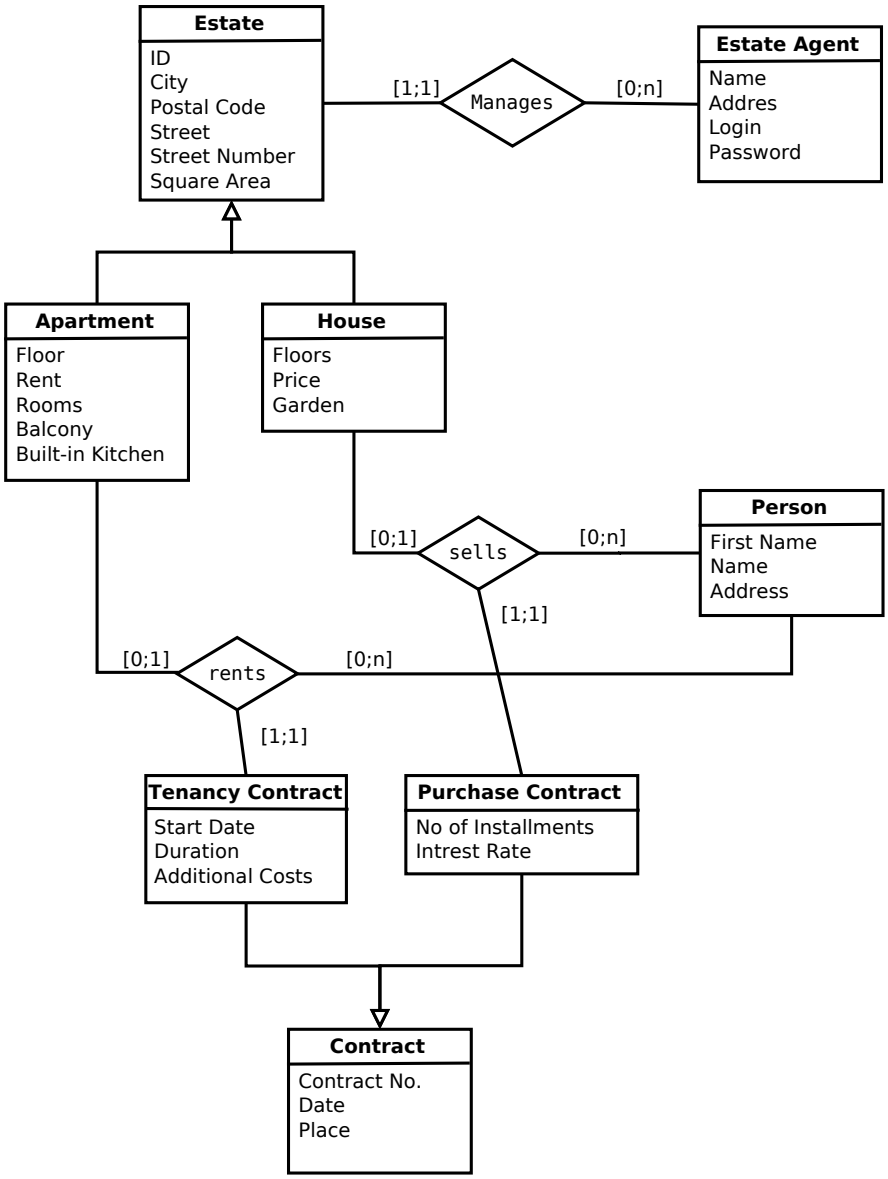
	Course	*Databases and Information Systems 2018*		
	Exercise Sheet	*2*		
	Points	–		
	Release Date	*April 10 2018*	Due Date	*May 2 2018*

1 Development of a relational database application

In this assignment you will develop a DB-backed Java application for management of real estates. This is the domain model:



The central entity is an estate agent that manages estates. It has a unique login name as well as a password.

There are two basic types of estates: houses and apartments. Apartments are rented, whereas houses are sold. For each estate, some general information are stored: identification number, address (comprised of city, postal code, street and number) and square area. Additionally, each apartment has a floor number, a rent (price), a certain number of rooms, a flag indicating whether there is a balcony and a flag indicating whether there is a built-in kitchen. Houses on the other hand have a number of floors, a price and a flag for whether a garden is included.

For every tenancy and every sale, respectively, there is formal a contract which has a uniqe contract number, a contract date and a settlement place. Tenancy agreements (for apartments) have a start

date, a tenancy duration and extra charges (utilities). A house can be by paid by installments. The amount of installments and the interest rate are part of the sale contract.

For every contract, there is only one renting/buying person, but each person can rent/buy an arbitrary amount of properties.

1.1 DB-schema

Translate the above model to a relational model by defining the respective DB schema. Fulfill the following requirements:

- The commands for creating the DB objects are contained in SQL scripts.
- Choose an inheritance model (e.g. horizontal partitioning)
- Define a primary key for every relation (surrogate keys are ok). Define foreign keys.
- Initialize the tables with appropriate sample data. There should for instance be an estate agent account you can use to log in.
- Create the tables using Squirrel or the DB2 CLI

The tables created in this part of the assignment are the basis for the next part.

1.2 Java application

Implement an estate management using the previously created DB schema. The realization of the UI (graphical or command-line interface) is up to you.

The application should support the following functionalitites:

- Management mode for estate agents
  - Account creation
  - Changing and deleting accounts

  To access this mode, the user has to enter a password, which is hard-coded in the application for simplicity.
- Management mode for estates
  - Estate agents can log in
  - Creating, deleting and updating estates
- Contract management
  - Insert persons
  - Sign (create) contracts
  - Overview of all contracts

There is a sample project `/usr/remote/lehre/dis/Blatt2.zip`. For your implementation you can either use this project or create your own. If you create your own, don't forget to add `db2jcc.jar` and `db2jcc_licence_cu.jar` to your classpath.

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Note

- On the pool PCs there are Eclipse installations you can use (/usr/remote/bin/eclipse361).
- When working at home, please use your own Eclipse installation
- The duration of this assignment is two weeks
- You don't have to submit your results. The completion of the assigment will be verified by practical demonstration in front of your device.
- Before executing the example, change `db2.properties` and create the example table `Makler`. The respective DDL script is in the `Makler` class. The character encoding is UTF-8. If you have problem with umlauts, please change the encoding in your Eclipse preferences to UTF-8.