

# Lab: Basic CRUD

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

Download and get familiar with the **hospital** database schemas and tables. You will use it in the following exercises to write queries.

## Problem 1: Select Employee Information

Write a query to select all employees and retrieve information about their **id**, **first\_name**, **last\_name** and **job\_title** ordered by **id**.

### Example

id	first_name	last_name	job_title
1	John	Smith	Therapist
2	John	Johnson	Acupuncturist
3	Smith	Johnson	Technician
...	...	...	...

## Problem 2: Select Employees with Filter

Write a query to select all employees (**id**, **first\_name**, **last\_name**, **job\_title**, **salary**) whose salaries are **higher than 1000.00**, ordered by **id**. Concatenate fields **first\_name** and **last\_name** into '**full\_name**'.

### Example

id	full_name	job_title	salary
3	Smith Johnson	Technician	1100
4	Peter Petrov	Supervisor	1100
5	Peter Ivanov	Dentist	1500.23
7	Jack Jackson	Epidemiologist	1800
...	...	...	...

## Problem 3: Update Employees Salary

Update all employees salaries whose **job\_title** is "Therapist" by **10%**. Retrieve information about **all salaries** ordered ascending.

## Example

salary
880
990
1089
1100
...

## Problem 4: Top Paid Employee

Write a query to create a view that selects all information about the top paid employee from the “**employees**” table in the **hospital** database.

### Example

id	first_name	last_name	job_title	department_id	salary
8	Pedro	Petrov	Medical Director	3	2100

## Problem 5: Select Employees by Multiple Filters

Write a query to retrieve information about employees, who are in **department 4** and have salary **higher or equal to 1600**. Order the information by **id**.

### Example

id	first_name	last_name	job_title	department_id	salary
7	Jack	Jackson	Epidemiologist	4	1800
9	Nikolay	Ivanov	Nutrition Technician	4	1600

## Problem 6: Delete from Table

Write a query to delete all employees from the “**employees**” table who are in department **2 or 1**. Order the information by **id**.

### Example

id	First_name	Last_name	Job_title	Department_id	salary
4	Peter	Petrov	Supervisor	3	1100
5	Peter	Ivanov	Dentist	4	1500.23
7	Jack	Jackson	Epidemiologist	4	1800

8	Pedro	Petrov	Medical Director	3	2100
9	Nikolay	Ivanov	Nutrition Technician	4	1600

# Exercises: Basic CRUD

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

Download and get familiar with the **soft\_uni**, **diablo** and **geography** database schemas and tables. You will use them in this and the following exercises to write queries.

## Part I – Queries for SoftUni Database

### 1. Find All Information About Departments

Write a SQL query to find **all available information about the departments**. **Sort the information by id**. Submit your query statements as **Prepare DB & run queries**.

#### Example

department_id	name	manager_id
1	Engineering	12
2	Tool Design	4
3	Sales	273
...	...	...

### 2. Find all Department Names

Write SQL query to find **all department names**. **Sort the information by id**. Submit your query statements as **Prepare DB & run queries**.

#### Example

name
Engineering
Tool Design
Sales
...

### 3. Find salary of Each Employee

Write SQL query to find the **first name**, **last name** and **salary** of each employee. **Sort the information by id**. Submit your query statements as **Prepare DB & run queries**.

#### Example

first_name	last_name	salary
Guy	Gilbert	12500.00
Kevin	Brown	13500.00
Roberto	Tamburello	43300.00
...	...	...

### 4. Find Full Name of Each Employee

Write SQL query to find the **first**, **middle** and **last name** of each employee. **Sort the information by id**. Submit your query statements as **Prepare DB & run queries**.

## Example

first_name	middle_name	last_name
Guy	R	Gilbert
Kevin	F	Brown
Roberto	NULL	Tamburello
...	...	...

## 5. Find Email Address of Each Employee

Write a SQL query to find the **email address** of each employee. (by his **first and last name**). Consider that the email domain is **softuni.bg**. Emails should look like "John.Doe@softuni.bg". The **produced column** should be named "**full\_email\_address**". Submit your query statements as **Prepare DB & run queries**.

## Example

full_email_address
Guy.Gilbert@softuni.bg
Kevin.Brown@softuni.bg
Roberto.Tamburello@softuni.bg
...

## 6. Find All Different Employee's Salaries

Write a SQL query to find **all different employee's salaries**. Show only the salaries. **Sort the information by id**. Submit your query statements as **Prepare DB & run queries**.

## Example

Salary
12500.00
13500.00
43300.00
...

## 7. Find all Information About Employees

Write a SQL query to find **all information** about the employees whose **job title** is "Sales Representative". **Sort the information by id**. Submit your query statements as **Prepare DB & run queries**.

## Example

id	First Name	Last Name	Middle Name	Job Title	Dept ID	Mngr ID	Hire Date	salary	address_id
275	Michael	Blythe	G	Sales Representative	3	268	...	23100.00	60
276	Linda	Mitchell	C	Sales Representative	3	268	...	23100.00	170
277	Jillian	Carson	NULL	Sales Representative	3	268	...	23100.00	61
...	...	...	...	...	...	...	...	...	...

## 8. Find Names of All Employees by salary in Range

Write a SQL query to find the **first name**, **last name** and **job title** of all employees whose **salary is in the range [20000, 30000]**. **Sort the information by id**. Submit your query statements as **Prepare DB & run queries**.

### Example

first_name	last_name	JobTitle
Rob	Walters	Senior Tool Designer
Thierry	D'Hers	Tool Designer
JoLynn	Dobney	Production Supervisor
...	...	...

## 9. Find Names of All Employees

Write a SQL query to find the **full name** of all employees whose **salary is 25000, 14000, 12500 or 23600**. Full Name is combination of **first**, **middle** and **last** name (separated with **single space**) and they should be **in one column** called **"Full Name"**. Submit your query statements as **Prepare DB & run queries**.

### Example

Full Name
Guy R Gilbert
Thierry B D'Hers
JoLynn M Dobney

## 10. Find All Employees Without Manager

Write a SQL query to find **first and last names** about those employees that **does not have a manager**. Submit your query statements as **Prepare DB & run queries**.

### Example

first_name	last_name
Ken	Sanchez
Svetlin	Nakov
...	...

## 11. Find All Employees with salary More Than 50000

Write a SQL query to find **first name**, **last name** and **salary** of those employees who has salary more than 50000. Order them in decreasing order by salary. Submit your query statements as **Prepare DB & run queries**.

### Example

first_name	last_name	salary
Ken	Sanchez	125500.00
James	Hamilton	84100.00
...	...	...

## 12. Find 5 Best Paid Employees

Write SQL query to find **first and last names** about **5 best paid Employees** ordered **descending by their salary**. Submit your query statements as **Prepare DB & run queries**.

## Example

first_name	last_name
Ken	Sanchez
James	Hamilton
...	...

## 13. Find All Employees Except Marketing

Write a SQL query to find the **first** and **last** names of all employees whose **department ID is different from 4**. Submit your query statements as **Prepare DB & run queries**.

## Example

first_name	last_name
Guy	Gilbert
Roberto	Tamburello
Rob	Walters

## 14. Sort Employees Table

Write a SQL query to sort all records in the **employees** table by the following criteria:

- First by **salary** in **decreasing** order
- Then by **first name** **alphabetically**
- Then by **last name** **descending**
- Then by **middle name** **alphabetically**

Sort the information by **id**. Submit your query statements as **Prepare DB & run queries**.

## Example

id	First Name	Last Name	Middle Name	job_title	Dept ID	Mngr ID	Hire Date	salary	address_id
109	Ken	Sanchez	J	Chief Executive Officer	16	NULL	...	125500.00	177
148	James	Hamilton	R	Vice President of Production	7	109	...	84100.00	158
273	Brian	Welcker	S	Vice President of Sales	3	109	...	72100.00	134
...	...	...	...	...	...	...	...	...	...

## 15. Create View Employees with Salaries

Write a SQL query to create a view **v\_employees\_salaries** with **first name**, **last name** and **salary** for each employee. Submit your query statements as **Run skeleton, run queries & check DB**.

## Example

first_name	last_name	salary
Guy	Gilbert	12500.00
Kevin	Brown	13500.00
...	...	...

## 16. Create View Employees with Job Titles

Write a SQL query to create view **v\_employees\_job\_titles** with **full employee name** and **job title**. When middle name is **NULL** replace it with **empty string (")**. Submit your query statements as **Run skeleton, run queries & check DB**.

### Example

full_name	job_title
Guy R Gilbert	Production Technician
Kevin F Brown	Marketing Assistant
Roberto Tamburello	Engineering Manager
...	...

## 17. Distinct Job Titles

Write a SQL query to find **all distinct job titles**. **Sort the result by job title alphabetically**. Submit your query statements as **Prepare DB & run queries**.

### Example

Job_title
Accountant
Accounts Manager
Accounts Payable Specialist
...

## 18. Find First 10 Started Projects

Write a SQL query to find **first 10 started projects**. Select **all information about them** and **sort them by start date, then by name**. **Sort the information by id**. Submit your query statements as **Prepare DB & run queries**.

### Example

id	Name	Description	start_date	end_date
6	HL Road Frame	Research, design and development of HL Road ...	1998-05-02 00:00:00	2003-06-01 00:00:00
2	Cycling Cap	Research, design and development of C...	2001-06-01 00:00:00	2003-06-01 00:00:00
5	HL Mountain Frame	Research, design and development of HL M...	2001-06-01 00:00:00	2003-06-01 00:00:00
...	...	...	...	...

## 19. Last 7 Hired Employees

Write a SQL query to find **last 7 hired employees**. Select **their first, last name and their hire date**. Submit your query statements as **Prepare DB & run queries**.

### Example

first_name	last_name	hire_date
Rachel	Valdez	2005-07-01 00:00:00
Lynn	Tsoflias	2005-07-01 00:00:00
Syed	Abbas	2005-04-15 00:00:00
...	...	...



## 20. Increase Salaries

Write a SQL query to increase salaries of all employees that are in the **Engineering, Tool Design, Marketing** or **Information Services** department by **12%**. Then **select Salaries column** from the **Employees** table. Submit your query statements as **Prepare DB & run queries**.

### Example

Salary
12500.00
15120.00
48496.00
33376.00
...

## Part II – Queries for Geography Database

### 21. All Mountain Peaks

Display all **mountain peaks** in alphabetical order. Submit your query statements as **Prepare DB & run queries**.

### Example

peak_name
Aconcagua
Banski Suhodol
Batashki Snezhnik
...

### 22. Biggest Countries by Population

Find the **30 biggest countries** by **population** from **Europe**. Display the **country name** and **population**. Sort the results by **population (from biggest to smallest)**, then by **country alphabetically**. Submit your query statements as **Prepare DB & run queries**.

### Example

country_name	population
Russia	140702000
Germany	81802257
France	64768389
...	...

### 23. Countries and Currency (Euro / Not Euro)

Find all countries along with information about their *currency*. Display the **country name**, **country code** and information about its **currency**: either **"Euro"** or **"Not Euro"**. Sort the results by **country name alphabetically**. Submit your query statements as **Prepare DB & run queries**.

### Example

country_name	country_code	currency
Afghanistan	AF	Not Euro

Åland	AX	Euro
Albania	AL	Not Euro
...	...	...

## Part III – Queries for Diablo Database

### 24. All Diablo Characters

Display the **name** of all **characters** in **alphabetical order**. Submit your query statements as **Prepare DB & run queries**.

#### Example

name
Amazon
Assassin
Barbarian
...