# SQL Intro Homework

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

* SQL (Structured Query Language) is a special-purpose programming language designed for managing data held in a relational database management system (RDBMS).
* The Data Definition Language (DDL) manages table and index structure. The most basic items of DDL are the CREATE, ALTER, RENAME, DROP and TRUNCATE statements.
* The Data Manipulation Language (DML) is the subset of SQL used to add, update and delete data. The most basic items of DML are the INSERT, UPDATE, DELETE, MERGE.

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

* T-SQL (Transact SQL) is an extension to the standard SQL language. It Supports if statements, loops, exceptions and is used for writing stored procedures, functions, triggers, etc.

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

* Did that.

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

* SELECT \* FROM Departments

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

* SELECT Name FROM Departments

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

* SELECT FirstName + ' ' + MiddleName + ' ' + LastName AS [Employee Name], Salary

FROM Employees

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

* SELECT FirstName + ' ' + MiddleName + ' ' + LastName AS [Employee Name]

FROM Employees

1. 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".

* SELECT FirstName + '.' + LastName + '@telerik.com' AS [Full Email Addresses]

FROM Employees

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

* SELECT DISTINCT Salary

FROM Employees

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

* SELECT \* FROM Employees

WHERE JobTitle = 'Sales Representative'

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

* SELECT FirstName + ' ' + MiddleName + ' ' + LastName AS [Employee Name]

FROM Employees

WHERE FirstName LIKE 'SA%'

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

* SELECT FirstName + ' ' + MiddleName + ' ' + LastName AS [Employee Name]

FROM Employees

WHERE LastName LIKE '%ei%'

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

* SELECT Salary

FROM Employees

WHERE Salary BETWEEN 20000 AND 30000

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

* SELECT FirstName + ' ' + MiddleName + ' ' + LastName AS [Employee Name]

FROM Employees

WHERE Salary IN (25000, 14000, 12500, 23600)

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

* SELECT \*

FROM Employees

WHERE ManagerID IS NULL

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

* SELECT \*

FROM Employees

WHERE Salary > 50000

ORDER By Salary DESC

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

* SELECT TOP 5 \*

FROM Employees

WHERE Salary > 50000

ORDER By Salary DESC

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

* SELECT e.LastName, a.AddressText

FROM Employees e INNER JOIN Addresses a

ON e.AddressID = a.AddressID

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

* SELECT e.LastName, a.AddressText

FROM Employees e, Addresses a

WHERE e.AddressID = a.AddressID

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

* SELECT e.LastName [Employee Last Name], m.LastName [Manager Last Name]

FROM Employees e INNER JOIN Employees m

ON e.ManagerID = m.EmployeeID

1. 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.

* SELECT e.LastName [Employee Last Name], m.LastName [Manager Last Name], a.AddressText

FROM Employees e

INNER JOIN Employees m

ON e.ManagerID = m.EmployeeID

INNER JOIN Addresses a

ON e.AddressID = a.AddressID

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

* SELECT Name

FROM Departments

UNION

SELECT Name

FROM Towns

1. 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.

* SELECT e.LastName [Employee Last Name], m.LastName [Manager Last Name]

FROM Employees m

RIGHT OUTER JOIN Employees e

ON e.ManagerID = m.EmployeeID

* SELECT e.LastName [Employee Last Name], m.LastName [Manager Last Name]

FROM Employees e

LEFT OUTER JOIN Employees m

ON e.ManagerID = m.EmployeeID

1. 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.

* SELECT e.FirstName + ' ' + e.LastName AS [Employee Name], e.HireDate, d.Name As [Department Name]

FROM Employees e

INNER JOIN Departments d

ON e.DepartmentID = d.DepartmentID

WHERE (d.Name = 'Sales' OR d.Name = 'Finance' AND e.HireDate BETWEEN '1/1/1995' AND '1/1/2006')