Exercises: Basic CRUD

This document defines the **exercise assignments** for the

Problem 1.   Examine the Databases

Download and get familiar with the **softuni**, **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

Problem 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

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

Problem 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
…

Problem 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

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

Problem 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

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

Problem 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
…

Problem 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
…

Problem 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	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
…	…	…	…	…	…	…	…	…	…

Problem 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

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

Problem 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

Problem 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

first_name	last_name
Ken	Sanchez
Svetlin	Nakov
…	…

Problem 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

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

Problem 13. Find 5 Best Paid Employees.

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

Follow

Example

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

Problem 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

first_name	last_name
Guy	Gilbert
Roberto	Tamburello
Rob	Walters

Problem 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	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
…	…	…	…	…	…	…	…	…	…

Problem 16. 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
…	…	…

Problem 17. 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
…	…

Problem 18. Distinct Job Titles

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

Example

Job_title
Accountant
Accounts Manager
Accounts Payable Specialist
…

Problem 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	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
…	…	…	…	…

Problem 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

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
…	…	…

Problem 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

Problem 22. 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
…

Problem 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

country_name	population
Russia	140702000
Germany	81802257
France	64768389
…	…

Problem 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.

Example

country_name	country_code	currency

Afghanistan	AF	Not Euro
Åland	AX	Euro
Albania	AL	Not Euro
…	…	…

Part III – Queries for Diablo Database

Problem 25. All Diablo Characters

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

Example

name
Amazon
Assassin
Barbarian
…