CS2102 ER Data Model

Team 65

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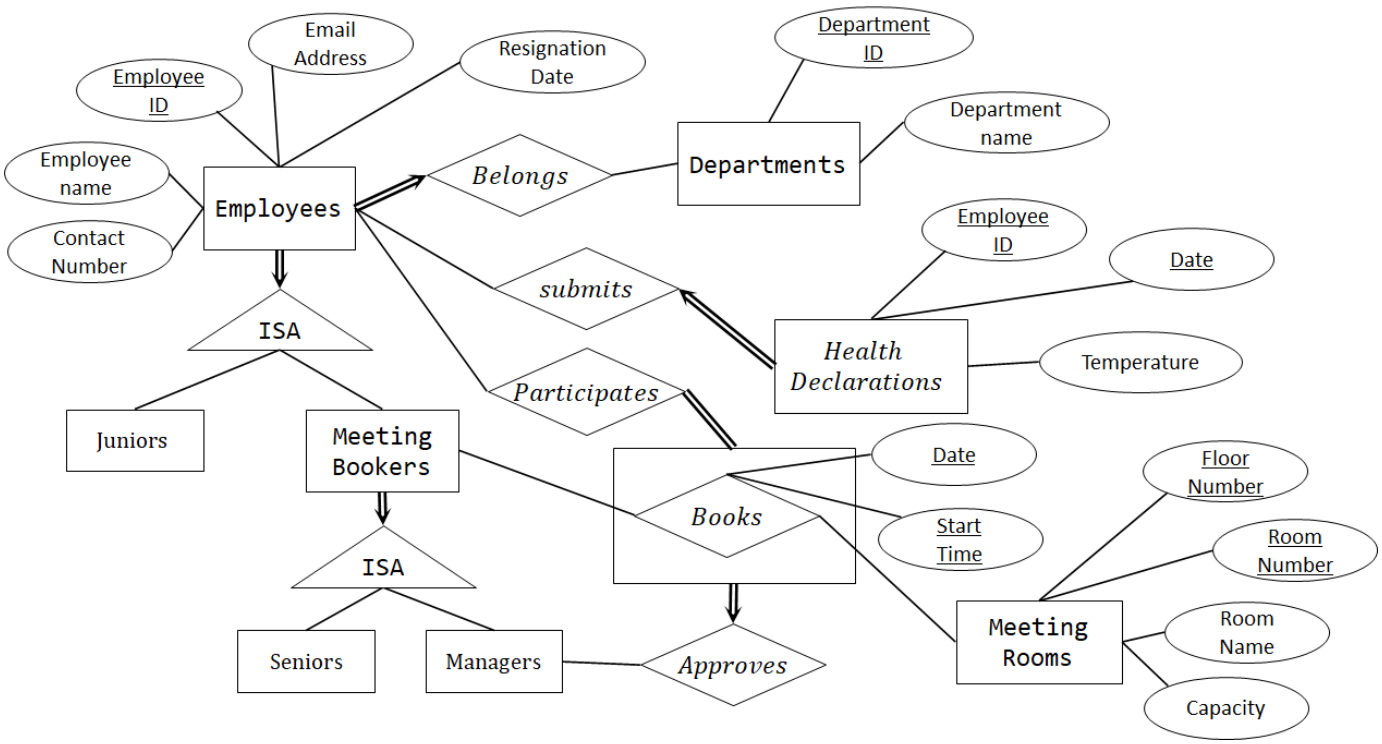
ER Data Model



Non-trivial Design Decisions

The following are the justifications for non-trivial design decisions made:

There is a many to one relationship between Employees and Departments assuming each employee must belong to only 1 department. Each department can have any number of employees (can also be empty).

There is a many to one relationship between Health Declarations and Employees assuming each health declaration is submitted by only 1 employee. Each employee can submit up to any number of health declaration over a time period (but at most one a day).

All employees are either Juniors or Meeting Bookers (covering and non-overlap). Only Meeting Bookers can book meeting rooms. All Meeting Bookers are either Seniors or Managers (covering and non-overlap). Only Managers can approve a booking which has to be approved.

Based on the room booking process, the first step is for an employee who is a Meeting Booker to Book a meeting room. Booking relationship is needed prior to having an approval,

hence we made the Booking relationship an aggregation. (Treats Meeting Bookers – Books – Meeting Rooms as an entity set)

Since each booking is based on 1-hour sessions, we selected Date and Start Time as the primary keys to uniquely identify a booking.

Each Meeting Booker can book any number of meeting rooms and each meeting room can be booked (at different time slots) by any number of Meeting Bookers.

Since the Meeting Booker who booked the meeting room has to be healthy, and is counted towards the participation, each booking is participated by at least 1 employee.

Each booking must also be approved by one manager, hence there is a many to one relationship between the Booking aggregation and Managers.

Constraints

The following are constraints that we were not able to capture by the proposed ER model above:

1. Every booking must be approved by a manager from the same department. A booking that is not approved by a manager is immediately deleted to allow for other people to book the room.

2. Every meeting room's capacity can only be set by a manager to conform to social distancing measures.

3. Once approved, there should be no more changes in the participants and they will definitely come to the meeting room on the stipulated day.

4. If the employee is having a fever, they cannot book any room or be added as a participant to a booking.

5. When a meeting room has its capacity changed, any room booking after the change date with more participants (including the employee who made the booking) will automatically be removed.

6. When employee recorded with a fever, the employee is removed from all future meeting room booking, approved or not. If the employee is the one booking the room, the booking is cancelled, approved or not. All employees in the same approved meeting room from the past 3 (i.e. from day D-3 to day D) days are contacted. These employees are removed from future meeting in the next 7 days (i.e. from day D to day D+7).

7. When an employee resigns, they are no longer allowed to book or approve any meetings rooms. Additionally, any future records (e.g. future meetings) are removed.

8. If the room is not available for the given session, no booking can be done. Due to the selection of primary keys for a Booking, the ER model gives the impression that it is possible for two different employees to book the same room at the same time slot.