# Entity-Relationship Modelling Exercise

SWEN304/SWEN433
T1, 2021

Suppose you would like to design a database for the storage and management of tennis matches. Each person in the database is to be stored by a name, date of birth and address. Besides these features, tennis players have a certain date when they turned professionals.

Tennis matches are played at different tournaments. Each tournament has a name, is of a particular type (e.g., Grand Slam, Super Nine, etc.) and is held at a certain location. Tournaments take place at a certain time, i.e., during a period of time within a year, have a certain amount of prize money and a main sponsor.

For players entering a tournament their single and double ranking, prize money and titles won in singles and doubles matches are recorded.

Tennis matches are either single or double matches, have an umpire and are played on a certain occasion. For such an occasion the round (e.g., semi-final), date and the type of competition (e.g., men-singles) are stored. Moreover, the time and the result of the match are stored with each match. Umpires are people who have a fixed salary and a date they have become umpires.

Single matches at a tournament can be played between players who entered this tournament. Players who entered the same tournament can team up to doubles and play with other teams. For each of these teams the number of tournaments they have won together are recorded.

a) **[20 marks]** Draw an extended ER diagram for the application above. Write down the corresponding ER schema, including declarations of all your entity and relationship types (showing attributes, keys, components).

b) **[5 marks]** Are there any information, requirements or integrity constraints that you are not able to represent in your diagram? If so, give concrete examples.