School of Computing and Information Technology
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Session: **Autumn 2016**
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CSIT115/CSIT815 Database Management and Security
Laboratory 2

Scope

This laboratory includes the tasks related to conceptual modelling of the sample database domains.

This laboratory consists of 2 tasks and specification of each task starts from a new page.

It is strongly recommended to solve the problems included in this specification **before coming to a laboratory class** and bring the preliminary solutions to a laboratory class such that any doubts, question, problems, etc can be discussed with a tutor in a laboratory class. Such procedure allows for more effective use of time spent in a supervised laboratory class.

Tasks

Task1 (1 mark)

Read the following specification of a sample database domain.

A university administration would like to create a database with information about the buildings located at many campuses owned by the university.

The university consists of several campuses located in the various cities all over the country. Some of the cities host more than one campus, however each campus is located in one city. The campuses have their unique names, and unique address. An address consists of city name, street name, and a number of building that host campus administration.

A campus consists of a number of buildings. Each building is identified by a number within a campus. Each building is either general teaching building or staff building, or administration building. Additionally each building is described by total number of floors, and optional name.

The buildings consists of rooms. A room is described by a number and area. Room number is always unique within a building.

Your task is to create a conceptual schema of the sample database domain given above and to draw such schema in a notation of UML simplified classes of objects. To do so, perform analysis of the sample database domain in the following way. First, read through the specification listed above and find all classes of objects. Next, read through the specification again and find all attributes. Next, read through the specification again and find all associations, link attributes, and association classes. Next, read through the specification again and find identifiers and qualifications. Finally, read through the specification and find generalizations.

To create the fragments of conceptual schema obtained after each iteration and use a diagram drawing tool UMLetLet.

It is possible to include the fragments of text into a Word document and to insert into it the fragments and the final diagram as pdf or files in other formats obtained from an option File->Export as … option of UMLetLet. A structure of the file should include the specification of a sample database domain with the fragments of text with the UML simplified class diagrams representing a solution expanded step by step.

Deliverables

A file `solution1.pdf` with the description of a process of conceptual modelling together with the final design of a conceptual schema.

Task 2 (1 mark)
Read the following specification of a sample database domain.

A network of hospitals consists of the hospitals with the unique names located at unique address. An address consist of city name, street name, and building number.

Each hospital employs a number of doctors and nurses. Doctors and nurses are described by an employee number, which is unique at a hospital, first name, last name, phone number and optional email address.

A group of doctors who are specialists has their specialist license numbers recorded together with a name of a group of specialists they belong to. All doctors are additionally described by a practitioner license number and their planned specialisation.

Patients are treated at the hospitals. A treatment is described by start date/time, end date/time, doctors involved and the names of medical procedures applied.

Construct a conceptual schema for the specification of a database domain listed above. Use UMLetLet to create a drawing of a conceptual schema in a notation of UML simplified class diagrams and to export the final diagram into a file `solution2.pdf`.

In this task there is NO need to provide a detailed analysis of a conceptual schema like in the previous task. The final conceptual schema expressed in a notation of UML simplified class is completely sufficient.

Deliverables
A file `solution2.pdf` with the final design of a conceptual schema.

End of specification