

<b>Course</b>	<b>: BIC 21404 Database</b>
<b>Session</b>	<b>: II 2024/2025</b>
<b>Lab task</b>	<b>: 7</b>
<b>Lab Topic</b>	<b>: Using JOIN</b>
<b>Name</b>	<b>: MUHAMMAD LUQMAN BIN BAHRIN</b>
<b>Matric No</b>	<b>: AI230278</b>

**Instructions: answer all questions**

Write a summary (300 words) on the lesson learned, difficulties arise or any new knowledge obtained throughout the Lab 6 Exercise.

**Lesson learned in Lab 7:**

1. Execute the following statement and show the output.

SQL statement	Output	No of records																																																																																																																																																																																																																																																																																																																																																																												
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Services</td><td>NUL</td><td>1700</td></tr><tr><td>115</td><td>Steven</td><td>King</td><td>SKING</td><td>515.123.4567</td><td>1987-06-17</td><td>AD_PRES</td><td>24000.00</td><td>NUL</td><td>NUL</td><td>90</td><td>160 Benefits</td><td>NUL</td><td>1700</td></tr><tr><td>116</td><td>Steven</td><td>King</td><td>SKING</td><td>515.123.4567</td><td>1987-06-17</td><td>AD_PRES</td><td>24000.00</td><td>NUL</td><td>NUL</td><td>90</td><td>170 Manufacturing</td><td>NUL</td><td>1700</td></tr><tr><td>117</td><td>Steven</td><td>King</td><td>SKING</td><td>515.123.4567</td><td>1987-06-17</td><td>AD_PRES</td><td>24000.00</td><td>NUL</td><td>NUL</td><td>90</td><td>180 Construction</td><td>NUL</td><td>1700</td></tr><tr><td>118</td><td>Steven</td><td>King</td><td>SKING</td><td>515.123.4567</td><td>1987-06-17</td><td>AD_PRES</td><td>24000.00</td><td>NUL</td><td>NUL</td><td>90</td><td>190 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Tax	NUL	1700	113	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NUL	NUL	90	140 Control And Credit	NUL	1700	114	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NUL	NUL	90	150 Shareholder Services	NUL	1700	115	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NUL	NUL	90	160 Benefits	NUL	1700	116	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NUL	NUL	90	170 Manufacturing	NUL	1700	117	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NUL	NUL	90	180 Construction	NUL	1700	118	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NUL	NUL	90	190 Contracting	NUL	1700	119	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NUL	NUL	90	200 Operations	NUL	1700	120	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NUL	NUL	90	210 IT Support	NUL	1700	121	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NUL	NUL	90	220 NOC	NUL	1700	122	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NUL	NUL	90	230 IT Helpdesk	NUL	1700	123	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NUL	NUL	90	240 Government Sales	NUL	1700	124	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NUL	NUL	90	250 Retail Sales	NUL	1700	107
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2. Write a query for 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. Use a NATURAL JOIN to produce the result.

Solution:	
SQL statement	<pre> SELECT location_id, street_address, city, state_province, country_name FROM locations NATURAL JOIN countries; </pre>

Output display	<b>location_id</b>	<b>street_address</b>	<b>city</b>	<b>state_province</b>	<b>country</b>
	1000	1297 Via Cola di Rie	Roma	NULL	Italy
	1100	93091 Calle della Testa	Venice	NULL	Italy
	1200	2017 Shinjuku-ku	Tokyo	Tokyo Prefecture	Japan
	1300	9450 Kamiya-cho	Hiroshima	NULL	Japan
	1400	2014 Jabberwocky Rd	Southlake	Texas	United States
	1500	2011 Interiors Blvd	South San Francisco	California	United States
	1600	2007 Zagora St	South Brunswick	New Jersey	United States
	1700	2004 Charade Rd	Seattle	Washington	United States
	1800	147 Spadina Ave	Toronto	Ontario	Canada
	1900	6092 Boxwood St	Whitehorse	Yukon	Canada
	2000	40-5-12 Laogianggen	Beijing	NULL	China
	2100	1298 Vileparle (E)	Bombay	Maharashtra	India
	2200	12-98 Victoria Street	Sydney	New South Wales	Australia
	2300	198 Clementi North	Singapore	NULL	Singapore
	2400	8204 Arthur St	London	NULL	United Kingdom
	2500	Magdalen Centre, The Oxford Science Park	Oxford	Oxford	United Kingdom
	2600	9702 Chester Road	Stretford	Manchester	United Kingdom
	2700	Schwanthalerstr. 7031	Munich	Bavaria	Germany
	2800	Rua Frei Caneca 1360	Sao Paulo	Sao Paulo	Brazil
	2900	20 Rue des Corps-Saints	Geneva	Geneve	Switzerland
	3000	Murtenstrasse 921	Bern	BE	Switzerland
	3100	Pieter Breughelstraat 837	Utrecht	Utrecht	Netherlands
	3200	Mariano Escobedo 9991	Mexico City	Distrito Federal	Mexico

3. The HR department needs a report of all employees. Write a query to display the last name, department number, and department name for these employees.

<b>Solution:</b>	
<b>SQL statement</b>	<pre>SELECT e.last_name, e.department_id, d.department_name FROM employees e JOIN departments d ON e.department_id = d.department_id;</pre>



Output display	Extra options		
	last_name	department_id	department_name
	Whalen	10	Administration
	Harstein	20	Marketing
	Fay	20	Marketing
	Raphaely	30	Purchasing
	Khoo	30	Purchasing
	Baida	30	Purchasing
	Tobias	30	Purchasing
	Himuro	30	Purchasing
	Colmenares	30	Purchasing
	Mavris	40	Human Resources
	Weiss	50	Shipping
	Fripp	50	Shipping
	Kaufling	50	Shipping
	Vollman	50	Shipping
	Mourgos	50	Shipping
	Nayer	50	Shipping
	Mikkilineni	50	Shipping
	Landry	50	Shipping
	Markle	50	Shipping
	Bissot	50	Shipping
	Atkinson	50	Shipping
	Marlow	50	Shipping
	Olson	50	Shipping
	Mallin	50	Shipping
	Rogers	50	Shipping

4. Create a report to display employees last name and employee number along with their manager's last name and manager number. Label the columns Employee, Emp#, Manager, and Mgr#, respectively.

Solution:	
SQL statement	<pre>SELECT e.last_name AS Employee, e.employee_id AS "Emp#",        m.last_name AS Manager, m.employee_id AS "Mgr#" FROM employees e JOIN employees m ON e.manager_id = m.employee_id;</pre>

Output display		<b>Employee</b>	<b>Emp#</b>	<b>Manager</b>	<b>Mgr#</b>
		Kochhar	101	King	100
		De Haan	102	King	100
		Hunold	103	De Haan	102
		Ernst	104	Hunold	103
		Austin	105	Hunold	103
		Pataballa	106	Hunold	103
		Lorentz	107	Hunold	103
		Greenberg	108	Kochhar	101
		Faviet	109	Greenberg	108
		Chen	110	Greenberg	108
		Sciarra	111	Greenberg	108
		Urman	112	Greenberg	108
		Popp	113	Greenberg	108
		Raphaely	114	King	100
		Khoo	115	Raphaely	114
		Baida	116	Raphaely	114
		Tobias	117	Raphaely	114
		Himuro	118	Raphaely	114
		Colmenares	119	Raphaely	114
		Weiss	120	King	100
		Fripp	121	King	100
		Kaufling	122	King	100
		Vollman	123	King	100
		Mourgos	124	King	100
		Nayer	125	Weiss	120

5. Modify Q3, to display all employees including who has no manager. Order the results by the employee number.

Solution:	
SQL statement	SELECT e.last_name AS Employee, e.employee_id AS "Emp#", m.last_name AS Manager, m.employee_id AS "Mgr#"         FROM employees e         LEFT JOIN employees m ON e.manager_id = m.employee_id         ORDER BY e.employee_id;

Output display	Extra options			
	Employee	Emp#	Manager	Mgr#
	Kochhar	101	King	100
	De Haan	102	King	100
	Hunold	103	De Haan	102
	Ernst	104	Hunold	103
	Austin	105	Hunold	103
	Pataballa	106	Hunold	103
	Lorentz	107	Hunold	103
	Greenberg	108	Kochhar	101
	Faviet	109	Greenberg	108
	Chen	110	Greenberg	108
	Sciarra	111	Greenberg	108
	Urman	112	Greenberg	108
	Popp	113	Greenberg	108
	Raphaely	114	King	100
	Khoo	115	Raphaely	114
	Baida	116	Raphaely	114
	Tobias	117	Raphaely	114
	Himuro	118	Raphaely	114
	Colmenares	119	Raphaely	114
	Weiss	120	King	100
	Fripp	121	King	100
	Kaufling	122	King	100
	Vollman	123	King	100
	Mourgos	124	King	100
	Nayer	125	Weiss	120