



Exercise Sheet I I: Application Programming I (until Thursday 17.01.2013)

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 (Informatikzentrum 2nd floor). Please do not forget to write 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 both the exercise points and the exam!

Considering following SQL statements to create tables for the movie schema known from the exercises before:

```
CREATE TABLE movie(  
  id INT NOT NULL PRIMARY KEY,  
  title VARCHAR(255) NOT NULL,  
  year INT NOT NULL  
)
```

```
CREATE TABLE person(  
  id INT NOT NULL PRIMARY KEY,  
  name VARCHAR(255) NOT NULL,  
  gender CHAR(1) CHECK (gender IN('m', 'f')),  
  birthday VARCHAR(100) NOT NULL  
)
```

Exercise II.1 (7 points)

- a. Please create a view called 'movie2000' that contains all movies(id, title) from the year 2000. (2 points)
- b. Given that there is no movie with id 100 contained in the movie table, will the following statements work? Explain your answer. (3 points)
 - i. `INSERT INTO movie2000(id, title) VALUES (100, 'new movie')`
 - ii. `UPDATE movie2000 SET title='something else' WHERE id=5`
- c. Is the data contained in the view created in exercise II.1a physically stored or calculated at query time? How can you influence, if the data is stored or calculated? (2 points)

Exercise 11.2 (5 points)

Given following statements to create views using the given tables:

```
CREATE VIEW females AS SELECT * FROM person WHERE gender='f'
```

```
CREATE VIEW females_born_in_july AS  
    SELECT * FROM females WHERE birthday LIKE '%.07.%'  
WITH CHECK OPTION
```

- a. Are the views *females* and *females_born_in_july* symmetric? Explain your answer. (2 points)
- b. Given that there is no person with id higher than 4 stored in the persons table. Which of the following tuples can be inserted into the *females_born_in_july* view? Explain your answer. (3 points)
 - i. (5, 'Bill', 'm', '19.07.1980')
 - ii. (6, 'Jill', 'w', '21.11.1985')
 - iii. (7, 'Ann', 'w', '02.07.1979')

Exercise 11.3 (5 points)

- a. Create an index on the name column in the person table. (2 points)
- b. Where is an index more useful? Explain your answer. (2 points)
 - i. in a table with high write ratio and low read ratio
 - ii. in a table with high read ratio and low write ratio
- c. Does it make sense to create an index on the primary key columns of a table? Explain your answer. (1 point)

Exercise 11.4 (3 points)

Imagine you want to execute a transaction.

- a. How do you suppress the behavior that every statement is executed separately in the first place? (1 point)
- b. During the transaction you discover an exceptional state and you want to discard all operations you have done until now. How can you do that? (1 points)
- c. If all operations have been executed successfully, how can you express that you want to save all changes persistently and close the transaction afterwards? (1 points)