

Exercises: Subqueries and JOINS

This document defines the **exercise assignments** for the ["Databases Basics - MySQL" course @ Software University](#).

For problems from 1 to 11 (inclusively) use "soft_uni" database and for the others – "geography".

1. Employee Address

Write a query that selects:

- **employee_id**
- **job_title**
- **address_id**
- **address_text**

Return the first 5 rows sorted by **address_id** in ascending order.

Example:

employee_id	job_title	address_id	address_text
142	Production Technician	1	108 Lakeside Court
30	Human Resources Manager	2	1341 Prospect St
...

2. Addresses with Towns

Write a query that selects:

- **first_name**
- **last_name**
- **town**
- **address_text**

Sort the result by **first_name** in ascending order then by **last_name**. Select first 5 employees.

Example:

first_name	last_name	town	address_text
A.Scott	Wright	Newport Hills	1400 Gate Drive
Alan	Brewer	Kenmore	8192 Seagull Court
...

3. Sales Employee

Write a query that selects:

- **employee_id**
- **first_name**

- last_name
- department_name

Sort the result by **employee_id** in **descending order**. Select only **employees** from the “Sales” department.

Example:

employee_id	first_name	last_name	department_name
290	Lynn	Tsoflias	Sales
289	Rachel	Valdez	Sales
...

4. Employee Departments

Write a query that selects:

- employee_id
- first_name
- salary
- department_name

Filter only **employees** with **salary** higher than 15000. Return the first 5 rows sorted by **department_id** in **descending order**.

Example:

employee_id	first_name	salary	department_name
109	Ken	125500.00	Executive
140	Laura	60100.00	Executive
...

5. Employees Without Project

Write a query that selects:

- employee_id
- first_name

Filter only **employees** without a project. Return the first 3 rows sorted by **employee_id** in **descending order**.

Example:

employee_id	first_name
293	George
292	Martin
...	...

6. Employees Hired After

Write a query that selects:

- `first_name`
- `last_name`
- `hire_date`
- `dept_name`

Filter only **employees** hired after 1/1/1999 and from either the "Sales" or the "Finance" departments. Sort the result by `hire_date` (ascending).

Example:

<code>first_name</code>	<code>last_name</code>	<code>hire_date</code>	<code>dept_name</code>
Debora	Poe	2001-01-19 00:00:00	Finance
Wendy	Kahn	2001-01-26 00:00:00	Finance
...

7. Employees with Project

Write a query that selects:

- `employee_id`
- `first_name`
- `project_name`

Filter only **employees** with a project, which has started after **13.08.2002** and it is still **ongoing** (no end date). Return the first 5 rows sorted by `first_name` then by `project_name` both in ascending order.

Example

<code>employee_id</code>	<code>first_name</code>	<code>project_name</code>
44	A. Scott	Hitch Rack - 4-Bike
170	Alan	LL Touring Handlebars
...

8. Employee 24

Write a query that selects:

- `employee_id`
- `first_name`
- `project_name`

Filter all the **projects** of employees with **id 24**. If the project has started after **2005 inclusively** the return value should be **NULL**. Sort the result by `project_name` alphabetically.

Example

<code>employee_id</code>	<code>first_name</code>	<code>project_name</code>
24	David	NULL
24	David	NULL

...
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9. Employee Manager

Write a query that selects:

- **employee_id**
- **first_name**
- **manager_id**
- **manager_name**

Filter all **employees** with a manager who has **id equal to 3 or 7**. Return all rows sorted by **employee first_name** in ascending order.

Example

employee_id	first_name	manager_id	manager_name
122	Bryan	7	JoLynn
158	Dylan	3	Roberto
...

10. Employee Summary

Write a query that selects:

- **employee_id**
- **employee_name**
- **manager_name**
- **department_name**

Show the first 5 **employees** (only for employees who have a manager) with their **managers** and the **departments** they are in (show the departments of the **employees**). Order by **employee_id**.

Example

employee_id	employee_name	manager_name	department_name
1	Guy Gilbert	Jo Brown	Production
2	Kevin Brown	David Bradley	Marketing
...

11. Min Average Salary

Write a query that returns the value of the **lowest average salary** of all **departments**.

Example:

min_average_salary
10866.6666

12. Highest Peaks in Bulgaria

Write a query that selects:

- `country_code`
- `mountain_range`
- `peak_name`
- `elevation`

Filter all **peaks** in **Bulgaria** with **elevation** over **2835**. Return all rows sorted by **elevation** in **descending order**.

Example

country_code	mountain_range	peak_name	elevation
BG	Rila	Musala	2925
BG	Pirin	Vihren	2914
...

13. Count Mountain Ranges

Write a query that selects:

- `country_code`
- `mountain_range`

Filter the **count** of the **mountain ranges** in the **United States, Russia and Bulgaria**. Sort result by **mountain_range count** in **decreasing order**.

Example

country_code	mountain_range
BG	6
RU	1
...	...

14. Countries with Rivers

Write a query that selects:

- `country_name`
- `river_name`

Find the first 5 **countries** with or without **rivers** in **Africa**. Sort them by **country_name** in **ascending order**.

Example

country_name	river_name
Algeria	Niger
Angola	Congo
Benin	Niger
Botswana	NULL

Burkina Faso	Niger
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15. *Continents and Currencies

Write a query that selects:

- **continent_code**
- **currency_code**
- **currency_usage**

Find all **continents** and their most used **currency**. Filter any **currency** that is used in only one **country**. Sort the result by **continent_code** and **currency_code**.

Example

continent_code	currency_code	currency_usage
AF	XOF	8
AS	AUD	2
AS	ILS	2
EU	EUR	26
NA	XCD	8
OC	USD	8

16. Countries without any Mountains

Find the count of all **countries** which don't have a **mountain**.

Example

country_count
231

17. Highest Peak and Longest River by Country

For each **country**, find the **elevation of the highest peak** and **the length of the longest river**, sorted by the highest **peak_elevation (from highest to lowest)**, then by the **longest river_length (from longest to smallest)**, then by **country_name (alphabetically)**. Display **NULL** when no data is available in some of the columns. Limit only the first 5 rows.

Example

country_name	highest_peak_elevation	longest_river_length
China	8848	6300
India	8848	3180
Nepal	8848	2948
Pakistan	8611	3180
Argentina	6962	4880

