# MDA104: Tutorial 1
# E-R Model

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# 2 E-shop

Assignment:

- Create an E-R model for the registry of customers of a company trading on internet.
  - We need to keep a record of the customer's name, phone numbers, shipping address and age.
    - Consider multiple phone numbers per customer.

Expected result:

- The result should contain a single entity set.
  - Mark the primary key.

# 3 E-shop

Assignment:

- In the previous example, add information about customer accounts.
  - The account is used to record the credit balance.

Solve step by step:

1. First, consider that each customer has exactly one account.
   - What are the advantages/disadvantages of this solution?

2. Now consider that multiple customers can share the same (joint) account.
   - Discuss cardinality of relationships when using two entity sets.
   - Record the date of change in the credit balance.
     - Hint: You may add an attribute to a relationship.

3. Add recording individual transactions changing the account balance.
   - transaction number, description, date and time, amount

# 4 University system

Assignment:

- Design an E-R model for registry of
  courses (name, code, number of hours)
  seminar groups (number, capacity)
- The designation of courses and groups is the same as in the IS MU.
  - Example: The course code is PB168. The group number is PB168/01.
  - A seminar group cannot exist without an object.

Solve step by step:

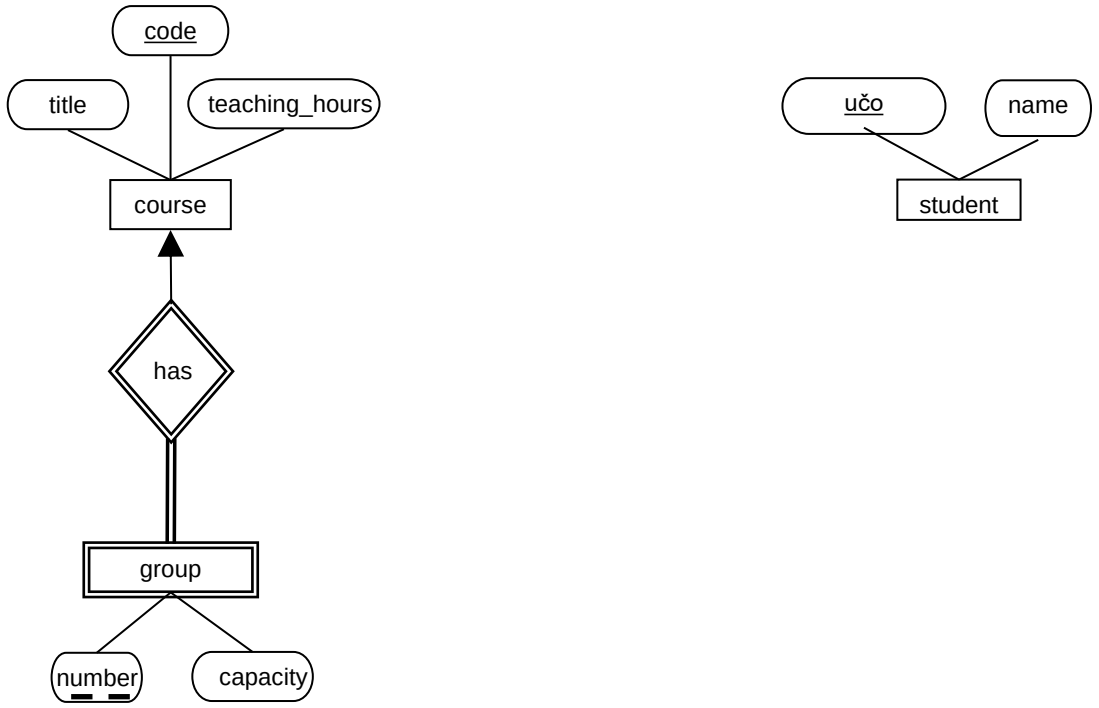
1. Apply totality to a relationship
   - Determine the primary keys of entity sets.

2. Use a weak entity set.
   - Determine the primary keys of entity sets.

# 5 University system

Assignment:

- To the previous E-R model, add the entity set student (učo, name).
- We want to model:
  - The student enrolls in courses.
  - The student registers for seminar groups.
  - He/she can choose a maximum of one group for a given course.

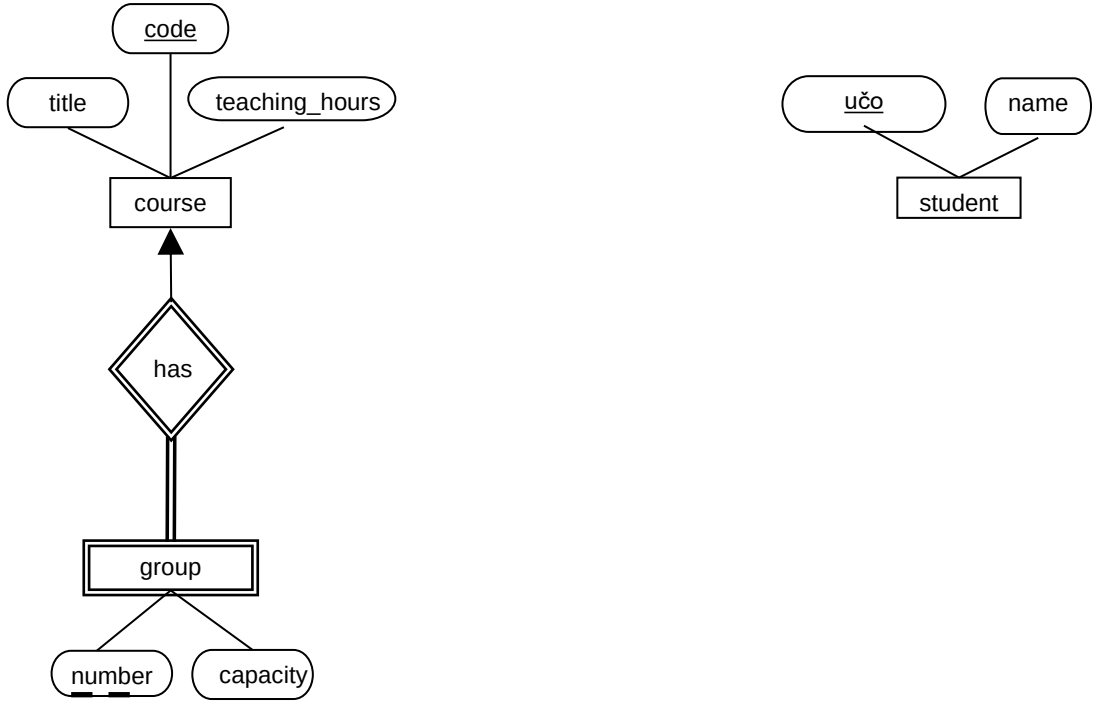



*učo == University Personal Number (ID)

# 6 University system

Assignment:

- For the previous model, use aggregation to solve the redundancy problem.
  - The student enrolls in courses.
  - The student applies here. groups.



# 7 University system

Assignment:

- Add the teacher of the subject to the previous model.
  - The teacher as a lecturer; teacher as instructor.
- Also consider the situation that even a student can exercise...
  - Is it possible to use generalization/specialization?

Assignment:

- Next, add the prerequisites of the courses, i.e. this course has another subject in its prerequisites
  - Can "roles" be used?

# 8 Marketing campaigns

- Design a marketing campaign database
  - Manage information about campaigns, target audiences, marketing channels, and campaign results.

- Create an ERD for this scenario.