	What to deliver (to be filled out before evaluation starts)	**Needs to be done**
Documentation		
Team, Roles, Responsibilities	Project Leader and Quality Manager: Felix Hoffmann Design Manager: Pablo Rodriguez Test Manager: Pablo Rodriguez Development Manager: Tim Jauch	Test Manager: Together
Timeline	• M1: Kick off • M2: System Analysis • M3: System design • M4: Testing • M5: System acceptance	
Mission Statement	Old: "Development of a database-driven workload planning system for universities to improve the management of lecture schedules and workload distribution." New: "The purpose of **PlanningToolDB** database system is to maintain the data that is used and generated to support the planning for the faculty office."	Remove the schedule!!! Only a list, nothing is missing. Calculating the workload of a professor. Maximum and minimum of work and transfer to the next semester
Mission Objectives	Old: Specific goals: "Create a functional data model that correctly calculates workload capacities, generates reports, and prevents inconsistent data." • Create Entity-Relationship Model • Import Data into Database • Create view for application New: New Mission Objectives • To maintain data on staff • To perform searches on staff • Course filtering • Study program • To track the workload of staff • Course offerings for the upcoming semester • Workload of teaching personal • Service	Not an objective. E-book page: 392

Project Diary

Elect group members to their roll:

- Project Leader: Felix Hoffmann
  - Organization and management of the project
  - Makes sure deadlines are met
  - Communicates with professor
- Quality Manager: Felix Hoffmann
  - Makes sure all documents, code and processes meet the quality standards
  - Controls actual state with target state
  - Code reviews and quality checks
- Design Manager: Pablo Rodriguez
  - Creates and manages data models
  - Strong communication between development manager to make sure the reality reflects the models
  - Defines logic of the database
- Test Manager: All
  -
- Development Manager: Tim Jauch
  - Technical implementation
  - Creates and optimizes SQL-Scripts for database creation
  - Develops functions for the system
  - Strong communication between development manager to make sure the reality reflects the models
  - Makes sure system works efficiently

Project questions:

- Which technologies to use? When do we get access?
  - VM, ready to use, IBM installed, Case Tool installed, DB2 Database
- How should we view the document “PlanningTool-EN”/”Project for lecture Database”? Is it just a “here is an example”?
  - Milestone numbering is outdated (Now the first 3 Milestones are Milestone number 3), No graphical userface, no diary for each member (one for the group)
- Are the project diaries and MS-Forms the only things to hand in Moodle Milestones? Where do we hand in the project diaries?
  - Diary not needed to be handed in
- How and when will we transfer the data in the database? (from where too?)
  - Next week will be the beginning. Data will be given later
- Is a frontend application wanted?
  - No
- Can we have a bundled project diary where each member defines their doing?
  - Yes
- Which are the mandatory features that the database needs?
  - View Screenshots
- Is the basic task to fill the tables inside the database in the VM with the given data and create relationships so certain features can be performed?
  - Yes

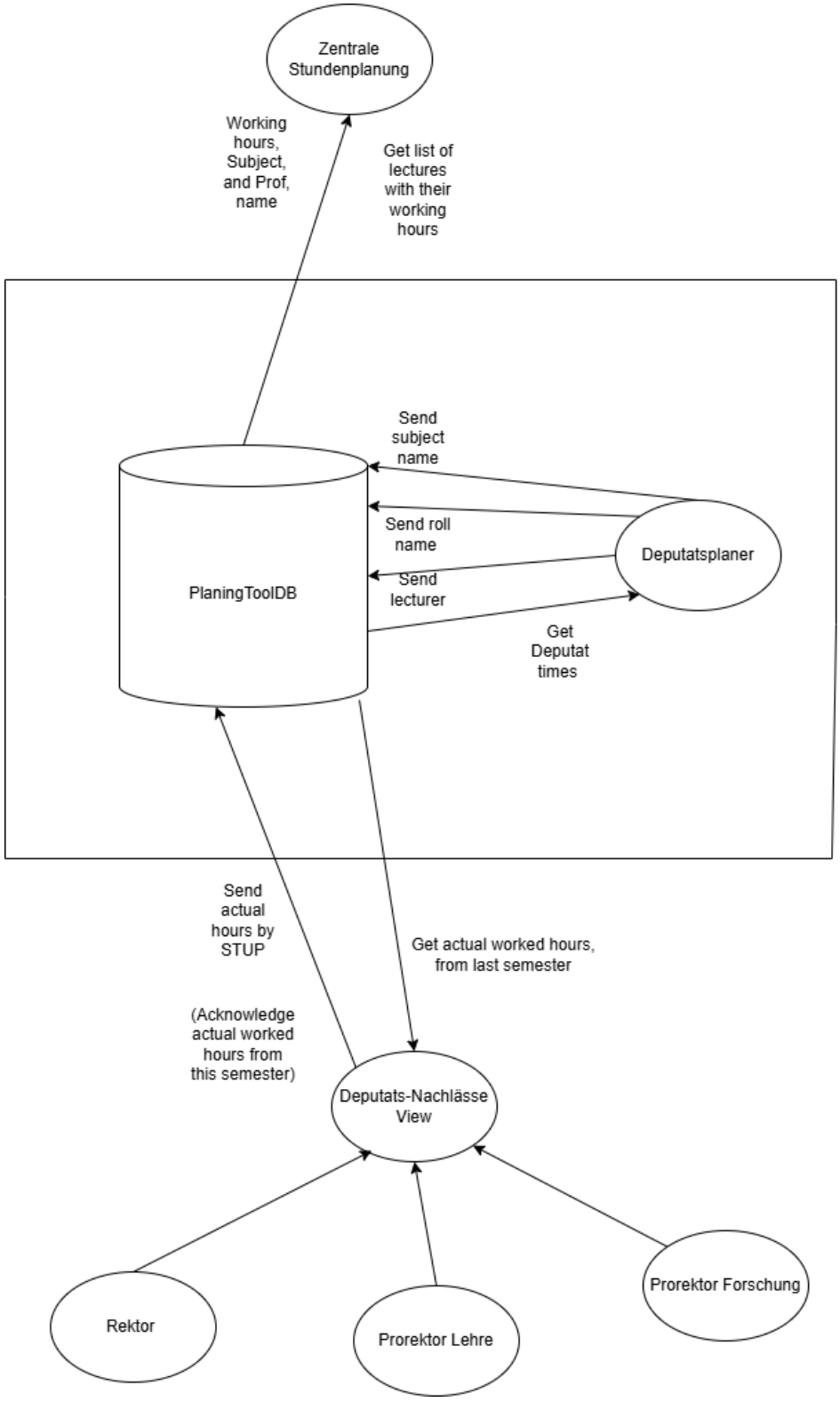
General Answers

- Screenshots: Data we need to provide. Provide a system which can hold this information of the screenshots. Copying this system, replacing the tool in the screenshots. Main purpose: Tool for who will teach what in the next semester. (Not a system for scheduling)
- A list of courses to be offered
- Data: We will get later
- We will be making the Timetables (Stundenplan planen)

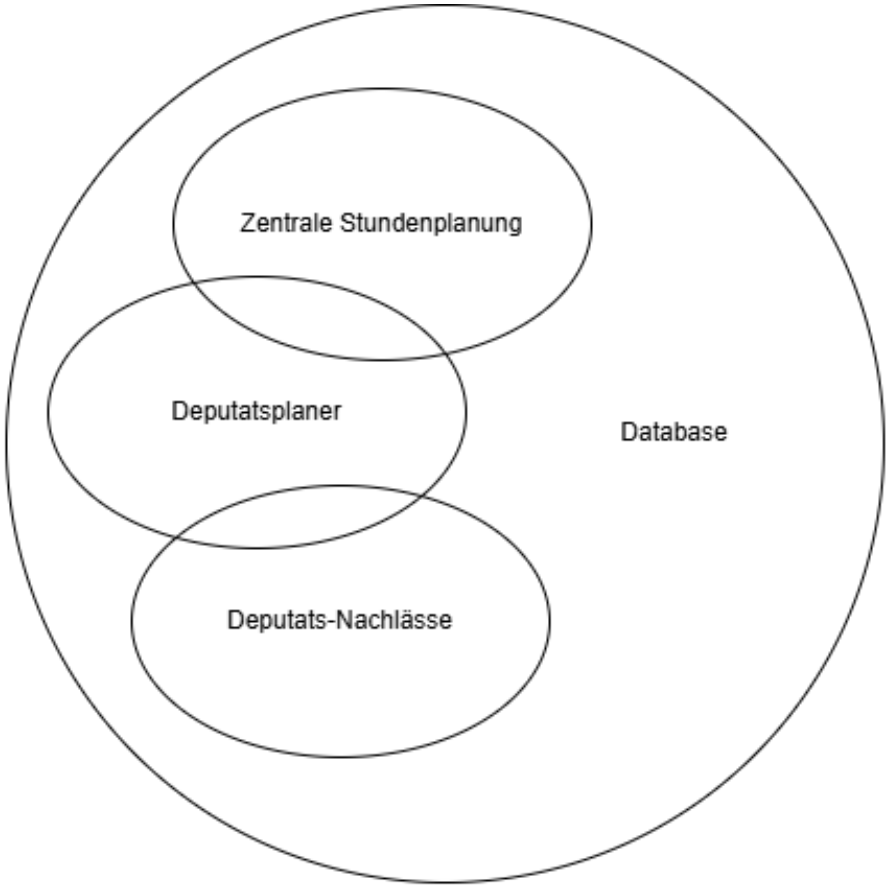
	What to deliver (to be filled out before evaluation starts)	**Needs to be done**
Documentation		
System Boundary	e.g. context diagram: - Shows system and interactions with external users (Planner, Admin)	
User Views	Fully specified, based on user rolls: The system is designed for 2 user roles, the workload planner and the Database Admin. Deputatsnachlass: - Provides the information system with working hours of the past semester Deputatsplaner: - Assigns professors to lectures, tutorials and labs - Manages teaching load reductions - Generates reports for the rectorate - Maintains time account balances of professors - Semester- and degree-specific lecture lists Zentrale Studenplanung: - Receives the course offerings from the information system	

Requirements	System Requirements for **PlanningToolDB** Database System: (1) There are approximately 50 members of staff working for over 75 modules. (2) There are approximately 4 study programs available. (3) There are approximately 7 semesters with an average of 5 modules and a maximum of 7 modules per semester. (4) Having a complete data set for at least three consecutive terms. (5) Differentiate between professors and adjunct professors. (6) Having couplings of two lectures and of three lectures. (7) Having labs with a workload greater than lecture hours from curriculum. (8) Having professors with teaching workload only and professors with additional workload. (9) Having for each professor its workload per term. (10) Having for each professor its total workload balance. (11) Having all imported service for a given department. (12) Having all exported service for a given department.	

Context diagram



User view diagram



Legend:
Deputats-Nachlässe: Hours that have been worked on top of the max. weekly working hours
Max. weekly working hours: 20h
Deputuatsplaner: Adds Professors to their subject and weekly working hours, also assignes them roles.
Zentrale Sundenplanung: Gets List with Professors and their workinghours.

Questions:

- Is the base data for modeling the ERM? -> Just Information, how it looks like (Data will be given in a different way
- Are the user views enough? -> NO
- What are attribute domains? -> Possible values of the columns (Like enumerations)

Answers:

- No view needed for the Database Admin (Data is already there)
- Planer has 2 roles:
- The list will be given to the Zentrale Stundenplanung who then makes the schedule
- From System dataflow to the Zentrale Stundenplanung
- Planer is inside the tool and the other users are outside of the tool (Planer is part of the system)
- Another user view tracks weekly hours (Should/Is) so the knowledge can be applied to the planning of the next semester
- More requirements in to be checked in the next milestones
- Figure 10.11 Major user views for the DreamHome database system. Do exactly this table
- User view: Which data needs a certain user to see/access/update?

	What to deliver (to be filled out before evaluation starts)	**Needs to be done**
Documentation		
Model documentation from Tool	Specification of all diagrams, information objects, attributes, relationships	
System Design		
Local data model for each user view	In the planning tool	
Global Data model	In the planning tool	
Attribute domains	Possible values – in the planning tool	
Key Attributes	(Maybe) in the planning tool Course: -fnr Lecturer: -ppruefer Subject: -pnr -group -ppruefer -fnr -semesterId Semeter: -uId	
Enhanced Modeling Concepts	What enhanced modeling concepts do we have -ER Model ffrom MIlestone 2 -Key's and Relationships in and inbetween tables -Normalized tables to 3rd	

Normalization	At least 3rd NF	

User Transactions	Functionality of the database: e.g. - Workload **<u>Transaction 1: Assign professor to a course</u>** **Action**: The planner assigns a professor to a specific course for a given semester **Entities involved**: Professor, Course, Semester, Assignment **Database operation**: INSERT INTO Assignment (professor_id, course_id, semester_id, hours_per_week) **Purpose**: Tracks who teaches which course and how much teaching load they receive **<u>Transaction 2: Register Deputatsnachlässe</u>** **Action**: The planner registers Deputatsnachlässe for a professor due to extra responsibilities. **Entities involved**: Professor, Deputatsnachlässe **Database operation**: INSERT INTO Deputatsnachlässe (professor_id, semester_id, reason, hours) **Purpose**: Ensures correct teaching obligation is calculated after applying Deputatsnachlässe (workload reduction), due to other responsibilities. **<u>Transaction 3: Generate Workload Report</u>** **Action**: The planner generates a report listing all lectures, hours and total workload for a professor. **Entities involved**: Professor, Assignment, Deputatsnachlässe **Database operation**: SELECT … FROM Assignments JOIN Deputatsnachlässe WHERE professor_id = ? **Purpose**: Reporting to rectorate or for planning the next semester. **<u>Transaction 4: View semester lecture plan</u>** **Action**: The planner views a list of all courses offered in a specific semester, per study program. **Entities involved**: Course, Program, Assigment **Database operation**: SELECT * FROM	

	Course JOIN Program WHERE semester_id = ? **Purpose**: Verify that enough lectures are planned for each semester. **Transaction 5: Update Teaching Hours** **Action**: The planner updates a professor's teaching hours because of a course split. **Entities involved**: Assignment **Database operation**: UPDATE Assignments SET hours_per_week = 4 WHERE assignment_id = 1001 **Purpose**: Ensure accurate calculation of actual workload.	
Integrity Constraints	1. Value can not be NULL: sbjNo, sbjLevel, studyPrg, sbjName, elective, numCurr, numSchd, srvProvider, srvClient lecNo, lecName, isProf, lecDept offeringId, sbjNo, lecNo, term, cntLec, cntCurr, cntSchd term reductionId, term, lecNo, jobTitle, reduction 2. Value must be INTEGER: sbjLevel, numCurr, numSchd lecNo offeringId, lecNo, cntCurr, cntSchd reductionId, lecNo, reduction Business rules (NULL values...)	

Questions:

- Calculating hours? If it's possible to use the hours of the course from STUPO to calculate the workload for a professor or if those working hours must be written by the Planer when he/she assigns the course to the teaching personal?

Notes:

- In total you need 18 hours
- Deputatsnachlässe has nothing to do with the course (has nothing to do with previous semesters). It is manually inserted. Being head of a lab or similar will gain him a reduction (DN)

Needs to be done:

- Description of the user views
- Need functions in a table (Deputatsnachlässe)
- A function is a head of a Lab (for example Dean (Dekan))
- No separation of the Groups (Like Group A and B)
- Create a workload account (Can be done in SQL. Calculated by a view)

	What to deliver (to be filled out before evaluation starts)	**Needs to be done**
Documentation		
Batch file to set up database	Logical model, Physical model, create Database schema and staging table, SQL inserts => fully populated tables	
List of all Business Rules	- All Attributes are not nullable (except sbjNotes, lec1stn, lecRoom, lecNotes, supervisor, assNotes) - Term in workLoadReduction and courseOffering, has to be a valid one - A course can only be offered with a valid lecturer - A lecturer can only teach an existing subject - Only an existing lecturer can have a reduction (workLoadReduction) - Uniqueness of sbjNo, lecNo, offeringId, reductionId	
How to ensure Business Rules (Point out how your model ensure each business rule)	- Make the attributes NOT NULL - Term has to be in the term attribute of semester, else it is not a valid term in courseOffering and workLoadReduction - Foreign key of lecNo in courseOffering - Foreign key of sbjNo and lecNo in lecturer - Foreign key of lecNo in workLoadReduction - Enforced through primary keys	
To be checked		
Having a complete data set for at least three consecutive terms.		
Differentiate between professors and adjunct professors.		
Having couplings of two lectures and of three lectures.		
Having labs with a workload greater than lecture hours from curriculum.		
Having professors with teaching workload only and professors with additional workload.		
Having for each professor its workload per term.		
Having for each professor its total workload balance.		
Having all imported service for a given department.		
Having all exported service for a given department.		

Create your model inside the database and load the data into the database

Then it comes to the views (for workload table)

	What to deliver (to be filled out before evaluation starts)	**Needs to be done**
Documentation		
System Documentation coming from SE-Tool	PTDB DBSchema Documentation.pdf	
Installation Manual	https://github.com/Skalt47/InfosysLab README.md	
Test manual and test report		
Installation Files (Logical Model, Physical Model, Database, Test Routines)	Can also be found at: https://github.com/Skalt47/InfosysLab all packed in one single zip-file named Team<nn>{ss|ws}<yy>.zip	
Base data		
Add another elective		
Hire another adjunct lecturer		
An adjunct is no longer available.		
A professor retires		
A new professor is hired		

	What to deliver (to be filled out before evaluation starts)	**Needs to be done**
Planning Offered Courses		
Start a planning session for the upcoming term		
Planning of a dedicated semester, e.g. SWB6		
Alert for missing courses	OUTER JOIN	
Show workload of a professor		
Check linked courses for not adding twice its workload		
Reporting		
Create a report of all offered courses		
Budgeting		
Update offered courses at the end of a term		
Show the overall workload balance of a professor		

Notes of Milestone 5 Meeting:

To do	Status
Get rid of offeringid (Use composite key instead for courseoffering)	Done
Credited hours=cntlec (Currently Datatype error, In created.sh cntlec had the datatype integer, now is decimal)	Done
Workloadbalance lecno=16, term=SS15 teaching hours: 7.6 would be correct Reduction hours: 11 would be correct	Done
When adding hours it seems to be adding it 2 times	Done
Look at the course offering and manage manually, when a room is booked 2 times, but the lecture is of course only done once, so it should only count once	Done
+ 2 SWS Mathe-Zusatzübungen Bedeutet das cntLec muss um 2*(Anzahl Wochen des Semesters) erhöht werden?	Not done, because exercises, are not held lectures.
Update Readme.md	Done

Not possible:

SWB2 & TIB2 WS1516 Softwaretechnik (Coupling will have no effect (TIB2, cntLec=0)):

	O	P	Q	R	S	T	U	V	W
1	lecNotes	isProf	lecDept	supervisor	term	cntLec	cntCurr	cntSchd	assNotes
123		WAHR	IT		WS1516	3	4	4	Gekoppelt mit TIB2
125		WAHR	IT		WS1516	0	4	4	Gekoppelt mit SWB2

SWB3 WS1516 Rechnernetze (Coupling is not possible, because the courses are taught by 2 different lecturers and in a different room):

	K	L	M	N	O	P	Q	R	S	T
1	lecNo	lecName	lec1stn	lecRoom	lecNotes	isProf	lecDept	supervisor	term	cntLe
249	21	Zieher	Martin	F1.354		WAHR	IT		WS1516	

	O	P	Q	R	S	T	U	V	W
1	lecNotes	isProf	lecDept	supervisor	term	cntLec	cntCurr	cntSchd	assNotes
249		WAHR	IT		WS1516	2	4	4	gekoppelt mit WKB3

WKB3 WS1516:

	K	L	M	N	O	P	Q	R	S	T
1	lecNo	lecName	lec1stn	lecRoom	lecNotes	isProf	lecDept	supervisor	term	cntLec
54	15	Melcher	Harald	F1.457		WAHR	IT		WS1516	1
92										
93										

SWB3 & WKB4 WS1516 Internet-Technologien (Coupling will have no effect (WKB4, cntLec=0)):

	P	Q	R	S	T	U	V	W
1	ɒtes	isProf	lecDept	supervisor	term	cntLec	cntCurr	cntSchd	assNotes
269		WAHR	IT		WS1516	2	4	4	zusammen mit WK4
272		WAHR	IT		WS1516	0	3	4	gekoppelt SWB 3. Semester

	K	L	M	N	O	P	Q	R	S
1	lecNo	lecName	lec1stn	lecRoom	lecNotes	isProf	lecDept	supervisor	term
269	15	Melcher	Harald	F1.457		WAHR	IT		WS1516
272	15	Melcher	Harald	F1.457		WAHR	IT		WS1516

SWB4 & TIB4 WS1516 Softwarearchitektur (Coupling will have no effect (Both, cntLec=0)):

	O	P	Q	R	S	T	U	V	W
1	lecNotes	isProf	lecDept	supervisor	term	cntLec	cntCurr	cntSchd	assNotes
383		WAHR	IT		WS1516	0	3	4	Gekoppelt mit TIB4
386		WAHR	IT		WS1516	0	3	4	Gekoppelt mit SWB4

	K	L	M	N	O	P	Q	R	S
1	lecNo	lecName	lec1stn	lecRoom	lecNotes	isProf	lecDept	supervisor	term
383	1053	Friedrich	Jörg			WAHR	IT		WS1516
386	1053	Friedrich	Jörg			WAHR	IT		WS1516

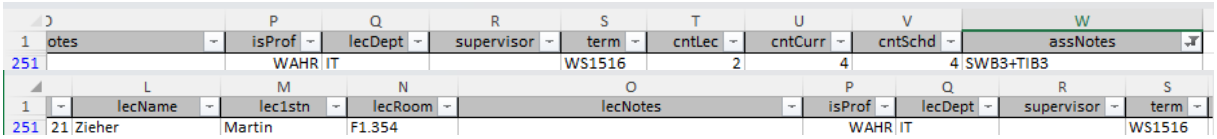
SWB5, TIB5, WKB5 WS1516 Ingenieursmethodiken (Coupling not possible, because they are all different lecturers):

	O	P	Q	R	S	T	U	V	W
1	lecNotes	isProf	lecDept	supervisor	term	cntLec	cntCurr	cntSchd	assNotes
442		WAHR	IT		WS1516	1	0	0	WKB+TIB+SWB
446		WAHR	IT		WS1516	1	0	0	WKB+TIB+SWB
447		WAHR	IT		WS1516	1	0	0	WKB+TIB+SWB
451		WAHR	IT		WS1516	1	0	0	WKB+TIB+SWB
454		WAHR	IT		WS1516	1	0	0	WKB+TIB+SWB
457		WAHR	IT		WS1516	1	3	4	WKB+TIB+SWB
992									

	K	L	M	N	O	P	Q	R	S
1	lecNo	lecName	lec1stn	lecRoom	lecNotes	isProf	lecDept	supervisor	term
442	3	Dausmann	Manfred	F1.319		WAHR	IT		WS1516
446	1023	Keller	Reinhard			WAHR	IT		WS1516
447	1119	Groß	Hans-Gerhard			WAHR	IT		WS1516
451	1023	Keller	Reinhard			WAHR	IT		WS1516
454	1105	Marchthaler	Reiner			WAHR	IT		WS1516
457	1023	Keller	Reinhard			WAHR	IT		WS1516

Possible:

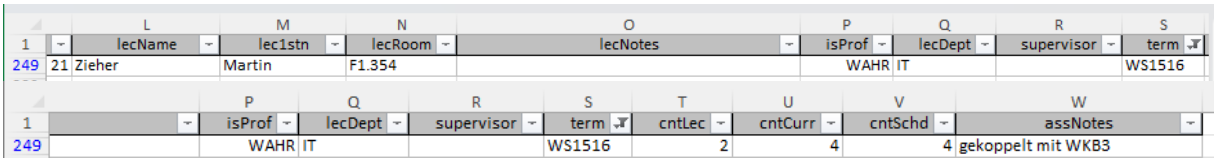
TIB3 WS1516 Rechnernetze:



	O	P	Q	R	S	T	U	V	W
1	otes	isProf	lecDept	supervisor	term	cntLec	cntCurr	cntSchd	assNotes
251		WAHR	IT		WS1516	2	4	4	SWB3+TIB3

	L	M	N	O	P	Q	R	S
1	lecName	lec1stn	lecRoom	lecNotes	isProf	lecDept	supervisor	term
251	21 Zieher	Martin	F1.354		WAHR	IT		WS1516

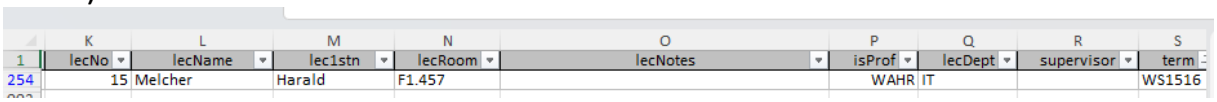
SWB3 WS 1516 Rechnernetze:



	L	M	N	O	P	Q	R	S
1	lecName	lec1stn	lecRoom	lecNotes	isProf	lecDept	supervisor	term
249	21 Zieher	Martin	F1.354		WAHR	IT		WS1516

	P	Q	R	S	T	U	V	W
1	isProf	lecDept	supervisor	term	cntLec	cntCurr	cntSchd	assNotes
249	WAHR	IT		WS1516	2	4	4	gekoppelt mit WKB3

WKB3 WS 1516 Rechnernetze (Coupling not possible, different lecturer and room):



	K	L	M	N	O	P	Q	R	S
1	lecNo	lecName	lec1stn	lecRoom	lecNotes	isProf	lecDept	supervisor	term
254	15	Melcher	Harald	F1.457		WAHR	IT		WS1516