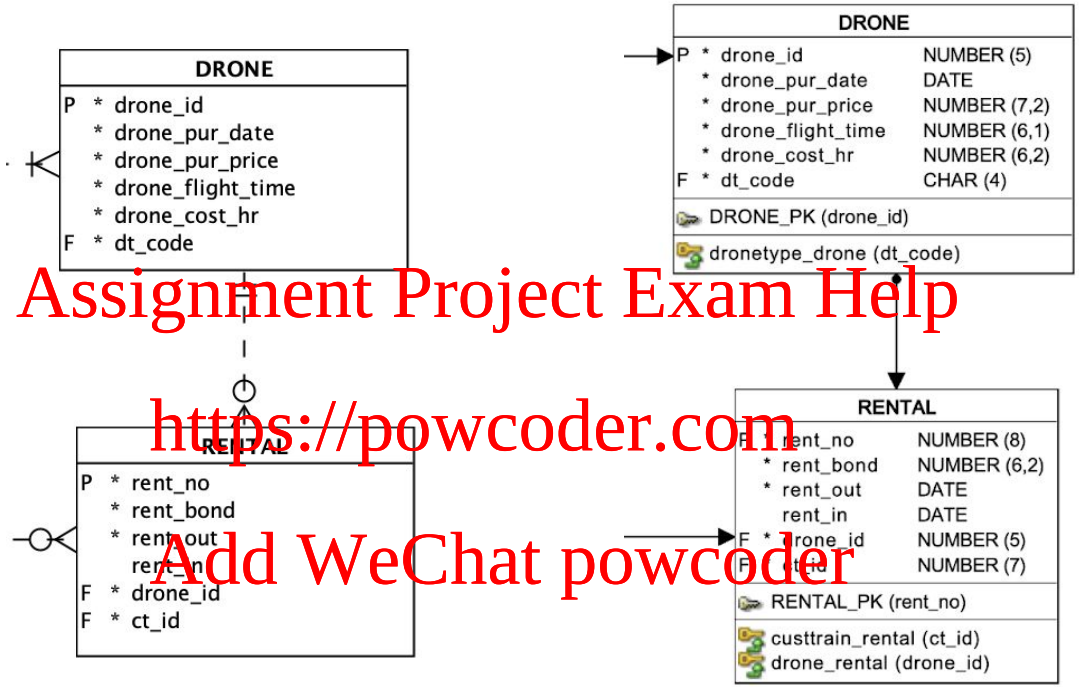
A. select e.emp_name, sum(project_cost) as total from employee e left outer join project p on e.emp_id = p.emp_id group by e.emp_name;

B. select e.emp_name, sum(project_cost) as total from employee e right outer join project p on e.emp_id = p.emp_id group by e.emp_name;

C. select e.emp_name, NVL(sum(project_cost),0) as total from employee e left outer join project p on e.emp_id = p.emp_id group by e.emp_name;

D. None of the above

Outer Join



- List the number of times ALL drones have been rented

Outer Join

- List the number of times ALL drones have been rented

```
SELECT
    drone_id,
    COUNT(rent_out) as timerented
FROM
        drone.drone
    JOIN drone.rental
    USING ( drone_id )
GROUP BY
    drone_id
ORDER BY
    drone_id;
```

	DRONE_ID	TIMERENTED
1	100	2
2	101	3
3	102	1
4	103	6
5	111	1
6	112	2
7	113	2
8	117	1
9	118	5
10	119	1
11	120	1

```
SELECT
    drone_id,
    COUNT(rent_out) as timesrented
FROM
    drone.drone
    LEFT OUTER JOIN drone.rental
    USING ( drone_id )
GROUP BY
    drone_id
ORDER BY
    drone_id;
```

	DRONE_ID	TIMESRENTED
1	100	2
2	101	3
3	102	1
4	103	6
5	111	1
6	112	2
7	113	2
8	117	1
9	118	5
10	119	1
11	120	1
12	121	0

Outline

- Case
- Subquery – nested, inline, correlated
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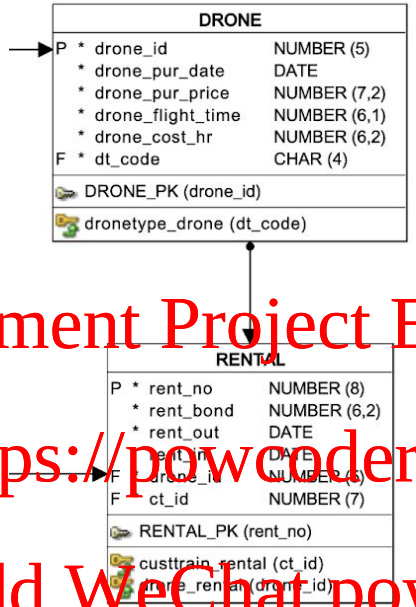
- Joins - self join, outer join
- **Set Operators**
- Oracle Functions

Relational Set Operators

- Using the set operators you can combine two or more sets to create new sets (relations)
- Union All
  - –All rows selected by either query, including all duplicates
- Union
  - – All rows selected by either query, removing duplicates (e.g,, DISTINCT on Union All)
- Intersect
  - –All distinct rows selected by both queries
- Minus
  - –All distinct rows selected by the first query but not by the second
- All set operators have equal precedence. If a SQL statement contains multiple set operators, Oracle evaluates them from the left to right if no parentheses explicitly specify another order.
- The two sets must be UNION COMPATIBLE (i.e., same number of attributes and similar data types)



List the drone id of all drones

List the drone id of those drones which have been rented

Using a set operator which drones have not been rented?

MINUS

- List the details of drones which have not been rented.

```
SELECT
    drone_id,
    to_char(drone_pur_date, 'dd-Mon-YYYY') AS purchasedate,
    drone_cost_hr
FROM
    drone.drone
WHERE
    drone_id IN (
        SELECT
            drone_id
        FROM
            drone.drone
        MINUS
        SELECT
            drone_id
        FROM
            drone.rental
    )
ORDER BY
    drone_id;
```

UNION

- Using the UNION operator create a single list of all customers:
  - for those who have completed training show "Completed training"
  - for those who have not completed training show "Not completed training"

CUST_ID	CUST_NAME	TRAINING_STATUS
1	Manolo Waren	Has completed training
2	Lennard Dudgeon	Has completed training
3	Christiana Brightey	Has completed training
4	Raychel Roussel	Has completed training
5	Jamill Flannery	Has completed training
6	Serene Pabst	Has completed training
7	Gannon Brenneke	Has completed training
8	Robbyn Lintall	Has completed training
9	Townsend Dunlap	Has completed training
10	Buddy Duden	Has completed training
11	Norrie Severy	Has completed training
12	Beverie Huntriss	Has completed training
13	Trev Gravie	Has not completed training
14	Gwynne Reder	Has completed training
15	Farly Harcombe	Has completed training
16	Aline Harewood	Has completed training
17	Muriel Zambonini	Has completed training
18	Emory Sisley	Has completed training
19	Rodie Hebblewaite	Has not completed training
20	Berk Kiss	Has not completed training

Group Task

```sql
SELECT DISTINCT
    cust_id,
    cust_fname
    || ' '
    || cust_lname AS custname,
    'Has completed training' AS trainingstatus
FROM
         drone.customer
    NATURAL JOIN drone.cust_train
UNION
SELECT
    cust_id,
    cust_fname
    || ' '
    || cust_lname,
    'Has not completed training'
FROM
    drone.customer
WHERE
    cust_id NOT IN (
        SELECT
            cust_id
        FROM
            drone.cust_train
    )
ORDER BY
    cust_id;
```

INTERSECTION

- Find the trainers who have the same last name as any customer

CUST_LNAME
Brenneke
Brightey
Dudgeon
Dunlap
Flannery
Gravie
Harcombe
Harewood
Hebblewaite
Huntriss
Juden
Kiss
Lintall
Pabst
Reder
Roussel
Severy
Sisley
Waren
Zambonini

TRAINER_LNAME
Boeln
Colegate
Gretton
Jado
Waren

```
SELECT
    trainer_id,
    trainer_rego,
    trainer_fname,
    trainer_lname
FROM
    drone.trainer
WHERE
    trainer_lname IN (
        SELECT
            trainer_lname
        FROM
            drone.trainer
        INTERSECT
        SELECT
            cust_lname
        FROM
            drone.customer
    );
```

TRAINER_LNAME
Booeln
Colegate
Gretton
Jado
Waren

CUST_LNAME
Brenneke
Brightey
Dudgeon
Dunlap
Flannery
Gravie
Harcombe
Harewood
Hebblewaite
Huntriss
Judan
Kiss
Lintall
Pabst
Reder
Roussel
Severy
Sisley
Waren
Zambonini

Outline

- Case
- Subquery – nested, inline, correlated
- Views
- Joins - self join, outer join
- Set Operators
- **Oracle Functions**

Function Type	Applicable to	Example
Arithmetic	Numerical data	SELECT ucode, round(avg(mark)) FROM enrolment GROUP BY ucode;
Text	Alpha numeric data	SELECT studsurname FROM enrolment WHERE upper(studsurname) LIKE 'B%';
Date	Date/Time-related data	
General	Any data type	NVL function
Conversion	Data Type conversion	SELECT to_char(empmsal,'$0999.99') FROM employee;
Group	Sets of Values	avg(), count(), etc

See document on Moodle

EXTRACT and DECODE

```
SELECT
    trainer_id,
    trainer_rego,
    decode(trainer_category, 'F', 'Full time',
                             'C', 'Contract') AS employeecategory,
    train_code,
    EXTRACT(YEAR FROM traincourse_date) AS trainingyear
FROM
        drone.trainer
    NATURAL JOIN drone.training_course
ORDER BY
    trainingyear,
    trainer_id;
```

LPAD

- LPAD allows us to Left PAD a character string - effectively moving it across the output column
  - Can use any pad character eg. * or space (if character not specified space is used)

lpad(char,n,char2)/rpad(char,n,char2)

Pads char left/right to size n using char2

```
select lpad('Page 1', 15, '*') as "Lpad example"
from dual;
select rpad('Page 1', 15, '*') as "Rpad example"
from dual;
```

```
SQL> select lpad('Page 1', 15, '*') as "Lpad example"
  2  from dual;

Lpad example
---------------
*********Page 1
```

Worksheet | Query Builder

```
1  SELECT
2      drone_id,
3      COUNT(*) AS times_rented,
4      to_char(COUNT(*) * 100 /(
5          SELECT
6              COUNT(rent_in)
7          FROM
8              drone.rental
9      ), '990.99') AS percent_overall
10 FROM
11     drone.rental
12 WHERE
13     rent_in IS NOT NULL
14 GROUP BY
15     drone_id
16 ORDER BY
17     percent_overall DESC;
18
```

Script Output | Task completed in 0.019 seconds

```
  DRONE_ID TIMES_RENTED PERCENT
---------- ------------ -------
       103            6   27.27
       118            4   18.18
       101            3   13.64
       113            2    9.09
       112            2    9.09
       100            2    9.09
       102            1    4.55
       111            1    4.55
       117            1    4.55

9 rows selected.
```

Run Script

Run Statement

Script Output | Query Result | SQL | All Rows Fetched: 9 in 0.01 seconds

	DRONE_ID	TIMES_RENTED	PERCENT_OVERALL
1	103	6	27.27
2	118	4	18.18
3	101	3	13.64
4	113	2	9.09
5	112	2	9.09
6	100	2	9.09
7	102	1	4.55
8	111	1	4.55
9	117	1	4.55

percent_overall as an output string is left aligned

First blank characters after to_char

- one character position for sign (all numerics have a sign)
- blanks to match the format string 990.99

Can remove all leading blanks with LTRIM

```
SELECT
    drone_id,
    COUNT(*) AS times_rented,
    to_char(COUNT(*) * 100 /(
        SELECT
            COUNT(rent_in)
        FROM
            drone.rental
    ), '990.99') AS percent_overall
FROM
    drone.rental
WHERE
    rent_in IS NOT NULL
GROUP BY
    drone_id
ORDER BY
    percent_overall DESC;
```

DRONE_ID	TIMES_RENTED	PERCENT_OVERALL
103	6	**********27.27
118	4	**********18.18
101	3	**********13.64
113	2	**********9.09
112	2	**********9.09
100	2	**********9.09
102	1	**********4.55
111	1	**********4.55
117	1	**********4.55

Produce the above output for the query on the left