

# Exercises: Basic CRUD

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

## 1. Examine the Databases

Download and get familiar with the **SoftUni**, **Diablo** and **Geography** database schemas and tables. You will use them in the current and following exercises to write queries.

## Part I – Queries for SoftUni Database

### 2. Find All Information About Departments

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

#### Example

DepartmentID	Name	ManagerID
1	Engineering	12
2	Tool Design	4
3	Sales	273
...	...	...

### 3. Find all Department Names

Write SQL query to find **all Department names**. Submit your query statements as Prepare DB & run queries.

#### Example

Name
Engineering
Tool Design
Sales
...

### 4. Find Salary of Each Employee

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

#### Example

FirstName	LastName	Salary
Guy	Gilbert	12500.00
Kevin	Brown	13500.00
Roberto	Tamburello	43300.00
...	...	...

## 5. Find Full Name of Each Employee

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

### Example

FirstName	MiddleName	LastName
Guy	R	Gilbert
Kevin	F	Brown
Roberto	NULL	Tamburello
...	...	...

## 6. 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
...

## 7. Find All Different Employee's Salaries

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

### Example

Salary
9000.00
9300.00
9500.00
...

## 8. Find all Information About Employees

Write a SQL query to find **all information** about the employees whose **job title** is "**Sales Representative**". 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	AddressID
275	Michael	Blythe	G	Sales	3	268	...	23100.00	60

				Representative					
276	Linda	Mitchell	C	Sales Representative	3	268	...	23100.00	170
277	Jillian	Carson	NULL	Sales Representative	3	268	...	23100.00	61
...	...	...	...	...	...	...	...	...	...

## 9. 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]**. Submit your query statements as Prepare DB & run queries.

### Example

FirstName	LastName	JobTitle
Rob	Walters	Senior Tool Designer
Thierry	D'Hers	Tool Designer
JoLynn	Dobney	Production Supervisor
...	...	...

## 10. 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

## 11. 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

FirstName	LastName
Ken	Sanchez
Svetlin	Nakov
...	...

## 12. 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

FirstName	LastName	Salary
Ken	Sanchez	125500.00
James	Hamilton	84100.00
...	...	...

## 13. 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

FirstName	LastName
Ken	Sanchez
James	Hamilton
...	...

## 14. 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

FirstName	LastName
Guy	Gilbert
Roberto	Tamburello
Rob	Walters

## 15. 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**

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	AddressID
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	3	109	...	72100.00	134

				of Sales					
...	...	...	...	...	...	...	...	...	...

## 16. Create View Employees with Salaries

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

### Example

FirstName	LastName	Salary
Guy	Gilbert	12500.00
Kevin	Brown	13500.00
...	...	...

## 17. Create View Employees with Job Titles

Write a SQL query to create view **V\_EmployeeNameJobTitle** 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
...	...

## 18. Distinct Job Titles

Write a SQL query to find **all distinct job titles**. Submit your query statements as Prepare DB & run queries.

### Example

JobTitle
Accountant
Accounts Manager
Accounts Payable Specialist
...

## 19. 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**. Submit your query statements as Prepare DB & run queries.

### Example

ID	Name	Description	StartDate	EndDate
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
...	...	...	...	...

## 20. 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

FirstName	LastName	HireDate
Rachel	Valdez	2005-07-01 00:00:00
Lynn	Tsoflias	2005-07-01 00:00:00
Syed	Abbas	2005-04-15 00:00:00
...	...	...

## 21. 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. After that exercise restore your database to revert those changes. 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

## 22. All Mountain Peaks

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

### Example

PeakName
Aconcagua
Banski Suhodol
Batashki Snezhnik
...

## 23. 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

CountryName	Population
Russia	140702000
Germany	81802257
France	64768389
...	...

## 24. \*Countries and Currency (Euro / Not Euro)

Find all countries along with information about their currency. Display the country code, country name 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.

\*Hint: Use **CASE ... WHEN**.

### Example

CountryName	CountryCode	Currency
Afghanistan	AF	Not Euro
Åland	AX	Euro
Albania	AL	Not Euro
...	...	...

## Part III – Queries for Diablo Database

## 25. All Diablo Characters

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

### Example

Name
Amazon
Assassin
Barbarian
...