
MDA104: Tutorial 1

E-R Model

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2 E-shop

Assignment:

- Create an E-R model for a 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 customer's age.
 - Consider multiple phone numbers per customer.

Expected result:

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

■ SW tools in MU IS:

- ERD editor - https://disa.fi.muni.cz/projects/MDA104/erd/index_chen.html
 - Accessible from MU intranet or via [MU VPN](#)
- ROPOT in IS – see MD104 [e-learning section](#)

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 a 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 a course.
 - There can be courses that do not have any seminar group.

Solve step by step:

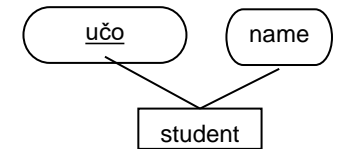
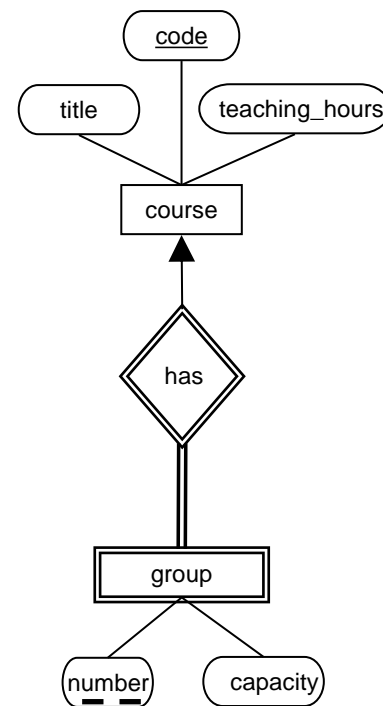
1. Apply totality to a relationship
 - Determine the primary keys of entity sets.

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.

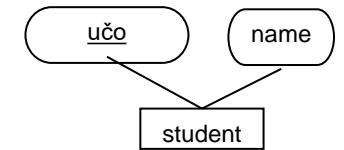
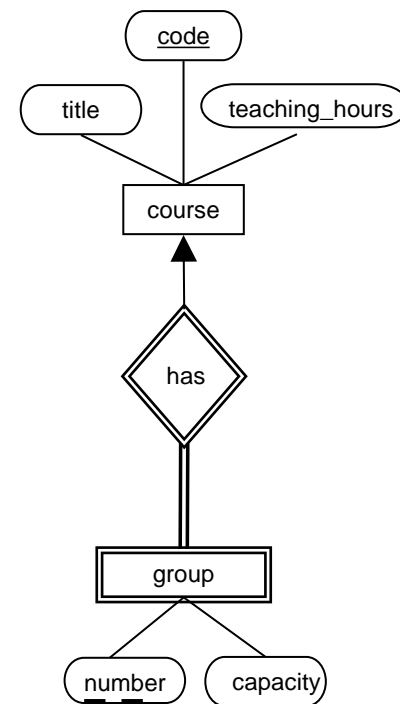


*učo == University Personal Number (ID)

6 University system

Assignment:

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



7 University system

Assignment:

- Add the teacher of the course to the previous model.
 - The teacher as a course's lecturer and a teacher as a seminar instructor.
- Also consider the situation that even a student can lead a seminar...
 - 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.
 - decide what entity sets you create and what relationship among them you create.