Homework 3

Course: Database Theory

Topic: Requests SELECT, INSERT, UPDATE, DELETE

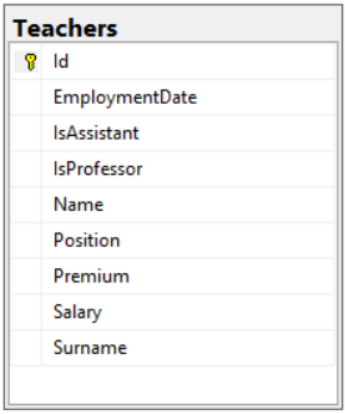
Queries

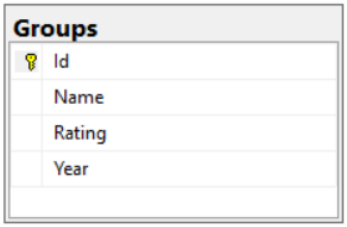
1. Print departments table but arrange its fields in the reverse order.
2. Print group names and their ratings using “Group Name” and “Group Rating”, respectively, as names of the fields.
3. Print for the teachers their surname, percentage of wage rate to premium ratio and percentage of wage rate to the salary ratio (the amount of wage rate and premium).
4. Print the faculty table as a single field in the following format: "The dean of faculty [faculty] is [dean]".
5. Identify names of the teachers who are professors and whose wage rate exceeds 1050.
6. Print names of the departments whose funding is less than 11,000 or more than 25,000.
7. Print names of faculties other than Computer Science.
8. Print names and positions of teachers who are not professors.
9. Print surnames, positions, wage rates, and premia of assistants whose premium is in the range from 160 to 550.
10. Print surnames and wage rates of assistants.
11. Print surnames and positions of the teachers who were hired before 01.01.2000.
12. Print names of the departments in alphabetical order up to the Software Development Department. The output field should be named "Name of Department".
13. Print names of the assistants whose salary (amount of wage rate and premium) is not more than 1200.

14. Print names of groups of the 5th year whose rating is in the range from 2 to 4.

15. Print names of assistants whose wage rate is less than 550 or premium is less than 200.

Database Diagram





We added a script to this task to create a database structure for the current topic. We strongly recommend yout to create the database yourself, without this script. But if you have an extreme need, you can use it.

The SQL file with the database is attached to this PDF file. To access the material, open it in Adobe Acrobat Reader.

Homework 3

Description

The *Academy* database contains information on the Academy's staff and inner workings.

Teachers, who lecture at the Academy, are presented in the *Teachers* table, which contains basic information, such as: name, surname, salary, and employment date.

Also, the database contains information about groups stored in the *Groups* table. Data on faculties and departments are provided in the tables *Faculties* and *Departments*, respectively.

Tables

Below is the detailed description of the structure of each table.

1. Departments

- **Identifier (Id). Unique identifier of the department.**
  - Data type is int.
  - Auto increment.
  - Cannot contain null values.
  - Primary key.
- **Financing. Financing fund of the department.**
  - Data type is money.
  - Cannot contain null values.
  - Cannot be less than 0.
  - Default value is 0.
- **Name. Department name.**
  - Data type is nvarchar(100).
  - Cannot contain null values.

- Cannot be empty.
- Must be unique.

2. **Faculties**

- **Identifier (Id). Unique identifier of the faculty.**
  - Data type is int.
  - Auto increment.
  - Cannot contain null values.
  - Primary key.
- **Dean. Dean of the Faculty.**
  - The data type is nvarchar(max).
  - Cannot contain null values.
  - Cannot be empty.
- **Name. Faculty name.**
  - Data type is nvarchar(100).
  - Cannot contain null values.
  - Cannot be empty.
  - Must be unique.

3. **Groups**

- **Identifier (Id). Unique identifier of the group.**
  - Data type is int.
  - Auto increment.
  - Cannot contain null values.
  - Primary key.
- **Name. Group name.**
  - Data type is nvarchar(10).

- Cannot contain null values.
- Cannot be empty.
- Must be unique.

- **Rating. Group rating.**
  - Data type is int.
  - Cannot contain null values.
  - Must be in the range from 0 to 5.
- **Year. Year in which the group studies.**
  - Data type is int.
  - Cannot contain null values.
  - Should be in the range from 1 to 5.

4. Teachers

- **Identifier (Id). Unique identifier of the teacher.**
  - Data type is int.
  - Auto increment.
  - Cannot contain null values.
  - Primary key.
- **Employment Date (EmploymentDate). Date of teacher's employment.**
  - Data type is date.
  - Cannot contain null values.
  - Cannot be less than 01.01.1990.
- **Assistant (IsAssistant). Specifies whether teacher is an assistant.**
  - Data type is bit.
  - Cannot contain null values.
  - Default value is 0.

- **Professor (IsProfessor). Specifies whether the teacher is a professor.**
  - Data type is bit.
  - Cannot contain null values.
  - Default value is 0.
- **Name. Teacher's Name**
  - Data type is nvarchar(max).
  - Cannot contain null values.
  - Cannot be empty.
- **Position. Teacher's position.**
  - Data type is nvarchar(max).
  - Cannot contain null values.
  - Cannot be empty.
- **Premium. Teacher's premium.**
  - Data type is money.
  - Cannot contain null values.
  - Cannot be less than 0.
  - Default value is 0.
- **Wage rate (Salary). The teacher's wage rate.**
  - Data type is money.
  - Cannot contain null values.
  - Cannot be less than or equal to 0.
- **Surname. Teacher's surname.**
  - Data type is nvarchar(max).
  - Cannot contain null values.
  - Cannot be empty.