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SAP ID: 53937

SECTION: BS DATA SCIENCE

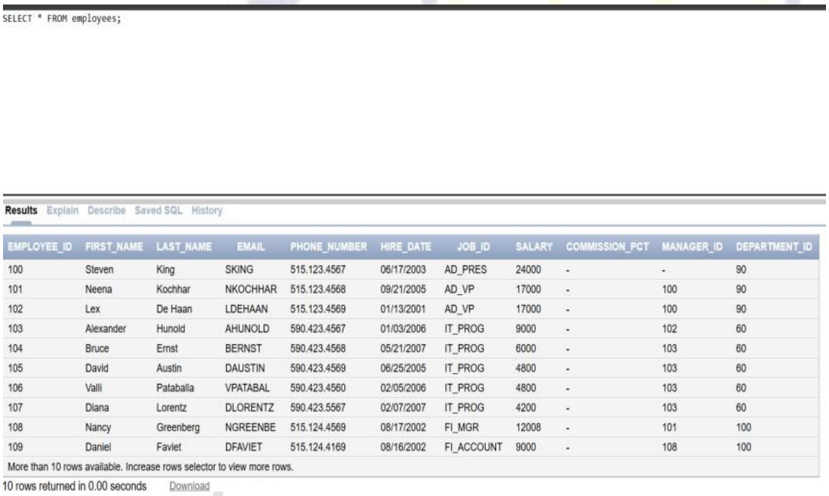
LAB: DATABASE

LAB NO 1

LAB TASKS:

Q1: You are required to read the lab manual and implement all the queries mentioned in the manual.

- This query retrieves all columns and every record from the employee's table.



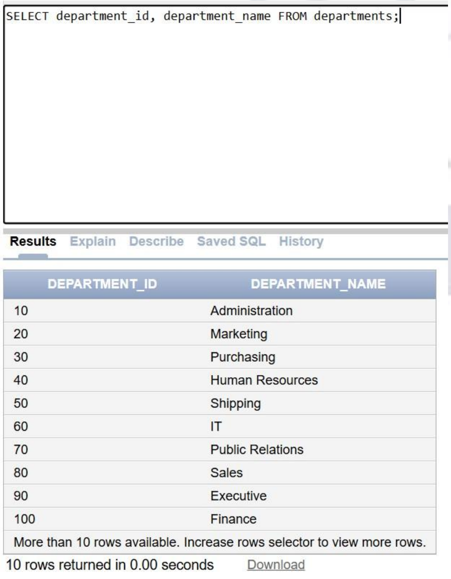
```
SELECT * FROM employees;
```

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMISSION_PCT	MANAGER_ID	DEPARTMENT_ID
100	Steven	King	SKING	515.123.4567	06/17/2003	AD_PRES	24000	-	-	90
101	Neena	Kochhar	NKOCHHAR	515.123.4568	09/21/2005	AD_VP	17000	-	100	90
102	Lex	De Haan	LDEHAAN	515.123.4569	01/13/2001	AD_VP	17000	-	100	90
103	Alexander	Hunold	AHUNOLD	590.423.4567	01/03/2006	IT_PROG	9000	-	102	60
104	Bruce	Ernst	BERNST	590.423.4568	05/21/2007	IT_PROG	6000	-	103	60
105	David	Austin	DAUSTIN	590.423.4569	06/25/2005	IT_PROG	4800	-	103	60
106	Valli	Pataballa	VPATABAL	590.423.4560	02/05/2006	IT_PROG	4800	-	103	60
107	Diana	Lorentz	DLORENTZ	590.423.5567	02/07/2007	IT_PROG	4200	-	103	60
108	Nancy	Greenberg	NGREENBE	515.124.4569	08/17/2002	FI_MGR	12008	-	101	100
109	Daniel	Faviet	DFAVIET	515.124.4169	08/16/2002	FI_ACCOUNT	9000	-	108	100

More than 10 rows available. Increase rows selector to view more rows.

10 rows returned in 0.00 seconds Download

- This query fetches only the IDs and names of all departments from the departments table.



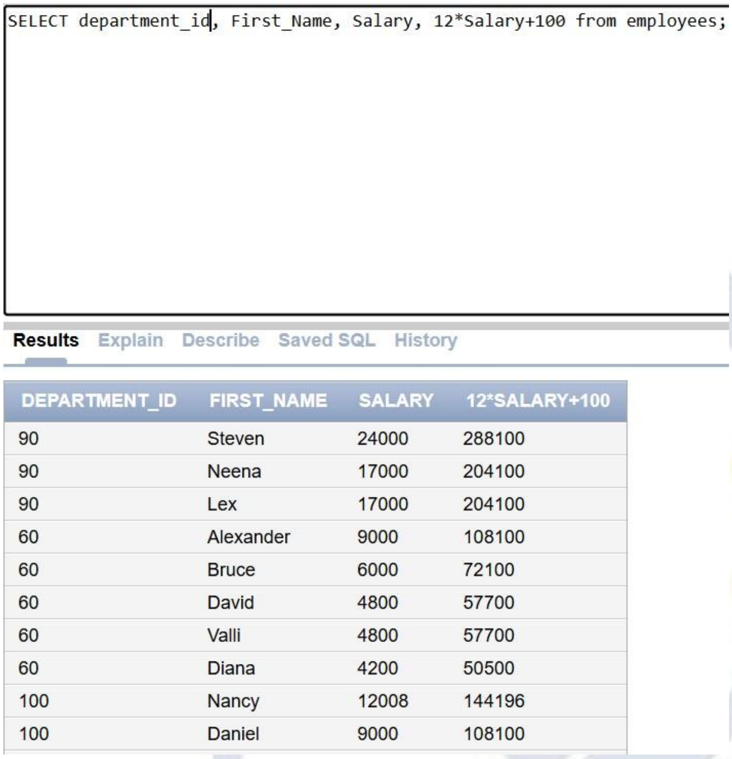
```
SELECT department_id, department_name FROM departments;
```

DEPARTMENT_ID	DEPARTMENT_NAME
10	Administration
20	Marketing
30	Purchasing
40	Human Resources
50	Shipping
60	IT
70	Public Relations
80	Sales
90	Executive
100	Finance

More than 10 rows available. Increase rows selector to view more rows.

10 rows returned in 0.00 seconds Download

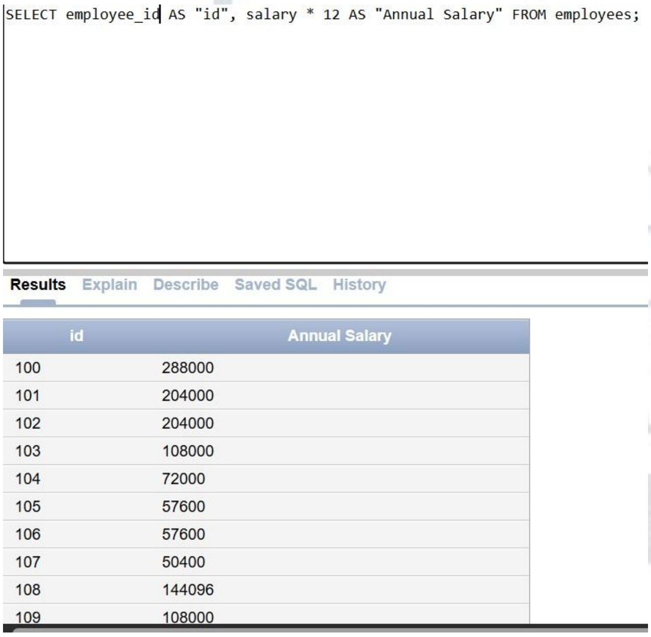
- This query calculates an annual total by multiplying the monthly salary by 12 and adding a 100-unit bonus for every employee



```
SELECT department_id, First_Name, Salary, 12*Salary+100 from employees;
```

DEPARTMENT_ID	FIRST_NAME	SALARY	12*SALARY+100
90	Steven	24000	288100
90	Neena	17000	204100
90	Lex	17000	204100
60	Alexander	9000	108100
60	Bruce	6000	72100
60	David	4800	57700
60	Valli	4800	57700
60	Diana	4200	50500
100	Nancy	12008	144196
100	Daniel	9000	108100

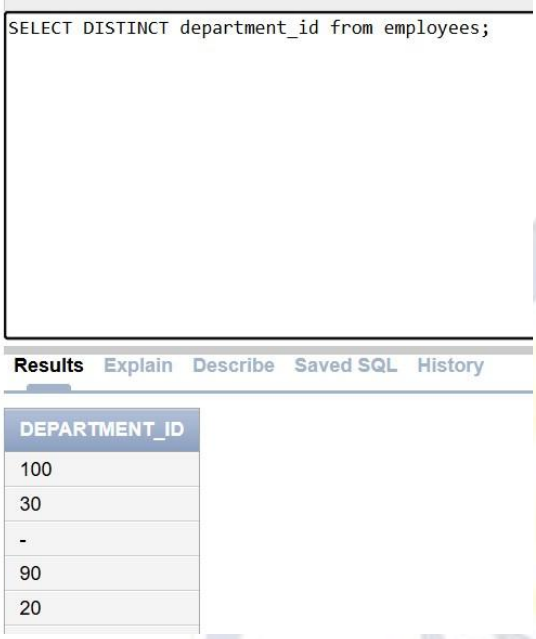
- This query fetches the department IDs and department names from the departments table.



```
SELECT employee_id AS "id", salary * 12 AS "Annual Salary" FROM employees;
```

id	Annual Salary
100	288000
101	204000
102	204000
103	108000
104	72000
105	57600
106	57600
107	50400
108	144096
109	108000

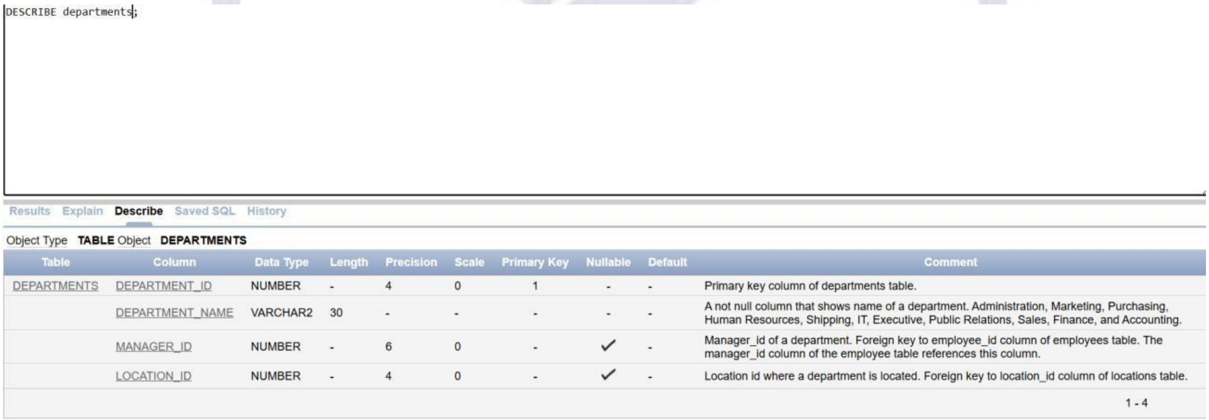
- This query lists only the unique department IDs where employees are currently assigned, removing any duplicate numbers from the list.



```
SELECT DISTINCT department_id from employees;
```

DEPARTMENT_ID
100
30
-
90
20

- This query displays the technical structure, column names, and data types of the departments table.



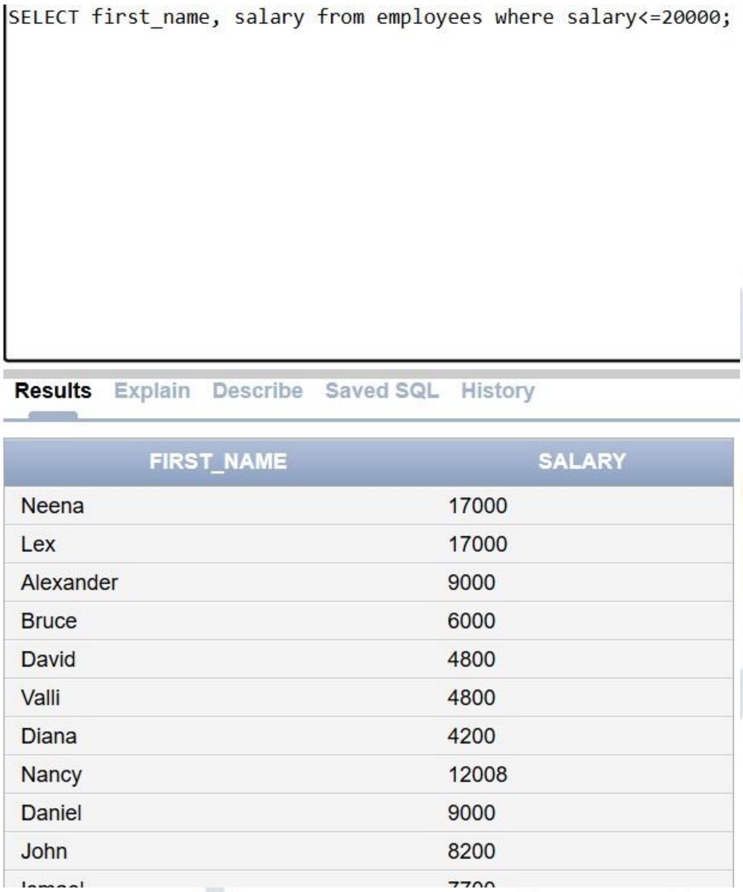
```
DESCRIBE departments;
```

Object Type **TABLE** Object **DEPARTMENTS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
DEPARTMENTS	DEPARTMENT_ID	NUMBER	-	4	0	1	-	-	Primary key column of departments table.
	DEPARTMENT_NAME	VARCHAR2	30	-	-	-	-	-	A not null column that shows name of a department. Administration, Marketing, Purchasing, Human Resources, Shipping, IT, Executive, Public Relations, Sales, Finance, and Accounting.
	MANAGER_ID	NUMBER	-	6	0	-	✓	-	Manager_id of a department. Foreign key to employee_id column of employees table. The manager_id column of the employee table references this column.
	LOCATION_ID	NUMBER	-	4	0	-	✓	-	Location id where a department is located. Foreign key to location_id column of locations table.

1 - 4

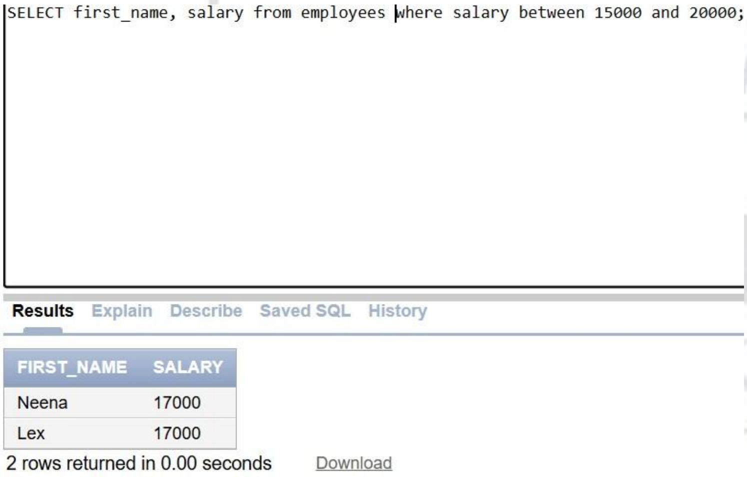
- This query fetches the names and salaries of employees who earn a salary of 20,000 or less.



```
SELECT first_name, salary from employees where salary<=20000;
```

FIRST_NAME	SALARY
Neena	17000
Lex	17000
Alexander	9000
Bruce	6000
David	4800
Valli	4800
Diana	4200
Nancy	12008
Daniel	9000
John	8200

- This query fetches the names and salaries of employees whose salary falls within the range of 15,000 to 20,000 inclusive.

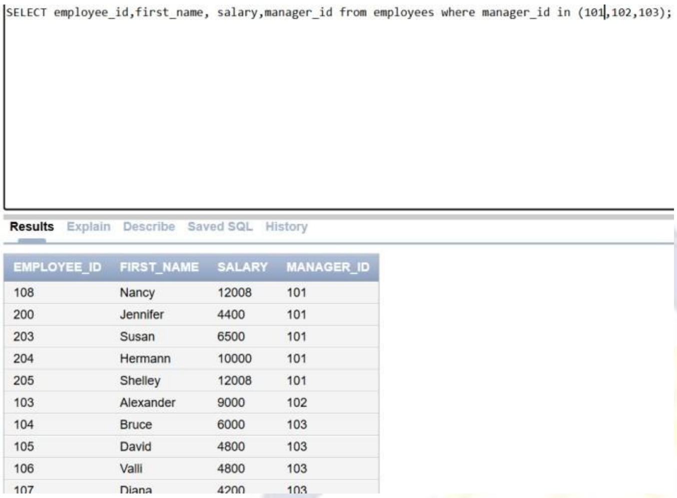


```
SELECT first_name, salary from employees where salary between 15000 and 20000;
```

FIRST_NAME	SALARY
Neena	17000
Lex	17000

2 rows returned in 0.00 seconds

- This query fetches the IDs, names, and salaries of employees who report to managers with the IDs 101, 102, or 103.

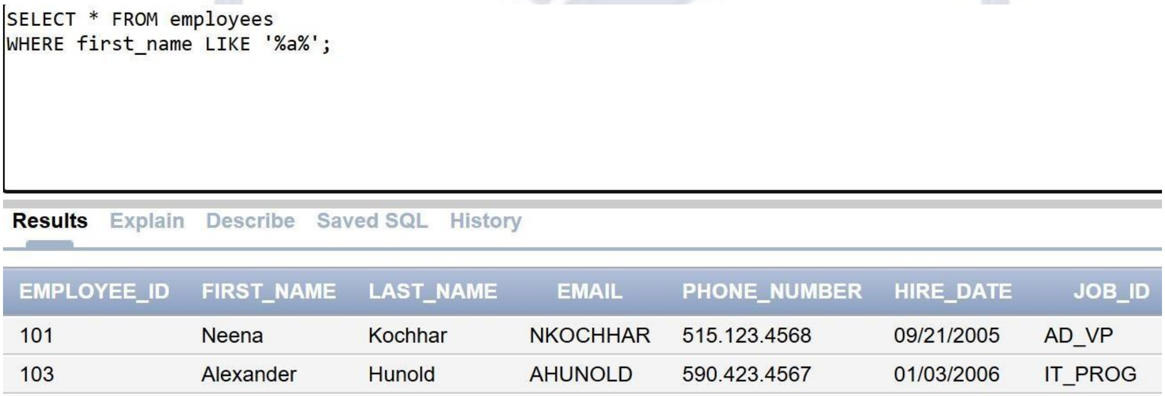


```
SELECT employee_id,first_name, salary,manager_id from employees where manager_id in (101,102,103);
```

EMPLOYEE_ID	FIRST_NAME	SALARY	MANAGER_ID
108	Nancy	12008	101
200	Jennifer	4400	101
203	Susan	6500	101
204	Hermann	10000	101
205	Shelley	12008	101
103	Alexander	9000	102
104	Bruce	6000	103
105	David	4800	103
106	Valli	4800	103
107	Diana	4200	103

Q2: Display all records whose first name contains ‘a’.

- This query fetches all employee records where the first name contains the letter 'a' anywhere in the text.

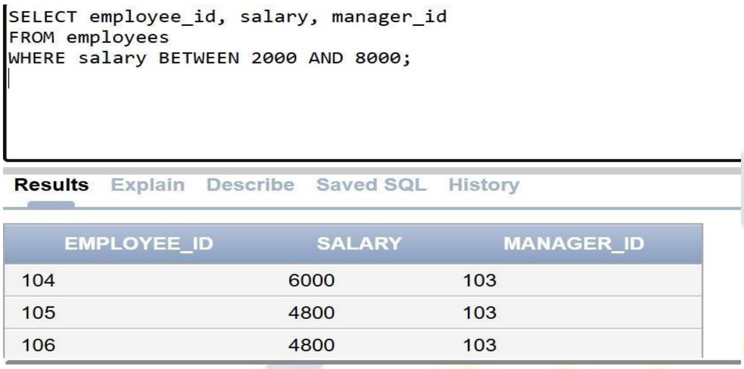


```
SELECT * FROM employees
WHERE first_name LIKE '%a%';
```

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID
101	Neena	Kochhar	NKOCHHAR	515.123.4568	09/21/2005	AD_VP
103	Alexander	Hunold	AHUNOLD	590.423.4567	01/03/2006	IT_PROG

Q3: Write a query to display employee number, salary and manager number of those employees Whose salary range 2000 to 8000.

- This query fetches the IDs, salaries, and manager IDs of employees who earn between 2,000 and 8,000.

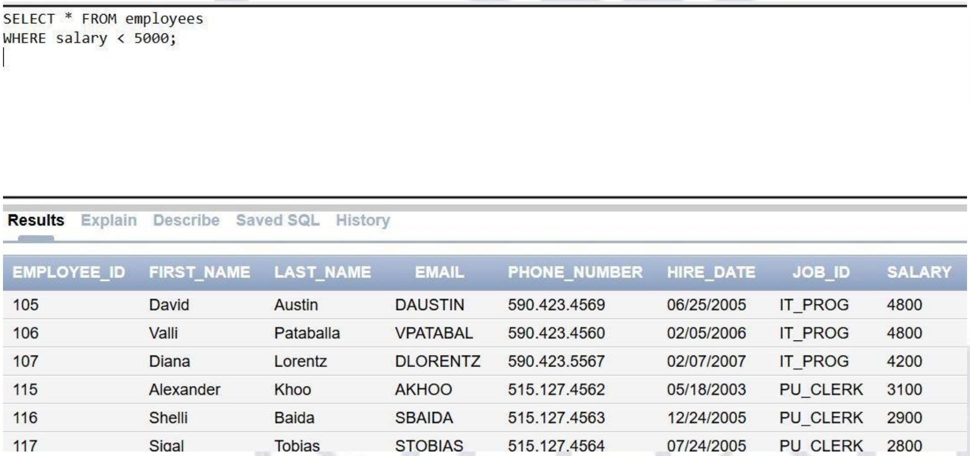


```
SELECT employee_id, salary, manager_id
FROM employees
WHERE salary BETWEEN 2000 AND 8000;
```

EMPLOYEE_ID	SALARY	MANAGER_ID
104	6000	103
105	4800	103
106	4800	103

Q4: Show all employee record whose salary in less than 5000.

- This query fetches all employee records for those who earn a salary of less than 5,000.

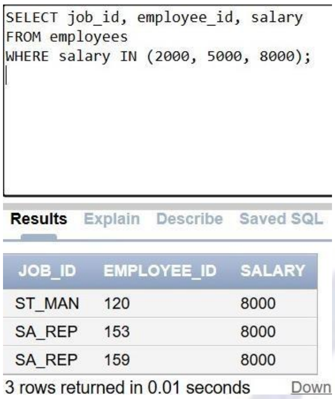


```
SELECT * FROM employees
WHERE salary < 5000;
```

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY
105	David	Austin	DAUSTIN	590.423.4569	06/25/2005	IT_PROG	4800
106	Valli	Pataballa	VPATABAL	590.423.4560	02/05/2006	IT_PROG	4800
107	Diana	Lorentz	DLORENTZ	590.423.5567	02/07/2007	IT_PROG	4200
115	Alexander	Khoo	AKHOO	515.127.4562	05/18/2003	PU_CLERK	3100
116	Shelli	Baida	SBAIDA	515.127.4563	12/24/2005	PU_CLERK	2900
117	Sigal	Tobias	STOBIAS	515.127.4564	07/24/2005	PU_CLERK	2800

Q5: Display job number, employee id and salary of that employee whose salary is 2000, 5000 and 8000.

- This query fetches the Job IDs, Employee IDs, and Salaries of employees who earn exactly 2,000, 5,000, or 8,000.



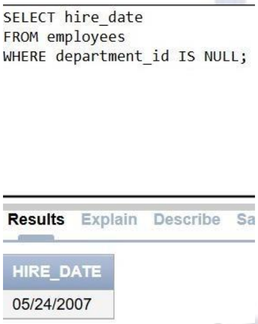
```
SELECT job_id, employee_id, salary
FROM employees
WHERE salary IN (2000, 5000, 8000);
```

JOB_ID	EMPLOYEE_ID	SALARY
ST_MAN	120	8000
SA_REP	153	8000
SA_REP	159	8000

3 rows returned in 0.01 seconds

Q6: Show joining date of those employees whose department number is null.

- This query fetches the hire dates of employees who have not been assigned to any department.

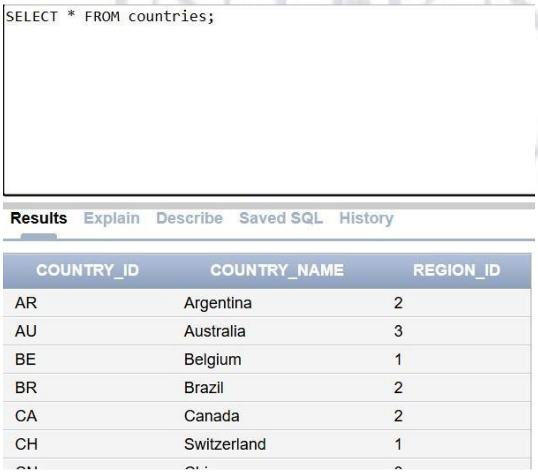


```
SELECT hire_date
FROM employees
WHERE department_id IS NULL;
```

HIRE_DATE
05/24/2007

Q7: Write a query to display all records in countries table.

- This query fetches and displays all columns and all records from the countries table.



```
SELECT * FROM countries;
```

COUNTRY_ID	COUNTRY_NAME	REGION_ID
AR	Argentina	2
AU	Australia	3
BE	Belgium	1
BR	Brazil	2
CA	Canada	2
CH	Switzerland	1