NEW ECONOMIC SCHOOL
Master of Science in Finance & Master of Arts in Finance
Master of Science in Energy Economics & Master of Arts in Energy Economics

STRUCTURED QUERY LANGUAGE

2018/19, module 3

Zagir Gatin
zagirgatin.nes@gmail.com

Course description

The course goals are to:

- give overview on modern database technologies;
- give basic theory in database modelling and SQL;
- provide practical skills about single table queries and the basic syntax of the SQL as well as database design with multiple tables, foreign keys, and the JOIN operation
- obtain practical experience in modelling different industries and working with data using SQL

Course requirements, grading, and attendance policies

The course grade is based on homework assignments (50%), personal test (exam) (30%) and group mini project (exam) (20%). Active class participation may contribute to the grade when it is on the margin (note that quality rather than quantity of your interventions will count).

The typical student will use a laptop running MacOS or WindowsOS.

Prerequisites: No prior experience required, basic computer skills only.

Course contents

Class 1: introduction, database design

- Goals of the course
- Overview of data technologies and problems that are solved by using them
- RDBMS
- SQL vs NoSQL
- Database design
    - Database Normalization (normal forms)

Class 2: select operator

- Data types
- Basic functions
- “Select” structure
    - Basic queries
    - Case when queries
    - Group by and sort queries
- NULL values
- Views

Class 3: using subqueries and joining tables

- Subqueries
- Joining tables/queries

- Union of tables/queries

Class 4: more complex problems:

- Test
- Analytical functions
- Modifying data (insert, update, delete, merge)
- Typical SQL problems

Class 5: optimization, recommendations for writing SQL queries

- Basics of RDBMS architecture (Oracle)
- Indexes
- Partitioning
- Query plan
- Database statistics
- Hints

Class 6: advanced section

- Truncate vs Delete
- Privileges and Grants
- Functions, Procedures and Packages
- Triggers
- Option

Class 7: combining all the skills in a group project

Course materials

All materials will be provided during lectures and will be available on my.nes.ru

Academic integrity policy

Cheating, plagiarism, and any other violations of academic ethics at NES are not tolerated.