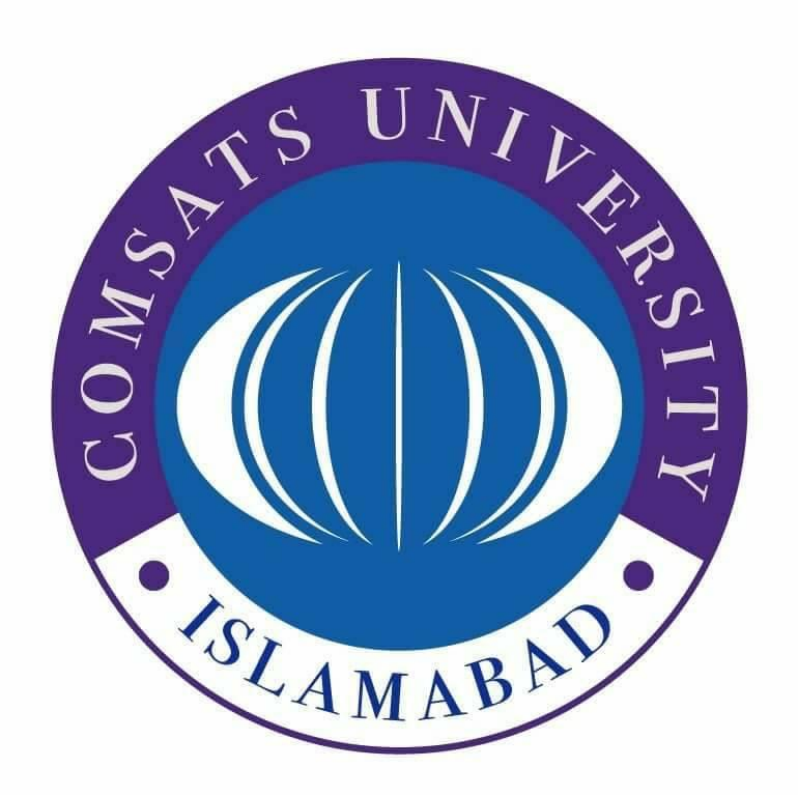

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Lab No:	7
Instructor:	Sir. Asad Ali Malik
Class:	BCE – 4A

In Lab:

Activity 1:

1. This lab assumes that you have connected to MY SQL server with HR database. Developer.
2. Try running following SQL query.

a. Create different joins (ANSI and where conditional).

```
use hr;
SELECT e.last_name, e.department_id, d.department_name
FROM employees e, departments d
WHERE e.department_id = d.department_id;
```

last_name	department_id	department_name
Whalen	10	Administration
Hartstein	20	Marketing
Fay	20	Marketing
Raphaely	30	Purchasing
Khoo	30	Purchasing
Baida	30	Purchasing
Tobias	30	Purchasing

Activity 2:

1. Write SQL queries for the following information needs. You should execute your attempt and make necessary corrections if needed.
2. Information needs:
   a. Link employee and department using 'using' clause.
   b. Make a natural join of employees and department tables.
   c. Join employee and department table where department ID is 90

a)

```
use hr;
select last_name, department_id, department_name
from employees
join departments
using (department_id);
```

last_name	department_id	department_name
Whalen	10	Administration
Hartstein	20	Marketing
Fay	20	Marketing
Raphaely	30	Purchasing
Khoo	30	Purchasing
Baida	30	Purchasing
Tobias	30	Purchasing

b)

```
use hr;
select last_name, department_id, department_name
from employees
natural join departments;
```

last_name	department_id	department_name
Fay	20	Marketing
Khoo	30	Purchasing
Baida	30	Purchasing
Tobias	30	Purchasing
Himuro	30	Purchasing
Colmenares	30	Purchasing
Bissot	50	Shipping

c)

```
SELECT e.last_name, e.department_id, d.department_name
FROM employees e
join departments d
using (department_id)
where department_id=90;
```

last_name	department_id	department_name
King	90	Executive
Kochhar	90	Executive
De Haan	90	Executive

Post Lab:

- Write a query for the HR department to produce the addresses of all the departments. Use the LOCATIONS and COUNTRIES tables. Show the location ID, street address, city, state or province, and country in the output. Use a NATURAL JOIN to produce the results.
- The HR department needs a report of all employees. Write a query to display the last name, department number, and department name for all the employees.
- The HR department needs a report of employees in Toronto. Display the last name, job, department number, and the department name for all employees who work in Toronto.

a)

```
use hr;
select street_address, city, state_province,
location_id, country_name
from locations
natural join countries;
```

street_address	city	state_province	location_id	country_name
1297 Via Cola di Rie	Roma	NULL	1000	Italy
93091 Calle della Testa	Venice	NULL	1100	Italy
2017 Shinjuku-ku	Tokyo	Tokyo Prefecture	1200	Japan
9450 Kamiya-cho	Hiroshima	NULL	1300	Japan
2014 Jabberwocky Rd	Southlake	Texas	1400	United States of America
2011 Interiors Blvd	South San Francisco	California	1500	United States of America
2007 Zagora St	South Brunswick	New Jersey	1600	United States of America

b)

```
select e.last_name, e.department_id, d.department_name
from employees e
join departments d
where e.department_id = d.department_id;
```

last_name	department_id	department_name
Whalen	10	Administration
Hartstein	20	Marketing
Fay	20	Marketing
Raphaely	30	Purchasing
Khoo	30	Purchasing
Baida	30	Purchasing
Tobias	30	Purchasing

c)

```
select e.last_name, e.job_id, e.department_id,
d.department_name
from employees e
join departments d on e.department_id = d.department_id
join locations l on d.location_id = l.location_id
where l.city = 'Toronto';
```

last_name	job_id	department_id	department_name
Hartstein	MK_MAN	20	Marketing
Fay	MK_REP	20	Marketing

Critical Analysis

In this lab, we learnt that how to extract data from multiple tables in the database. We learnt to use JOIN, NATURAL JOIN, ON functions. Alias is used to create difference between multiple tables, if we are imposing a check on data retrieval output. By joining tables like LOCATIONS, COUNTRIES, EMPLOYEES, and DEPARTMENTS, these queries integrate data to generate useful HR reports, such as department addresses, employee information, or city-specific details.

Overall, the lab gives a fundamental approach to retrieve data effectively from a database using JOIN operations.