



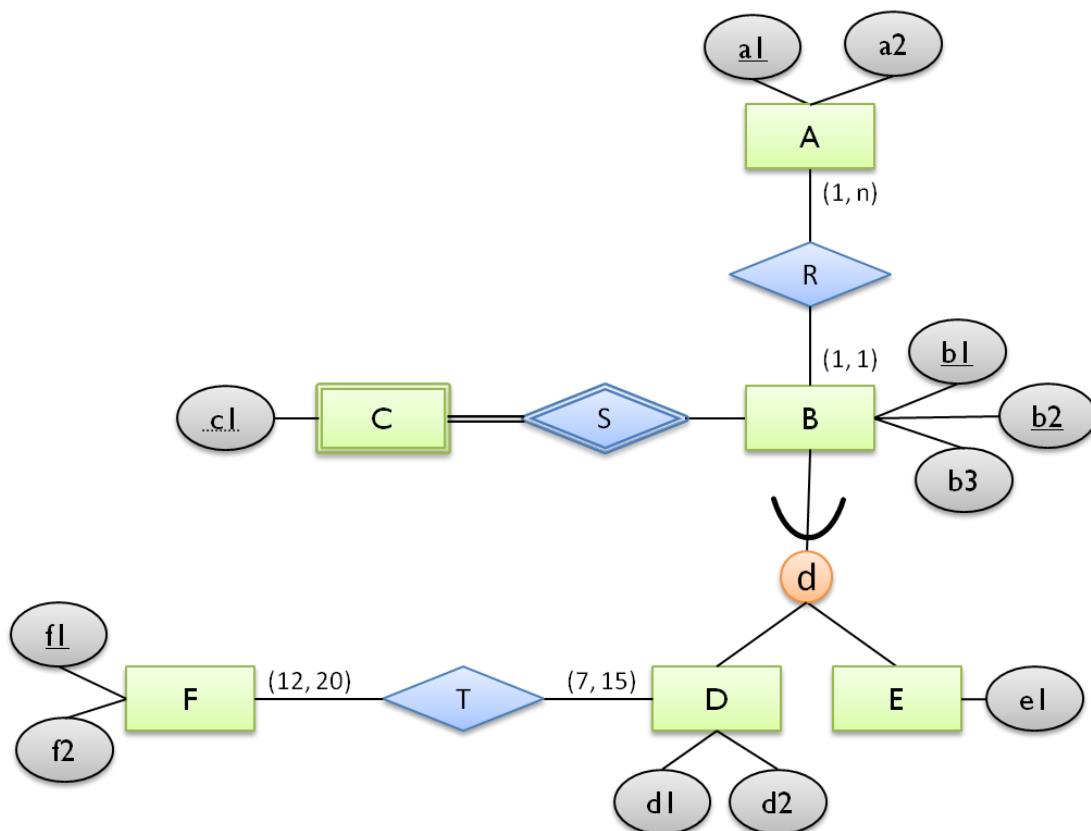
Exercise Sheet 9: SQL 2 (until Thursday 12.01.2012)

Please note that you need **50%** of all exercise points to receive the “Studienleistung”. Exercises have to be turned in until **Thursday** of each respective week and must be completed in teams of two students each. You may hand in your solutions either on paper **before the lecture** or into the mailbox at the IFIS floor (Mühlenpfordtstraße 23, 2nd floor). Please do not forget your “Matrikelnummer” and your tutorial group number on your solutions. Your solutions may be in German or English. Please note: To pass the “RDB I Modul” you need the exercise points and the exam!

Exercise 9.1 (10 points)

Translate the following ER-Schema to relational schemata. Write down all necessary SQL statements for creating the respective tables.

- All attributes are Integer values and should not be NULL.
- The statements have to include all primary- and foreign keys.
- Write down which of the modeled integrity constraints are not included in your statements.



Exercise 9.2 (6 points)

Given the schema of a university database. Explain the consequences of the following operations:

```
CREATE TABLE students (  
    matNo      INTEGER PRIMARY KEY,  
    name       VARCHAR(50) NOT NULL,  
    semester   INTEGER)
```

```
CREATE TABLE lecture (  
    lecNo      INTEGER PRIMARY KEY,  
    title      VARCHAR(50) NOT NULL,  
    sws        INTEGER,  
    readBy     INTEGER REFERENCES professors ON DELETE SET NULL)
```

```
CREATE TABLE professor (  
    persNo     INTEGER PRIMARY KEY,  
    name       VARCHAR(50) NOT NULL,  
    room       INTEGER UNIQUE)
```

```
CREATE TABLE listen (  
    matNo      INTEGER REFERENCES students ON DELETE CASCADE,  
    lecNo      INTEGER REFERENCES lectures ON DELETE CASCADE,  
    PRIMARY KEY (matNo, lectNo))
```

```
CREATE TABLE examine (  
    matNo      INTEGER REFERENCES students ON DELETE CASCADE,  
    lecNo      INTEGER REFERENCES lectures ON DELETE NO ACTION,  
    persNo     INTEGER REFERENCES professors ON DELETE SET NULL,  
    grade      DOUBLE CHECK(grade BETWEEN 1.0 and 5.0)  
    PRIMARY KEY (matNo, lectNo))
```

Professor

persNo	name	room
227	Lupack	F441
156	Bölke	C122
358	Duckstein	F142
756	Kant	C221
110	Emrich	F411

Students

matNo	name	semester
24123	Kent	6
24001	Hesky	4
24560	Boba	4

Lecture

lecNo	title	sws	readBy
1	RDBI	5	358
2	WDM	4	156
3	SE	4	756
4	RN	5	110
5	DUA	5	227

Listen

matNo	lecNo
24123	1
24001	1
24123	5
24560	1
24560	4

Examine

matNo	lecNo	persNo	grade
24123	1	358	2.7
24001	2	156	4.0
24560	4	756	1.0

- a. DELETE FROM lecture where title='RDBI';
- b. INSERT INTO examine VALUES (24123, 5, 331, 3.0)
- c. INSERT INTO examine VALUES (24001, 2, 756, 2.0)
- d. DROP TABLE students;

Merry Christmas

