

# Übung Informationssysteme 1 2018w SQL Part 1



Lecturer: Lisa Ehrlinger, Josef Küng, Wolfram Wöß

**Submission 15.11.2018, 13:00**

## Technical Guidelines

The course information system is implemented in an Oracle database. You can use two alternative connection types.

### 1) Oracle SQL Developer

The client software "Oracle SQL Developer" is currently available for Windows, macOS and Linux. The "Oracle SQL Developer" (e.g., Windows 64-bit with JDK 8 included) has to be downloaded from the Oracle website (<https://www.oracle.com/technetwork/developer-tools/sql-developer/downloads/index.html>) and installed on your PC. In Windows, after unzipping the downloaded file, you can immediately start "sqldeveloper.exe" without any further installation procedure.

Create a new database connection (green +-Symbol at the upper left side of the window) and connect to the database:

Verbindungsname (connection): choose a name for the connection by your own  
 Benutzername (user): infosys  
 Kennwort (password): infosys  
 Hostname (host): infosys.faw.jku.at  
 Port: 1521  
 SID: infosys

After you are successfully connected to the database, you can create and execute SQL statements in the "Query Builder" frame.

### 2) Oracle iSQLPlus

iSQLPlus allows to connect to the database by using a web browser. Unfortunately, the iSQLPlus service is not very stable when too many users are connected simultaneously. Thus, the iSQLPlus service is automatically restarted every hour. Normally, when the iSQLPlus service is down, you can still connect to the database using Oracle SQL Developer. If iSQLPlus is not available for a longer time, please contact Prof. Wolfram Wöß ([wolfram.woess@jku.at](mailto:wolfram.woess@jku.at)).

Connection:  
<http://infosys.faw.jku.at/isqlplus/>  
 Benutzername (user): infosys  
 Kennwort (password): infosys  
 Connect-Bezeichner: infosys

## Course Information System

The JKU stores data about courses of the SS 2030 in an information system with the following four relations: LVA (course), Person (lecturer), Abhaltung (appointment), and Raum (room).

LVANr is structured as follows: the first 3 digits correspond to the institute number and the first 4 digits correspond to the department number. The institutes with the number 311, 312, and 321 comprise the entire area of "Computer Science". Course types are VO (Vorlesung / lecture), UE (Übung / exercise), SE (Seminar / seminar), PR (Praktikum / practical course).

The table "Abhaltung" (appointment) is based on the calendar day. Thus, for each appointment a course takes place, there is one entry in the table.

Relation name	Attribute	Type	Remarks	English
LVA (course)	LVANr	vchar2(6)	312704	course number
	Name	vchar2(50)		course title
	Std	number(2)		weekly hours
	Typ	char(2)	VO, UE, SE, ...	type (lecture, ...)
Person (lecturer)	PersNr	vchar2(4)	Personal-Nummer	person id
	Name	vchar2(50)	Name	name
Abhaltung (appointment)	LVANr	vchar2(6)		course number
	PersNr	vchar2(4)		person id
	Tag	date	Kalender-Tag	date (calendar day)
	Von Stunde	number(2)		start hour
	Von Minute	number(2)		start minute
	Bis Stunde	number(2)		end hour
	Bis Minute	number(2)		end minute
Raum Id	vchar2(8)		room id	
Raum (room)	Raum Id	vchar2(8)	Raum-Nummer	room id
	Name	vchar2(30)	Raumbezeichnung	room name
	AnzPers	number(4)		number of persons
	Gebaude	vchar2(20)		name of building

## Exercises

Create and execute the following SQL statements. You have to submit the SQL statement as well as the result set (output) including the number of rows in the result set. Please consider that the layout of the output should be easy to read (one line for one row).

- 4.1. Select course title and course number of all seminars with 6 weekly hours. (3 points)
- 4.2. Create a list of all lecturers with first name "Heinz", ordered alphabetically by surname. (4 points)
- 4.3. Create a list of all rooms (room name and number of persons) in the "TNF-Turm" building, which have a capacity between 35 and 40 persons. (4 points)
- 4.4. Create a list of all courses (course number and title) that are held by Küng Josef in alphabetical order and without duplicates. (5 points)
- 4.5. Create a timetable for all appointments of the course "Informationssysteme 1" consisting of course title, room name, date, start time (hour and minute) and end time (hour and minute). The output format for time should be hh:mm (e.g., "9:15", "10:0"). The concatenation operator || allows to concatenate strings, e.g. 'Name is ' || last\_name. (5 points)
- 4.6. Select all not reserved rooms (i.e., where no courses are held) that have a capacity for more than 100 persons, ordered by the number of persons in descending order. (5 points)
- 4.7. Create a list of all course appointments (course number, course title, date, start time, end time, course type, lecturer), which are held on April 16<sup>th</sup> or 17<sup>th</sup>, 2030 in the morning (08:30 - 12:00) in room "HS 17". The list should be ordered by date and start time ascending. (7 points)
- 4.8. Select all courses (course name, duration) with appointments that last less than 30 minutes. The output of the appointment duration should be provided in minutes. (5 points)