***Lesson 5***

**Column Aliases: -** we used to Renames a column heading

**Example 1**: select first\_name as name from employees;

**Example 2**: select first\_name "First Name" from employees;

***Lesson 6***

**Concatenation Operator: -**

* Links columns or character strings to other columns.
* Is represented by two vertical bars (||).
* Creates a resultant column that is a character expression.

**Example 1**: select last\_name||job\_id as "Employees" from employees;

**Example 2**: select last\_name||' '||job\_id as "Employees" from employees;

**Alternative Quote (q) Operator:**

* Specify your own quotation mark delimiter.
* Select any delimiter.
* Increase readability and usability.

**Example**: select last\_name||q'( job's id is: )'||job\_id as "Employees" from employees;

**Duplicate Rows:** removes duplicates from the table.

**Example**: select distinct DEPARTMENT\_ID from employees;

**Describe:** describe the created tables.

**Example**: desc employees;

***Lesson 7***

**Restricting & Sorting data:** using where to restrict or sort the data

**Example**: SELECT employee\_id, last\_name, job\_id, department\_id, salary, hire\_date

FROM employees

WHERE hire\_date = '17-feb-04';

**Comparison Operator:** =, >, >=, <, <=, <>, BETWEEN…...AND…., IN (SET, SET2), LIKE, IS NULL

**Logical Operator:**

* AND: Return true if both are true
* OR: Return true if either is true
* NOT: Return true if false

**Rules of AND & OR:** Oracle always take AND first so it’s better to use () to get what actually you need.

**Example:**  SELECT employee\_id, last\_name, job\_id, department\_id, salary, hire\_date

from employees

where (job\_id = 'SA\_REF'

OR job\_id = 'AD\_PRES')

AND salary > 10000;

***Lesson 8***

**Order By:** its always in the last line of the code, we can us any order can be in the table with **ASC & DESC** and we can use 2 order and use one DESC and one ASC.

**Example:** SELECT first\_name, last\_name, employee\_id, hire\_date

FROM employees

ORDER BY hire\_date, first\_name desc;

***Lesson 9***

**Substitution Variables:** We used to make a input pop up for user to search about what he needs, and we can use **define Variables** to define the variables in the first of the code and make it usable.

**Example:** define col1 = salary

SELECT first\_name, last\_name, employee\_id, hire\_date, &col1

FROM employees

WHERE &col1 > 12000

ORDER BY &col1;

undefine col1

***Lesson 10***

**Single Row Functions:**

* Character
* Number
* Data
* Conversion
* General

**Character:**

* Case-Conversion Function
* Character-Manipulation Function

**Case-Conversion Function:**

* LOWER: Change the character from upper to lower letters
* UPPER: Change the character from lower to upper letters
* INITCAP: Change the first letter to upper

**Example:** SELECT UPPER(first\_name) "LAST NAME", LOWER(last\_name) "first name", INITCAP(job\_id) "Job id"

from employees;

***Lesson 11***

**Character-Manipulation Function:**

* **CONCAT**: it's not usable and it’s the same as Concatenation Operation || is more advanced.
  + SELECT first\_name||last\_name, CONCAT(first\_name, last\_name) FROM employees;
* **SUBSTR**: it’s used to select several letters from a word.
  + select first\_name, last\_name, job\_id FROM employees WHERE SUBSTR(job\_id,1,2) = 'SA';
* **LENGTH:** It’s used to know the number of the letters in the word.
  + SELECT first\_name, last\_name, LENGTH(first\_name) FROM employees;
* **INSTR:** it’s used to know the position number in the word.
  + SELECT first\_name, last\_name, INSTR(first\_name, 'n',1,2) FROM employees;
* **LPAD:** It’s used to add letters to the LEFT of the word.
  + SELECT first\_name, last\_name, LPAD(salary, LENGTH(SALARY)+1, '$') FROM employees;
* **RPAD:** It’s used to add letters to the RIGHT of the word.
  + SELECT first\_name, last\_name, RPAD(salary, LENGTH(SALARY)+1, '$') FROM employees;
* **REPLACE:** It’s used to REPLACE letters with other letters.
  + SELECT first\_name, last\_name, REPLACE(first\_name, 'e', 'i') FROM employees;
* **TRIM:** It’s used to remove the beginning of the word and the end of it.
  + SELECT TRIM(' ' FROM ' Nader Mamdouh ') FROM dual;