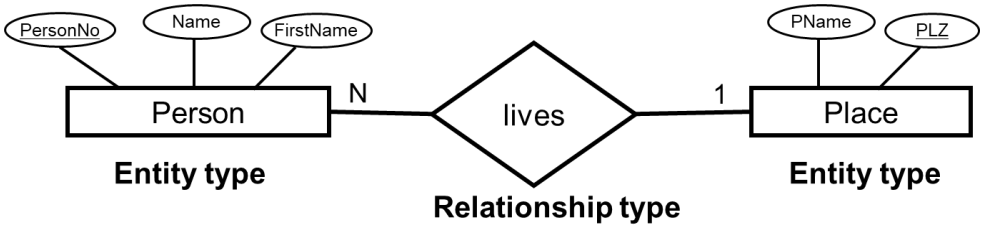
Practical 5 – Logical DB Design

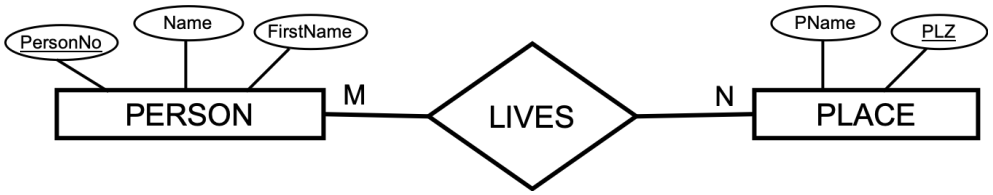
Exercise 1 (realisation of N:1 and N:M relationships)

In Exercise 1 of Lab 4 you have designed two ER diagrams to hold the information about places of residence of persons. Design the relational model from the ER diagrams.

a) For the situation where a person lives in only one place



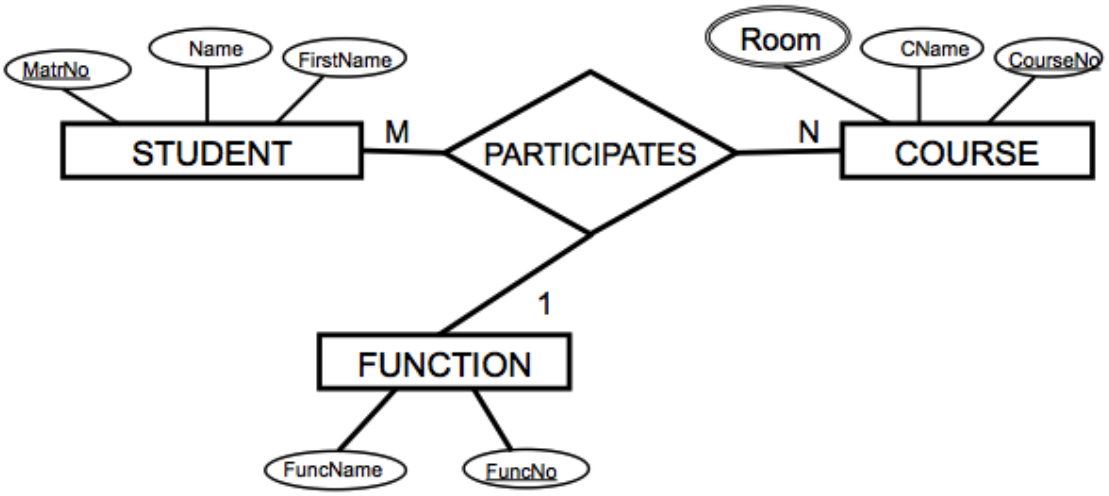
b) For the situation where one person could live in multiple places (e.g., temporary residence)



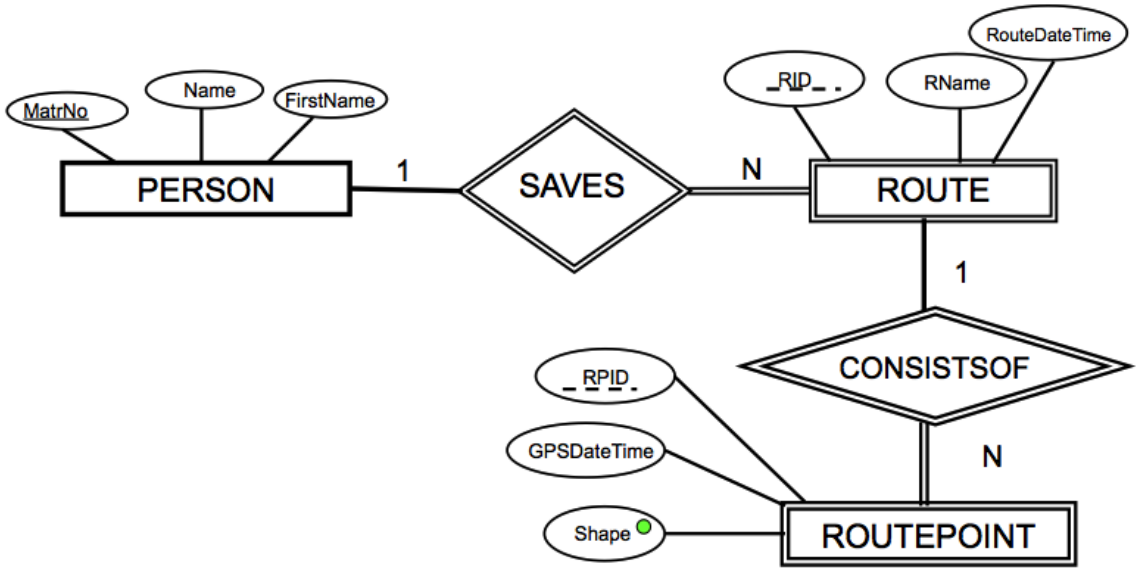
Exercise 2 (realisation of multi-valued attributes, and relationships with degree n>2)

In Exercise 3 of Lab 4 you have designed an ER model for the participation of Students in courses. The participation of students could be in the function of "student" or "tutor". The requirement and thus the model tell us that a course can occur in multiple rooms (e.g., lectures in room H79 and lab in J9). This characteristic can be modelled by a multivalued attribute of *Room* (see below).
Design the relational model from this ER diagram.

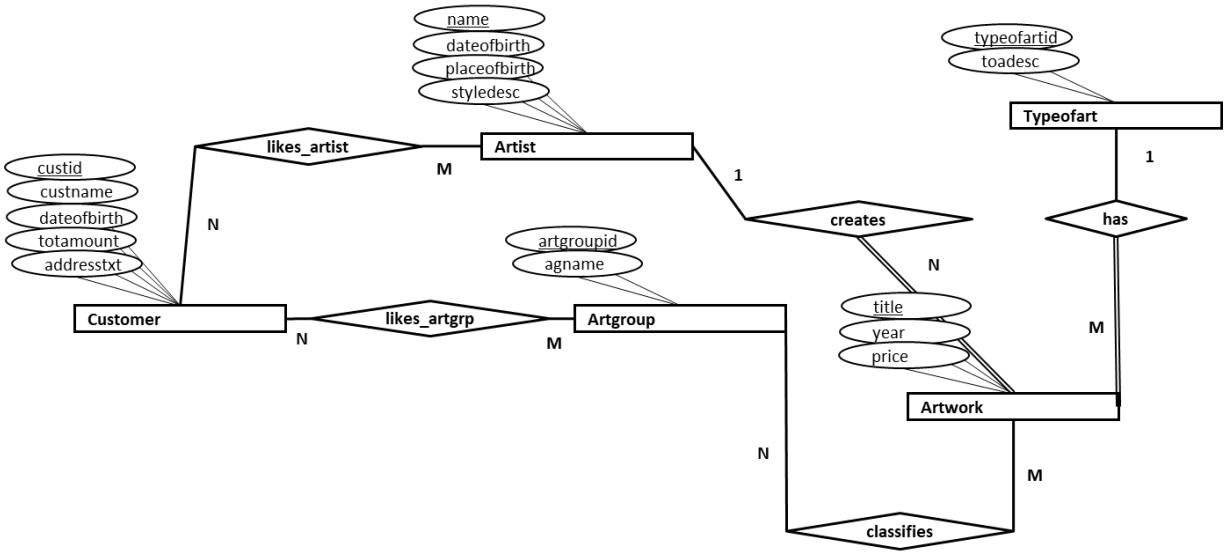
(Please note that: A more straightforward ER-model would build *Room* as an entity type with a relationship type *Takesplace* connected to *Course; See Solutions for Lab 4)*.



Exercise 3 (Weak entity types)
In Exercise 4 of Lab 4 you have designed an ER diagram to hold the information about people recording routes. Design the relational model from this ER diagram.



Exercise 4
In Exercise 5 of Lab 4 you have designed an ER diagram for “an art gallery”. Design the relational model from this ER diagram.



Exercise 5
Suppose you are given the following requirements for a simple database for the National Football League (NFL):

- the NFL has many teams,
- each team has a name, a city, a coach, a captain, and a set of players,
- each player belongs to only one team,
- each player has an ID, a name, a position (such as cornerback, linebacker), a skill level, and a set of injury records,
- a team captain is also a player,
- a game is played between two teams (referred to as host_team and guest_team), and has a date (such as May 11th, 2019) and a score (such as 4 to 2).

Construct a clean and concise ER diagram for the NFL database, and design a relational model for the ER diagram.