

Introduction to Database Systems

Hands-on SQL lab

Today: Hands-on SQL

- Using SQL developer
- Connecting to the database
- Running a selection query
- Running a join query
- Inserting data
- Deleting data

SQL Developer

- Java client for the Oracle RDBMS
- Available at
<http://diaswww.epfl.ch/courses/db2019>
- Create a new connection with parameters:
 - **username:** C##DB2019
 - **password:** intro
 - **hostname:** cs322-db.epfl.ch
 - **port:** 1521
 - **SID:** ORCLCDB
 - **Make sure you are connected to the EPFL network, or that you are using a VPN!**



The Toy University DB

The university database has the following schema:

- Student(snum: **integer**, sname: **string**, major: **string**, year: **string**, age: **integer**)
- Class(cname: **string**, meets_at: **time**, room: **string**, fid: **integer**)
- Enrolled(snum: **integer**, cname: **string**)
- Faculty(fid: **integer**, fname: **string**, deptid: **integer**)

The Toy University DB

Example Instances

STUDENT

<u>SNUM</u>	SNAME	MAJOR	YEAR	AGE
1476	Felipa Castromil	CHE	FR	21
1597	Bree Maksutov	ME	FR	23

FACULTY

<u>FID</u>	FNAME	DEPTID
1087	Alica Caminho	2
1015	Aleksandrov Nemeth	0

CLASS

<u>CNAME</u>	MEETS_AT	ROOM	FID
Organic Chemistry	01.02.19 12:00:00	R302	1087
Database Systems	01.02.19 13:00:00	R202	1015

ENROLLED

<u>SNUM</u>	CNAME
1476	Organic Chemistry
1597	Strength of materials and solid mechanics

The Toy University DB

Information about Categorical Attributes:

- Major can be one of:
 - Computer Science (CS), Electrical Engineering (EE), Chemical Engineering (CHE), Physics (PHY), Mathematics (MA), Mechanical Engineering (ME), Civil Engineering (CE)
- Year can be one of:
 - Freshmen (FR), Sophomore (SO), Junior (JR), Senior (SR)
- Deptid can be one of:
 - 0:CS, 1:EE, 2:CHE, 3:PHY, 4:MA, 5:ME, 6:CE
- List of Rooms are:
 - 101 – 103, 201 – 203, 301 – 303, 401 – 403(with a prefix R)

The Toy University DB

- Deptid=0: Data mining, Database systems, Operating systems, Machine learning, Natural language processing, Programming languages.
- Deptid=1: Power engineering, Control engineering, Electronic engineering, Microelectronics, Signal processing, Telecommunications engineering, Instrumentation engineering.
- Deptid=2: Inorganic chemistry, Organic chemistry, Physical chemistry, Biochemistry, Medicinal chemistry, computational chemistry
- Deptid=3: Classical mechanics, Thermodynamics and statistical mechanics, Electromagnetism and electronics, Relativity, Quantum mechanics, Condensed matter physics

The Toy University DB

- Deptid=4: Precalculus, Finite mathematics, Number theory, Differential and integral calculus, Integration and infinite series, Linear algebra
- Deptid=5: Basic physical sciences, Statics and dynamics, Strength of materials and solid mechanics, Materials engineering, Composites, Fluid mechanics, Manufacturing engineering.
- Deptid=6: Introduction to solid mechanics, Mechanics of structures, Engineering data analysis, Engineering science and sustainability, Engineering drawing, Engineering Mechanics

Tasks

- List all students
- List all courses
- List all courses in which some of the students were below 18 years of age
- Insert your info into the Students table, use your sciper as SNUM
- Insert yourself into Enrolled table for any class
- Delete your entry from the Enrolled table