

## 1. Queries to the university database

Formulate the following queries for the well-known database schema of the university and test your solutions in the HyPer Web Interface <http://hyper-db.de/interface.html> .

- Give a sorted list in descending order of all lectures and the number of tests per lecture:

LectureNr	Quantity
4630	2
5001	1
5041	1
5022	0
5043	0
...	...

- Students, who know Sokrates from lecture(s)
- Students who attend lectures which also Fichte attends
- Assistants of professors who taught Fichte – e.g. as potential advisors of a thesis
- Names of professors who Xenokrates knows from lectures
- Titles of lectures which are attended by students from the first 4 semesters
- Average number of weekly hours of the lectures of Sokrates
- All students with their names and number of lectures they attend
- Average semester of all students
- Average semester of the students who attend at least one lecture of Sokrates
- Average number of lectures per student

## 2. Queries to a relation Employees

Given a relation *Employees* (ENr, Name, DeptNr, Salary)

- a. Names of all employees with a salary higher than the average salary of their department
- b. Number of employees, average salary, highest and lowest salary of each department

## 3. Queries to the trading schema (TPC-H)

Formulate the following queries for the TPC-H schema (see following page) and test your solutions in the HyPer Web Interface <http://hyper-db.de/interface.html> .

- Countries with no orders yet
- Customers with no orders yet
- Parts (name, size) which were ordered within an order with a total order volume of more than 100,000
- Suppliers who are also customers – assume that phone numbers are unique
- Top-6 countries with the most customers
- All parts (partkey, name) with their average selling prize
- Customer(s) with the most number of orders

### University schema

Professors				Students			Lectures			
PersNr	Name	Level	Room	StudNr	Name	Semester	Lecture Nr	Title	Weekly Hours	Given_by
2125	Sokrates	C4	226	24002	Xenokrates	18	5001	Grundzüge	4	2137
2126	Russel	C4	232	25403	Jonas	12	5041	Ethik	4	2125
2127	Kopernikus	C3	310	26120	Fichte	10	5043	Erkenntnistheorie	3	2126
2133	Popper	C3	52	26830	Aristoxenos	8	5049	Mäeutik	2	2125
2134	Augustinus	C3	309	27550	Schopenhauer	6	4052	Logik	4	2125
2136	Curie	C4	36	28106	Carnap	3	5052	Wissenschaftstheorie	3	2126
2137	Kant	C4	7	29120	Theophrastos	2	5216	Bioethik	2	2126
				29555	Feuerbach	2	5259	Der Wiener Kreis	2	2133
							5022	Glaube und Wissen	2	2134
							4630	Die 3 Kritiken	4	2137

  

attend		require	
StudNr	LectureNr	Predecessor	Successor
26120	5001	5001	5041
27550	5001	5001	5043
27550	4052	5001	5049
28106	5041	5041	5216
28106	5052	5043	5052
28106	5216	5041	5052
28106	5259	5052	5259
29120	5001		
29120	5041		
29120	5049		

  

test			
StudNr	LectureNr	PersNr	Grade
28106	5001	2126	1
25403	5022	2125	2
29555	5022	2125	2
29555	5001	2137	2

  

Assistants			
PersNr	Name	Area	Boss
3002	Platon	Ideenlehre	2125
3003	Aristoteles	Syllogistik	2125
3004	Wittgenstein	Sprachtheorie	2126
3005	Rhetikus	Planetenbewegung	2127
3006	Newton	Keplersche Gesetze	2127
3007	Spinoza	Gott und Natur	2126

# TPC-H Schema

