1. What is SQL? What is DML? What is DDL? Recite the most important SQL commands.

- Structured Query Language

- DML is Data Manipulation Language and consists of the following commands:

SELECT, INSERT, UPDATE, and DELETE (also known as CRUD).

- DDL is Data Definition Language and consists of the following commands:

CREATE, DROP, ALTER, GRANT, REVOKE

It’s used mainly for administration.

2. What is Transact-SQL (T-SQL)?

T-SQL is an extension to the standard SQL language and it features support for writing business logic. You can write procedures, functions. It has exception, conditional statements and loops.

3. Start SQL Management Studio and connect to the database TelerikAcademy. Examine the major tables in the "TelerikAcademy" database.



4. Write a SQL query to find all information about all departments (use "TelerikAcademy" database).

USE TelerikAcademy

SELECT \* FROM Departments

5. Write a SQL query to find all department names.

USE TelerikAcademy

SELECT Name FROM Department

6. Write a SQL query to find the salary of each employee.

USE TelerikAcademy

SELECT FirstName + ' ' + LastName AS EmploeyeName, Salary FROM Employees

7. Write a SQL to find the full name of each employee.

USE TelerikAcademy

SELECT FirstName + ' ' + LastName AS EmploeyeFullName FROM Employees

8. Write a SQL query to find the email addresses of each employee (by his first and last name). Consider that the mail domain is telerik.com. Emails should look like “John.Doe@telerik.com". The produced column should be named "Full Email Addresses".

USE TelerikAcademy

SELECT FirstName + '.' + LastName + '@telerik.com' AS EmploeyeEmails FROM Employees

9. Write a SQL query to find all different employee salaries.

USE TelerikAcademy

SELECT DISTINCT Salary FROM Employees

10. Write a SQL query to find all information about the employees whose job title is “Sales Representative“.

USE TelerikAcademy

SELECT \* FROM Employees WHERE JobTitle = 'Sales Representative'

11. Write a SQL query to find the names of all employees whose first name starts with "SA".

USE TelerikAcademy

SELECT FirstName FROM Employees WHERE FirstName LIKE 'SA%'

12. Write a SQL query to find the names of all employees whose last name contains "ei".

USE TelerikAcademy

SELECT LastName FROM Employees WHERE LastName LIKE '%ei%'

13. Write a SQL query to find the salary of all employees whose salary is in the range [20000…30000].

USE TelerikAcademy

SELECT Salary FROM Employees WHERE Salary > 20000 AND Salary < 30000

14. Write a SQL query to find the names of all employees whose salary is 25000, 14000, 12500 or 23600.

USE TelerikAcademy

SELECT Salary FROM Employees

WHERE Salary = 25000 OR Salary = 14000 OR Salary = 12500 OR Salary = 23600

15. Write a SQL query to find all employees that do not have manager.

USE TelerikAcademy

SELECT \* FROM Employees WHERE ManagerID IS NULL

16. Write a SQL query to find all employees that have salary more than 50000. Order them in decreasing order by salary.

USE TelerikAcademy

SELECT \* FROM Employees WHERE Salary > 50000

ORDER BY Salary DESC

17. Write a SQL query to find the top 5 best paid employees.

USE TelerikAcademy

SELECT TOP 5 \* FROM Employees ORDER BY Salary DESC

18. Write a SQL query to find all employees along with their address. Use inner join with ON clause.

USE TelerikAcademy

SELECT e.EmployeeID, e.FirstName, e.LastName, a.AddressText

FROM Employees AS e JOIN Addresses AS a ON e.AddressID = a.AddressID

19. Write a SQL query to find all employees and their address. Use equijoins (conditions in the WHERE clause).

USE TelerikAcademy

SELECT e.EmployeeID, e.FirstName, e.LastName, a.AddressText

FROM Employees AS e, Addresses AS a

WHERE e.AddressID = a.AddressID

20. Write a SQL query to find all employees along with their manager.

USE TelerikAcademy

SELECT e.FirstName + ' ' + e.LastName AS Employee,

m.FirstName + ' ' + m.LastName AS Manager

FROM Employees e JOIN Employees m

ON e.ManagerID = m.EmployeeID

21. Write a SQL query to find all employees, along with their manager and their address. Join the 3 tables: Employees e, Employees m and Addresses a.

USE TelerikAcademy

SELECT e.FirstName + ' ' + e.LastName AS Employee,

a.AddressText AS EmployeeAddress,

m.FirstName + ' ' + m.LastName AS Manager

FROM Employees e

JOIN Employees m

ON e.ManagerID = m.EmployeeID

JOIN Addresses a

ON e.AddressID = a.AddressID

22. Write a SQL query to find all departments and all town names as a single list. Use UNION.

USE TelerikAcademy

SELECT Name AS TownsAndDepartments FROM Towns

UNION

SELECT Name FROM Departments

23. Write a SQL query to find all the employees and the manager for each of them along with the employees that do not have manager. Use right outer join. Rewrite the query to use left outer join.

USE TelerikAcademy

SELECT emp.LastName, emp.EmployeeID, manag.LastName, manag.EmployeeID, manag.ManagerID

FROM Employees emp

LEFT OUTER JOIN Employees manag

ON emp.ManagerID = manag.EmployeeID

USE TelerikAcademy

SELECT manag.LastName, manag.EmployeeID, manag.ManagerID, emp.LastName, emp.EmployeeID

FROM Employees manag

RIGHT OUTER JOIN Employees emp

ON manag.EmployeeID = emp.ManagerID

24. Write a SQL query to find the names of all employees from the departments "Sales" and "Finance" whose hire year is between 1995 and 2005.

USE TelerikAcademy

SELECT emp.LastName + ' ' + emp.LastName as Name, emp.EmployeeID, emp.HireDate, dept.Name

FROM Employees emp

JOIN Departments dept

ON emp.DepartmentID = dept.DepartmentID

WHERE (dept.Name LIKE 'Sales' OR dept.Name LIKE 'Finance') AND

(emp.HireDate >= '1995-01-01' AND emp.HireDate <= '2005-01-01')