

# Business Intelligence and Applications

## Assignment 1: ER Models

### Task

The task for this assignment is to design and visualise an ER diagram that carefully describes a given case study. The produced diagram should be complete, minimal and easy to understand.

To accomplish the task, you have to draw the diagram using ERDPlus, the tool shown in class for the demo.

### Submission Rules

You can work on this assignment in a group of maximum 4 people. If you passed this assignment last year, you do not have to redo it; in this case, please let us know.

For the submission, prepare a short report with the diagram in the format of PDF file. You should also add a section containing the comments on the implementation and the assumptions made about the given case, if any. Please, specify the full names of all group members in the report.

The report must be submitted by March 18, 2024 at 13:30 (the latest) through a corresponding submission point on iCorsi platform<sup>1</sup>.

Should you have any questions regarding the assignment or problems with your submission, please contact the TA (leonardo.alchieri@usi.ch).

### Case Study

*Background:* Hogwarts School of Witchcraft and Wizardry is expanding its administrative capabilities to include a digital management system. Your task is to design an ER diagram for the future database development to help manage the complex operations of the school. The system should capture various aspects of school management, including academic and residential life, as well as magical entities and activities.

While designing the database you need to capture the following concepts and the relationships between them:

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<sup>1</sup>TODO

- Hogwarts offers various Courses, each with its own name, subject area, and a unique identifier. Each Course can have multiple Classes (instances of the course) each year, with specific Students enrolled. Student can be enrolled only once in a class, and you should keep track of which semester the Student is enrolled in. Classes are taught by Professors, who may teach multiple classes each year.
- Students are the primary members of the school, with each student having a unique identifier, name, year of study. Students enroll in Classes and are members of one of four Houses: Gryffindor, Hufflepuff, Ravenclaw, or Slytherin.
- Each House has a Head. Only Professors can be Heads, but not all Professors are. The school needs to track which Professor is the head of which House.
- Magical Creatures are studied and cared for at Hogwarts. The database should track different species of creatures, their habitats within a specific Location (like the Forbidden Forest and many others), and their involvement in specific Courses.
- Hogwarts hosts various Events throughout the school year. Each event has participants (which could be Students, Professors, or even Magical Creatures), a location, a date, a name, and a description of the event
- School Supplies are required for different courses, and they should be classified into Categories, such as Textbooks, Potion Ingredients, and Magical Artifacts. The database should keep track of which items are required for each Course and in which quantity, as well as suppliers for these items. Textbooks are supplied by Book Stores, Potion Ingredients by Alchemists while Magical Artifacts do not have suppliers.