**AMERICAN COLLEGE OF TECHNOLOGY** 

DEPARTMENT OF COMPUTER SCIENCE

**Advanced Database Systems**

Assignment II - SQL Programming Basics

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Let’s assume that we have a table called employee which have columns named employee id, firstname, lastname, hire\_date, salary, department id, job\_title and manager\_id.

**Alias and Concatenation:**

1. Write a query to retrieve a list of employee names along with their concatenated full names (first name + last name), and alias the column as "Full Name."

SELECT

first\_name,

last\_name,

first\_name || ' ' || last\_name AS "Full Name"

FROM

employees;

1. Retrieve a list of employees with their first name, last name, and a concatenated string that includes their first name, a space, and the first three characters of their last name. Alias the concatenated string as "Abbreviated Name."

SELECT

first\_name,

last\_name,

first\_name || ' ' || SUBSTR (last\_name, 1, 3) AS "Abbreviated Name"

FROM

employees;

1. Write a query to display the employee IDs, first names, and last names of employees who have the letter 'e' in their first name. Concatenate the first name and last name, and alias the result as "Full Name."

SELECT

employee\_id,

first\_name,

last\_name,

first\_name || ' ' || last\_name AS "Full Name"

FROM

employees

WHERE

LOWER (first\_name) LIKE '%e%';

1. Retrieve the employee details with their employee ID, last name, and a concatenated string that includes the last two digits of their employee ID, followed by a hyphen, and the first three characters of their last name. Alias this string as "ID-Name."

SELECT

employee\_id,

last\_name,

SUBSTR (TO\_CHAR (employee\_id), -2) || '-' || SUBSTR(last\_name, 1, 3) AS "ID-Name"

FROM

employees;

In this query:

* SUBSTR(TO\_CHAR(employee\_id), -2) extracts the last two digits of employee\_id. Converting employee\_id to a string with TO\_CHAR allows us to use SUBSTR to get the last two characters.
* SUBSTR(last\_name, 1, 3) retrieves the first three characters of the last\_name.
* || '-' || adds a hyphen between the two parts, and the result is aliased as "ID-Name."

1. The employee IDs, first names, and last names in a single column. The result should include the employee ID, followed by a hyphen, the first two characters of the first name, another hyphen, and the last two characters of the last name. Alias this column as "Custom ID."

SELECT

employee\_id,

first\_name,

last\_name,

TO\_CHAR (employee\_id) || '-' || SUBSTR (first\_name, 1, 2) || '-' || SUBSTR (last\_name, -2) AS "Custom ID"

FROM

employees;

# Filtering. Relational Operators and Logical Operators:

1. Retrieve the employee details (employee\_id, first\_name, last\_name, hire\_date) of those who were hired after employee with ID 100, and their salary is greater than or equal to 5000.

SELECT

employee\_id,

first\_name,

last\_name,

hire\_date,

salary

FROM

employees

WHERE

hire\_date > (SELECT hire\_date FROM employees WHERE employee\_id = 100) AND salary >= 5000;

1. Write a query to display the employee details (employee\_id, first\_name, last\_name) of employees who are either in department 20 or have a salary greater than 8000.

SELECT

employee\_id,

first\_name,

last\_name

FROM

employees

WHERE

department\_id = 20 OR salary > 8000;

1. Write a query to display the employee IDs, first names, and last names of employees who have a salary greater than 6000 or were hired before the year 2000.

SELECT

employee\_id,

first\_name,

last\_name

FROM

employees

WHERE

salary > 6000 OR hire\_date < TO\_DATE('2000-01-01', 'YYYY-MM-DD');

WHERE Clause: Filters the results based on two conditions:

* salary > 6000: Employees with a salary greater than 6000. OR
* hire\_date < TO\_DATE('2000-01-01', 'YYYY-MM-DD'): Employees who were hired before January 1, 2000. The TO\_DATE function converts the string representation of the date into a date format that Oracle can understand.

1. Retrieve the employee details (employee\_id, first\_name, last\_name) of employees who do not have a manager (i.e., manager\_id is NULL) and have a job title that contains the word 'CLERK.'

SELECT

employee\_id,

first\_name,

last\_name

FROM

employees

WHERE

manager\_id IS NULL

AND job\_title LIKE '%CLERK%';

1. Display the employee details (employee\_id, first\_name, last\_name, salary) for employees who either have a salary greater than 8000 or belong to department 30 and were hired after the year 2005.

SELECT

employee\_id,

first\_name,

last\_name,

salary

FROM

employees

WHERE

salary > 8000

OR (department\_id = 30 AND hire\_date > TO\_DATE('2005-01-01', 'YYYY-MM-DD'));

**WHERE Clause:** Filters the results based on the following conditions:

* salary > 8000: Employees with a salary greater than 8000.
* OR (department\_id = 30 AND hire\_date > TO\_DATE('2005-01-01', 'YYYY-MM-DD')): Employees who belong to department 30 and were hired after January 1, 2005. The TO\_DATE function is used to ensure that the date is in the correct format for comparison.