

# Database Concepts

## Exercise 5

1. Create an entity-relationship schema for following use case. Snowboarder have a first and a last name and a birth day. Moreover, every snowboarder has a unique ID. Additionally, the "Home-Mountain", the mountain the snowboarder likes most, must be stored. Some snowboarders in the database are professionals that have a license number. Additionally, their "best trick" and their current world cup points are stored. Professionals are supported by sponsors with a certain amount of money that should be stored in the database. For every sponsor, the name and the overall available budget must be stored. Sponsors also host competitions. Thereby, every competition is hosted by exactly one sponsor. Every competition can be uniquely identified by the name and the year it took place. Moreover, the prize money of every competition should be stored. Snowboarders attend competitions to qualify for other competitions and we want to store at which competition the snowboarder qualified for which other competition in the database.
2. In a database, information about lectures should be stored. Every lecture has a unique number and a name. Every lecture is either for Bachelor or Master students only. For Master lectures, the lecturers name should be stored. For Bachelor lectures, the number of enrolled students should be stored. Prepare an entity-relationship schema. Avoid redundancy!
3. Prepare an entity-relationship schema to store information about insurance contracts: A customer concludes policies with an insurance company. In the database, all information about policies should be stored. Every policy has an identifying contract number, an insurance number, a start and an end date. Moreover, the insurance subject, the due date for dues and a status must be stored. A customer is a person that has an address (first and last name, postal code, city) and contact information (phone and email). In addition to the personal information, every customer has a customer number. Some customers do not have a policy yet, but every policy belongs to exactly one customer.

4. Extend the entity-relationship schema from task 3 to support following use case:  
Every policy has at least one assignee(beneficiary). Every assignee insured with a defined portion of the amount. Moreover, the payment date should be stored if the insurance case occurs. Every assignee is a person. Additionally, the bank account of the assignee must be stored.
5. Transfer the entity-relationship schemata from **task 1** and **task 2** into relational schemata! For this, use the following notation:  $R1(\underline{a}, b \rightarrow R2, c)$  denoting  $a$  as primary key and  $b$  as foreign key to  $R2$  to define the resulting relational schema.

**Good Luck!**