

CZ2007 Tutorial 1: ER Modeling

Week 3

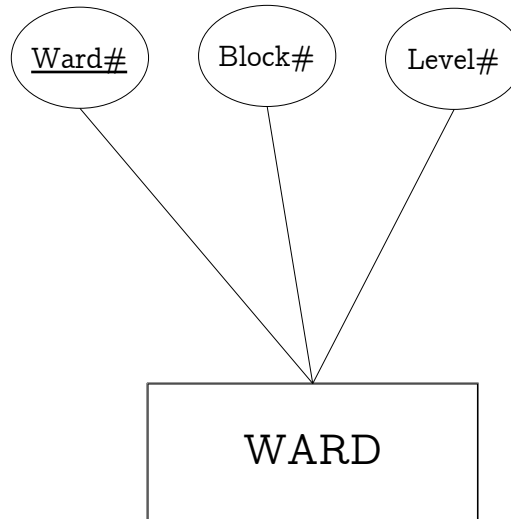


Question 1

- The hospital has wards identified by a ward number. A ward is located in a particular block and on a particular floor.
- Each ward consists of different rooms. All rooms have room numbers unique only to the ward but not unique between different wards. Each ward has at least one room.
- Rooms may be of different sizes, with different number of beds and possibly with attached bathrooms. Rooms with the same number of beds need not be of the same size nor have similar bath facilities.



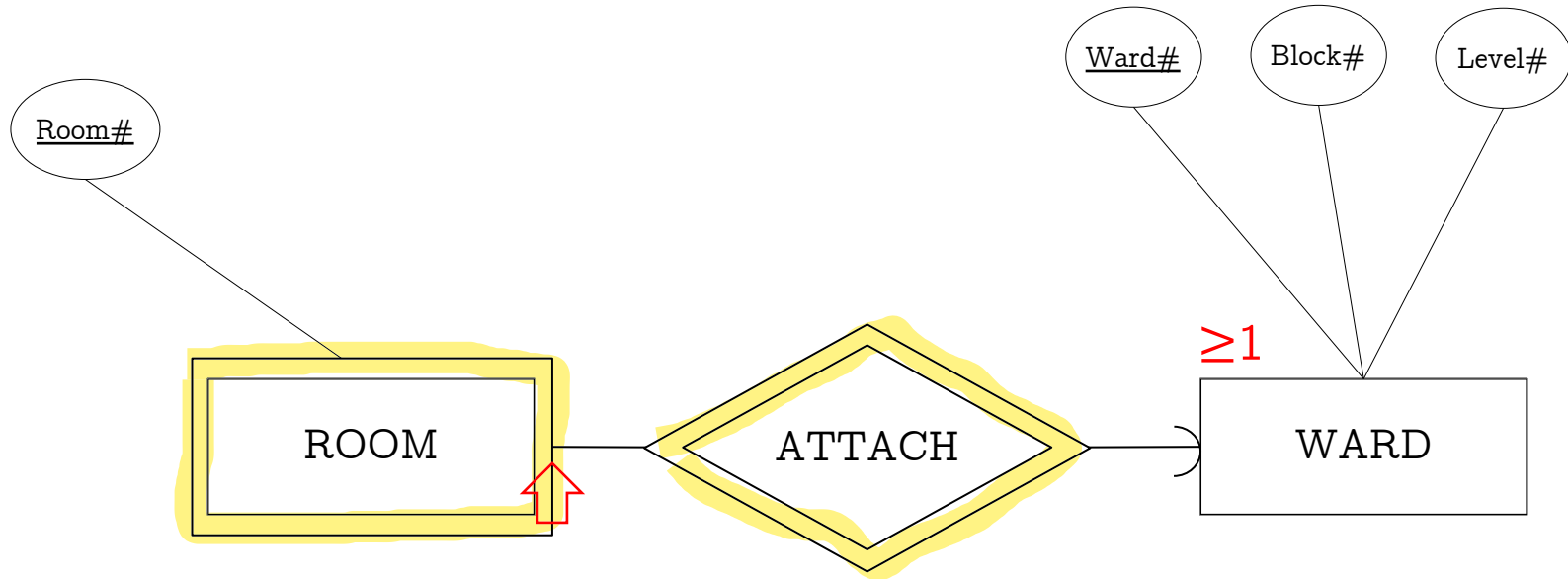
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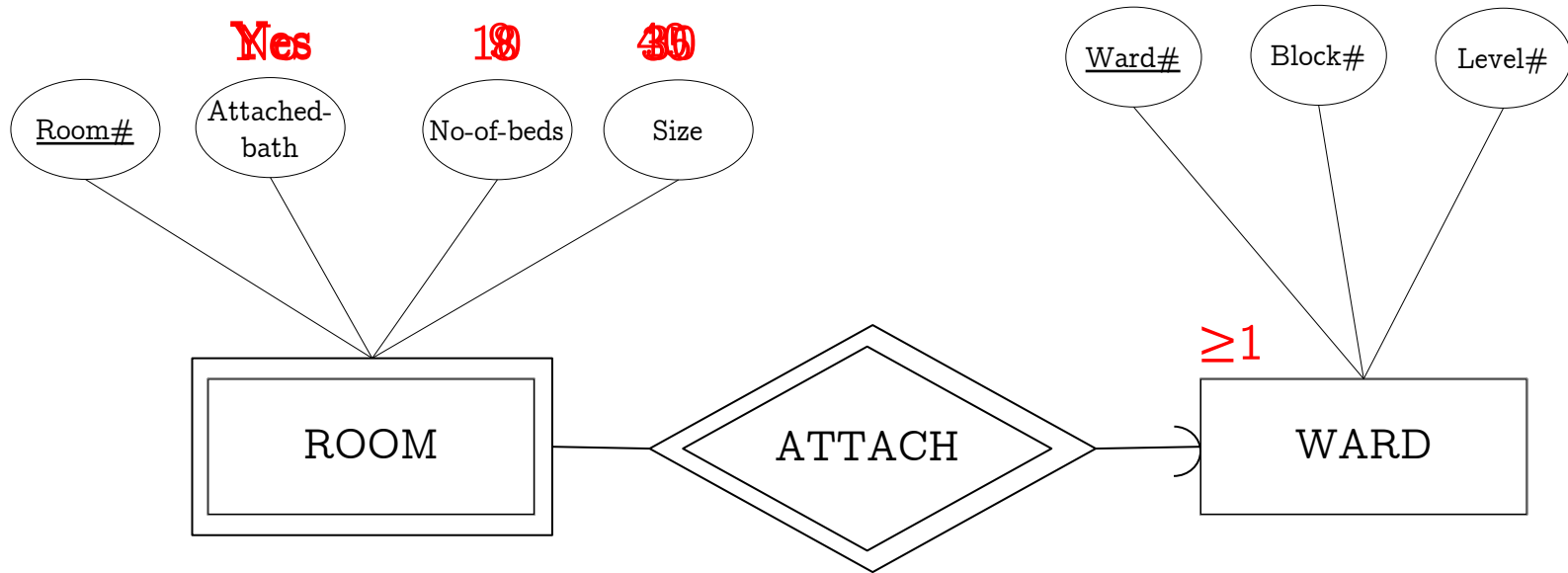
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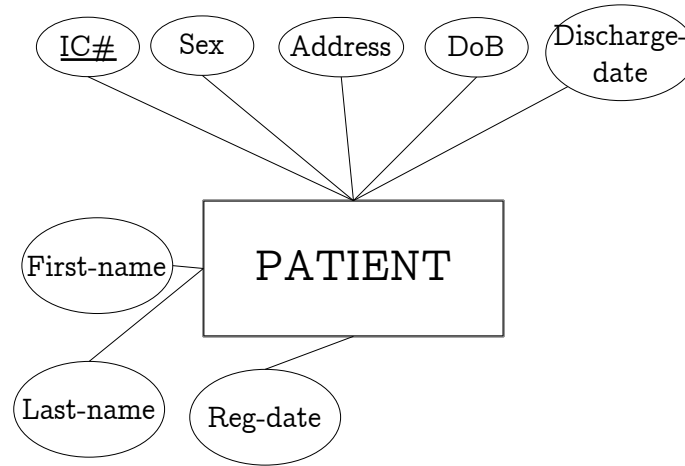


Question 1

- When a patient registers, information about his IC#, first name, surname, address, date of birth, registration date and gender are recorded. Upon discharge, the discharge date is also recorded.
- If a patient is allocated to a room, no bed allocation details are recorded.
- There are three categories of wards: cardiology, paediatrics and surgery. Each paediatric ward has a number of baby nurseries, while each surgical ward has a number of intensive care units (ICU).



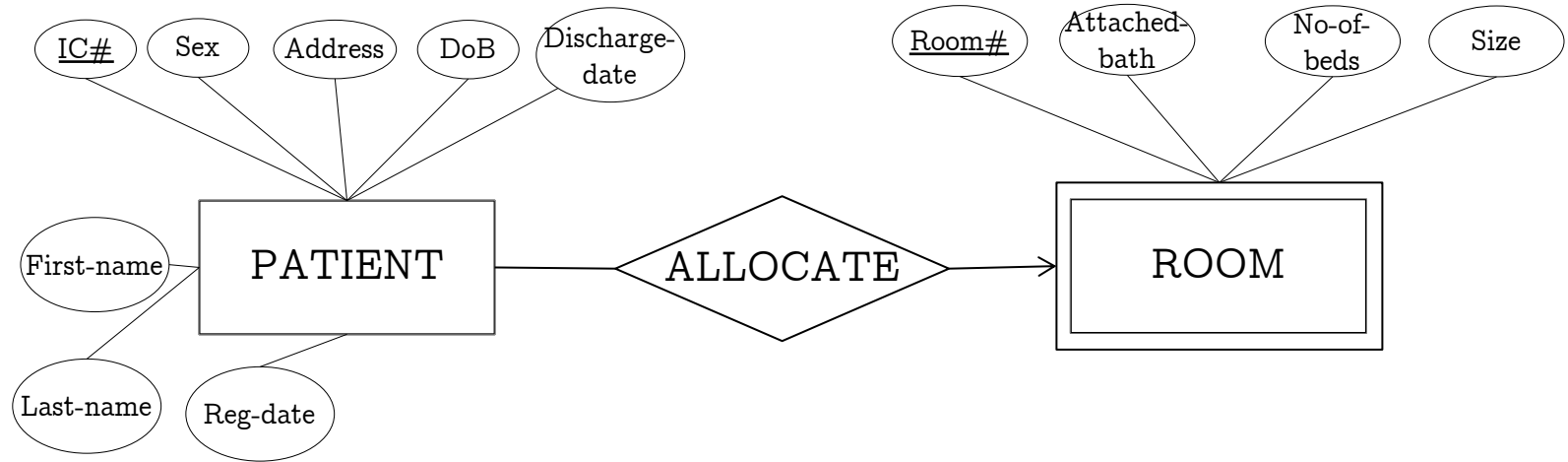
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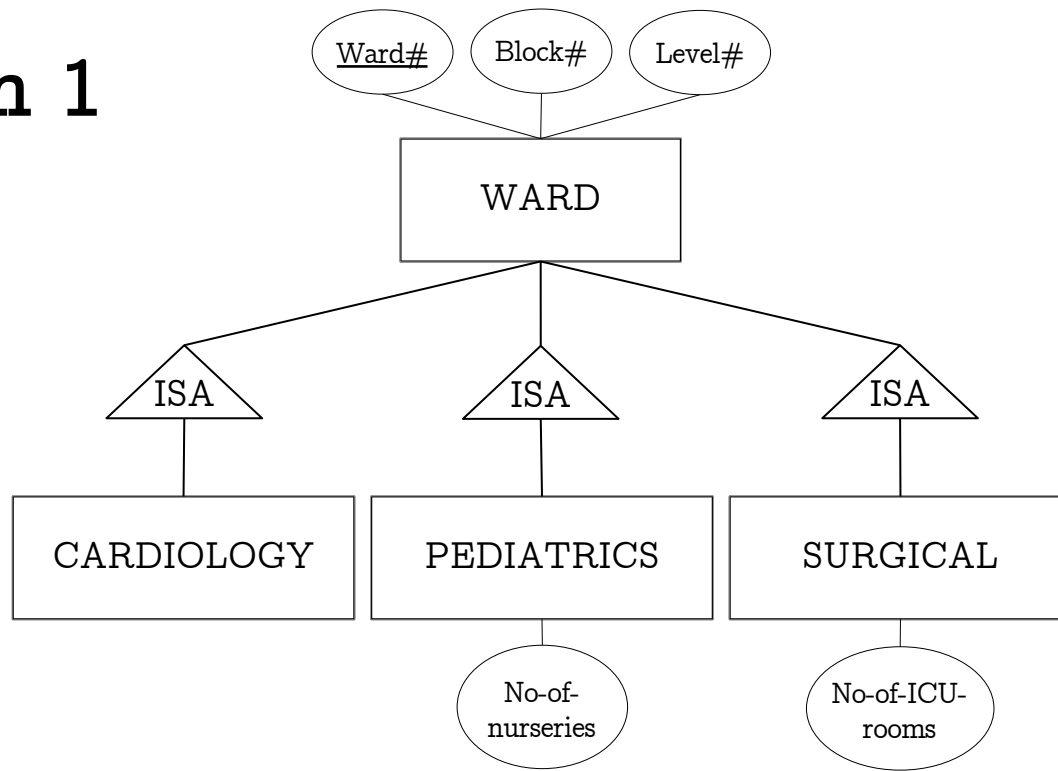
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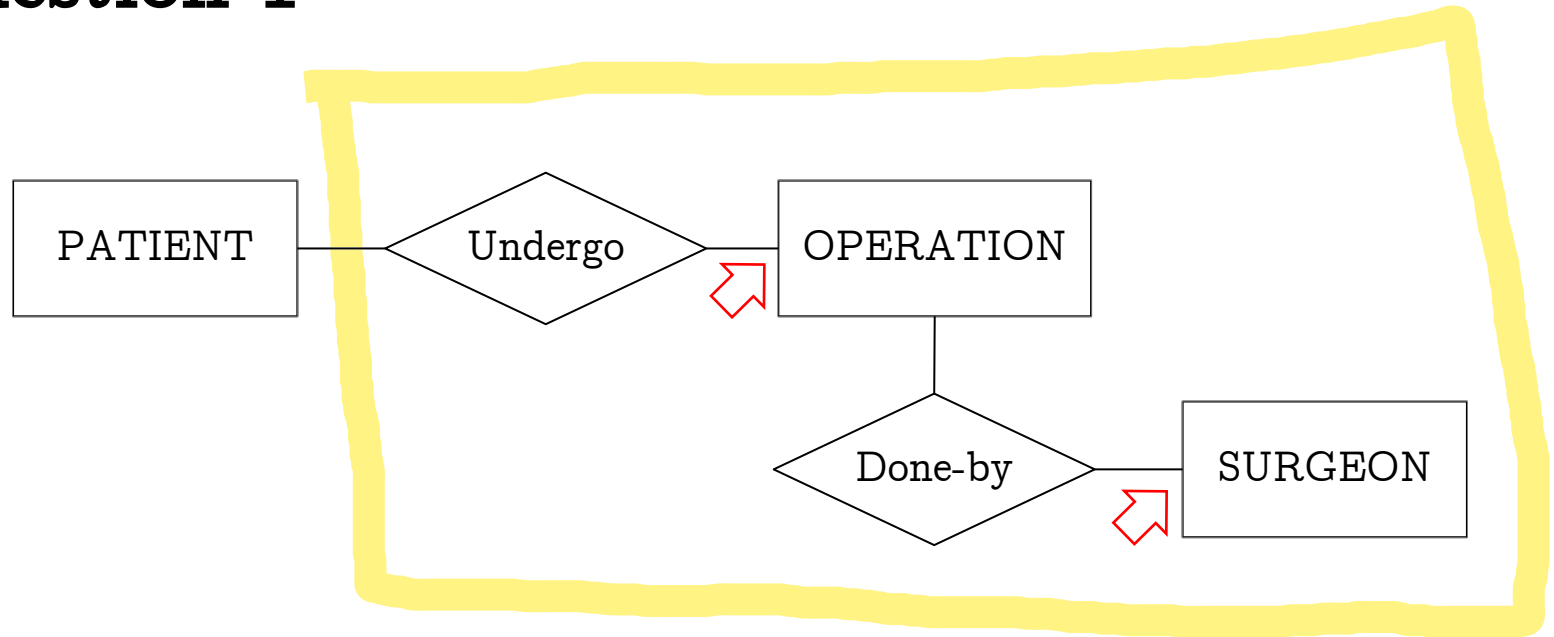


Question 1

- During his/her hospitalisation, a patient may undergo surgical treatment, whereby multiple operations are possible. Complex procedures might require multiple surgeons.
- An operation is characterised by the type of operation and the normal duration. The date / time of a particular operation has to be recorded.
- Every surgeon has been involved in at least one operation but not every operation type has been carried out in this hospital.



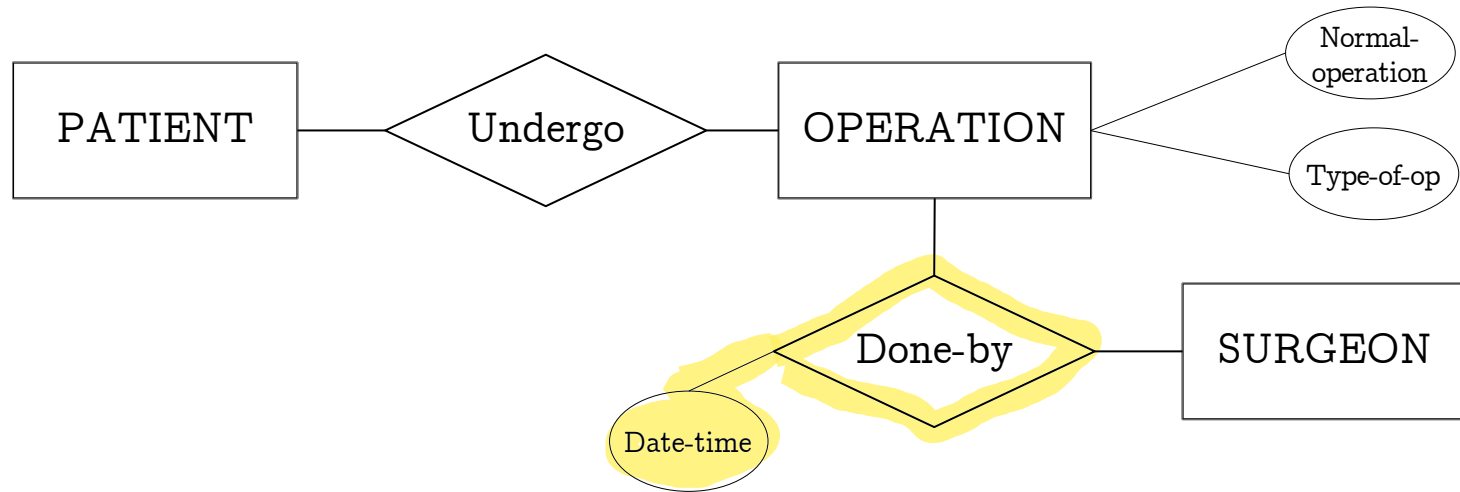
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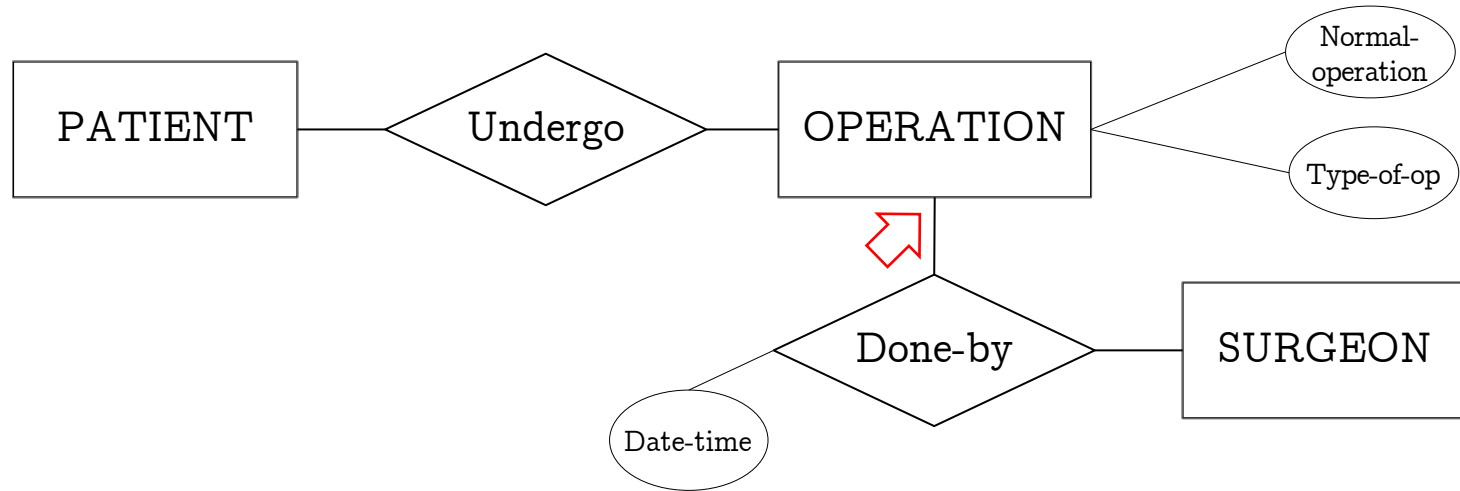
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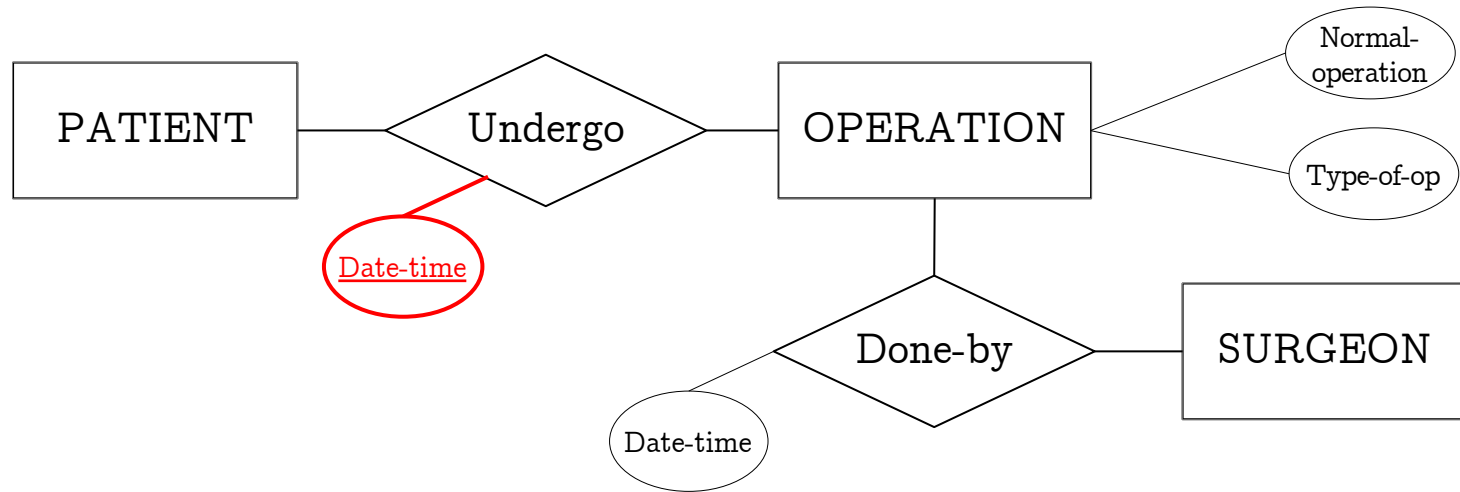
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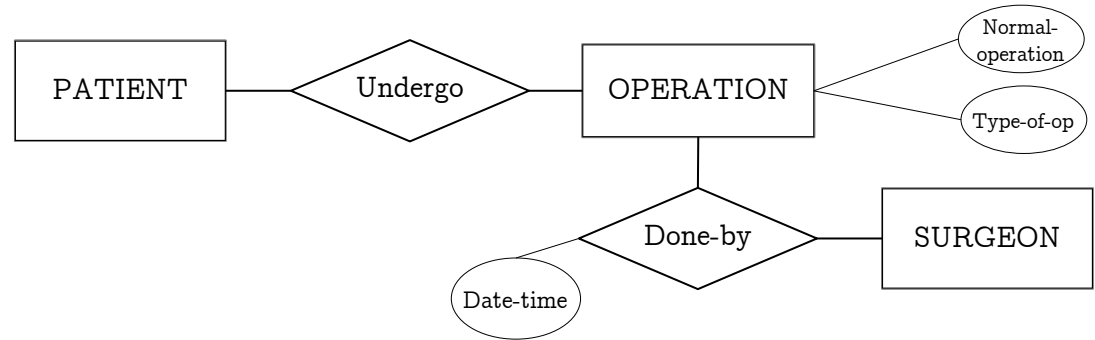
Question 1



- Problem 1:
- When a patient undergoes an operation, there is date/time when it is performed.
- If this is included as attribute of Undergo, then there are two Date-time's.
- Repetition of information in ER diagram is not good.



Question 1



Undergo

Patient	Operation
John	Heart-op
Mary	Heart-op
Steve	Heart-op

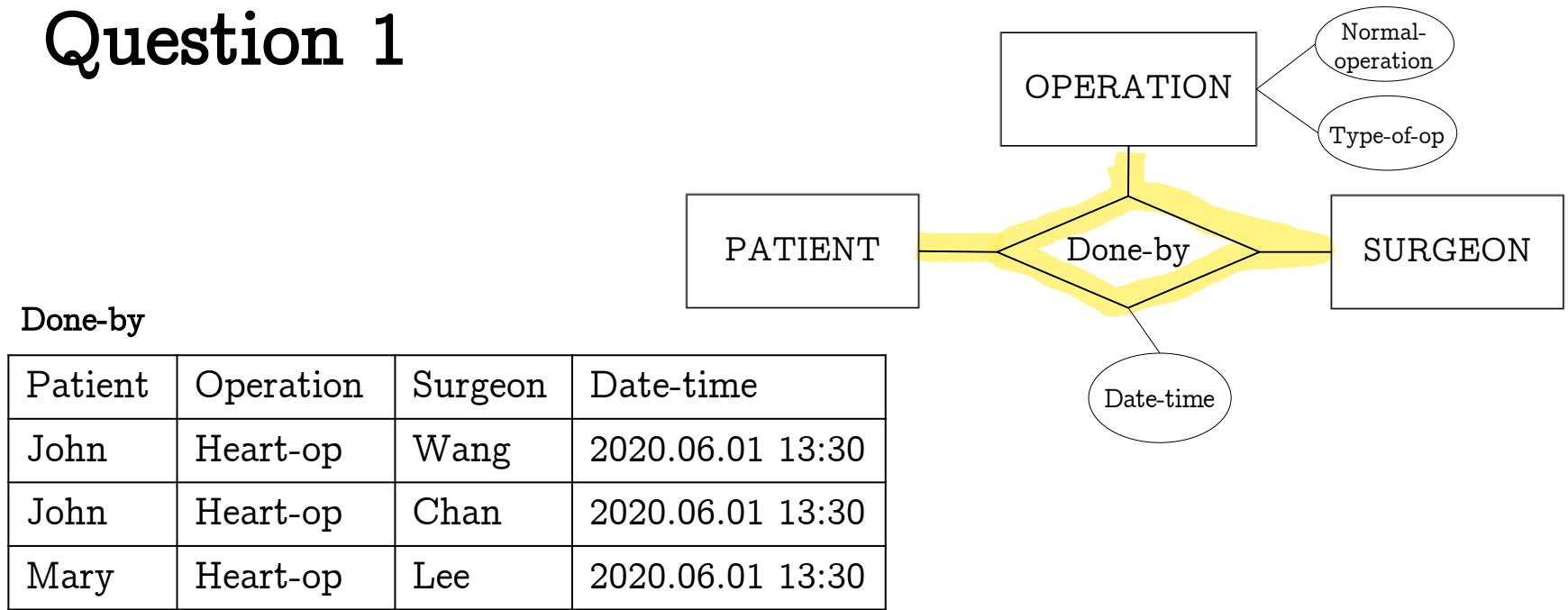
Done-by

Operation	Surgeon	Date-time
Heart-op	Wang	2020.06.01 13:30
Heart-op	Chan	2020.06.01 13:30
Heart-op	Lee	2020.06.01 13:30

- Problem 2:
- Consider the Undergo and Done-by tables of records.
- How do we know which surgeon operate on which patients?



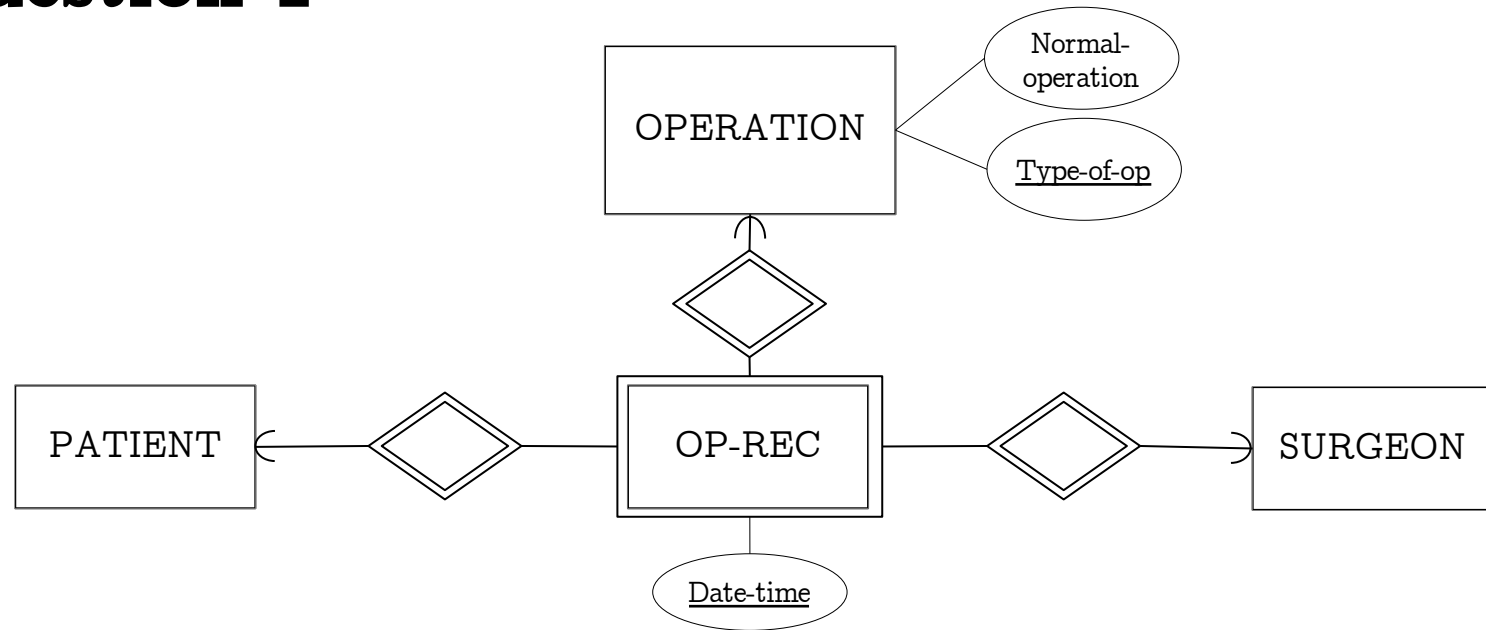
Question 1



- Problem 2:
- To resolve Problem 2, we can use a 3-way relationship.



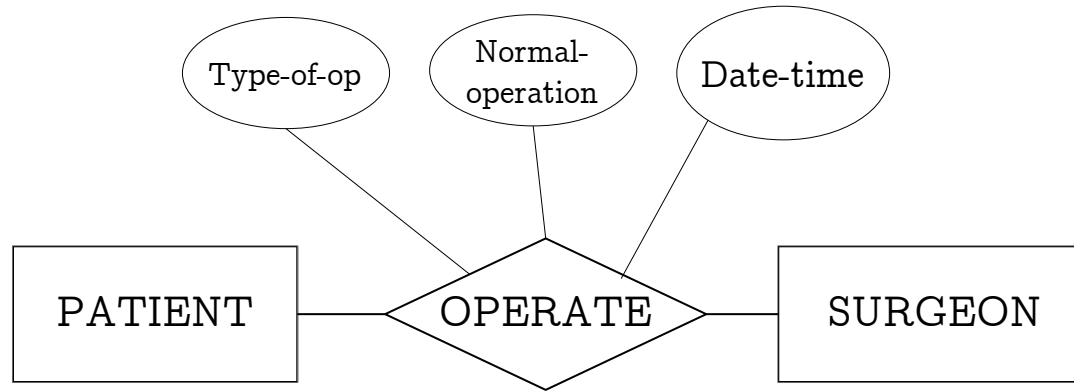
Question 1



- Always convert 3-way relationship to 3 binary relationships
- These relationships are weak relationships



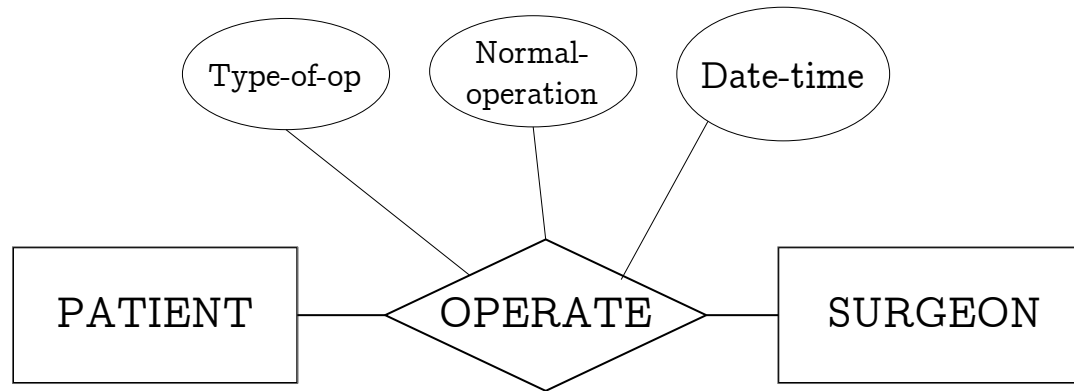
Question 1



- Problem 3:
- Can't capture operations that are not performed (as given in text).



Question 1



- Problem 4:
- If “heart surgery” is performed many times, “type” and “duration” will have the same values and repeated many times.

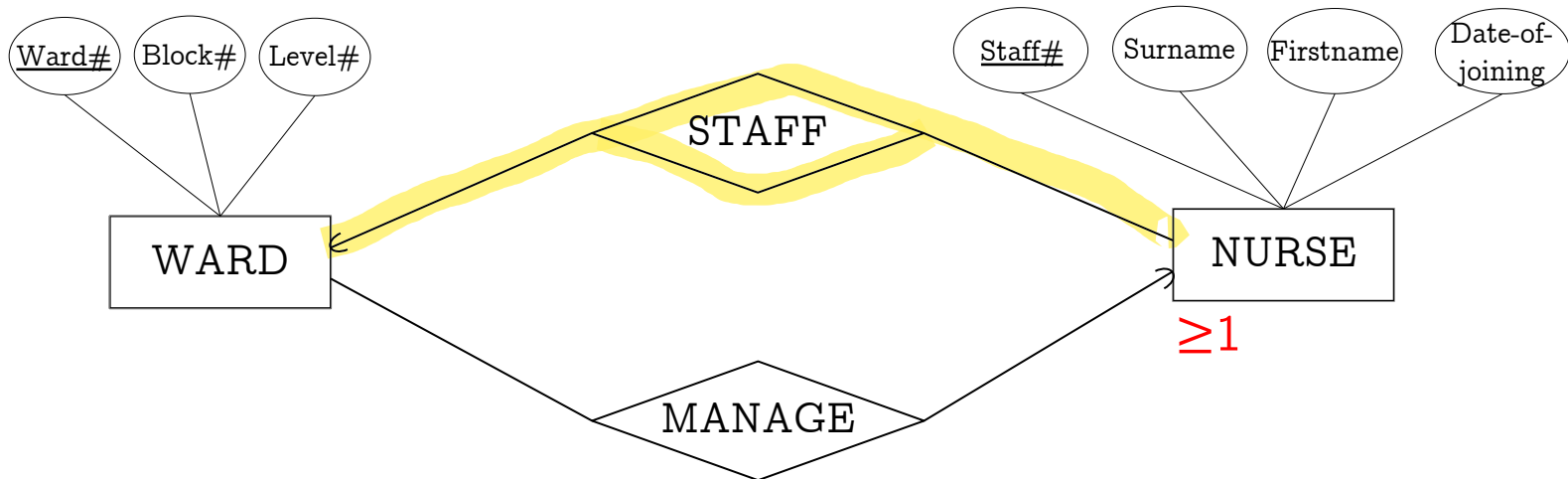


Question 1

- Information about nurses includes staff#, first name, surname, and date of joining.
- Every nurse is assigned to a ward. A ward is staffed by many nurses. However, a ward is managed by only one nurse. Not every nurse manages a ward.
- Nurses are designated as student nurses or registered nurses. The particular year of study for student nurses and the year of graduation and rank for registered nurses are also stored.



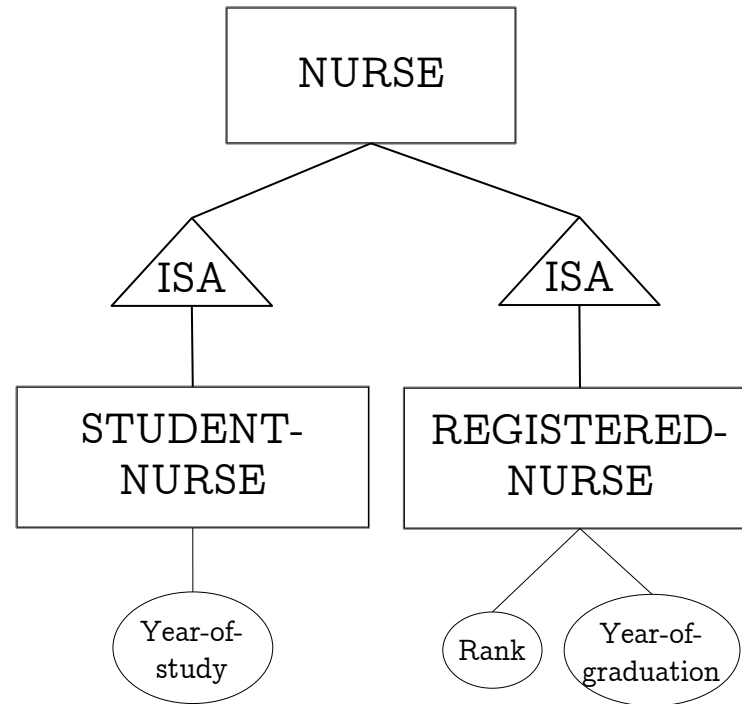
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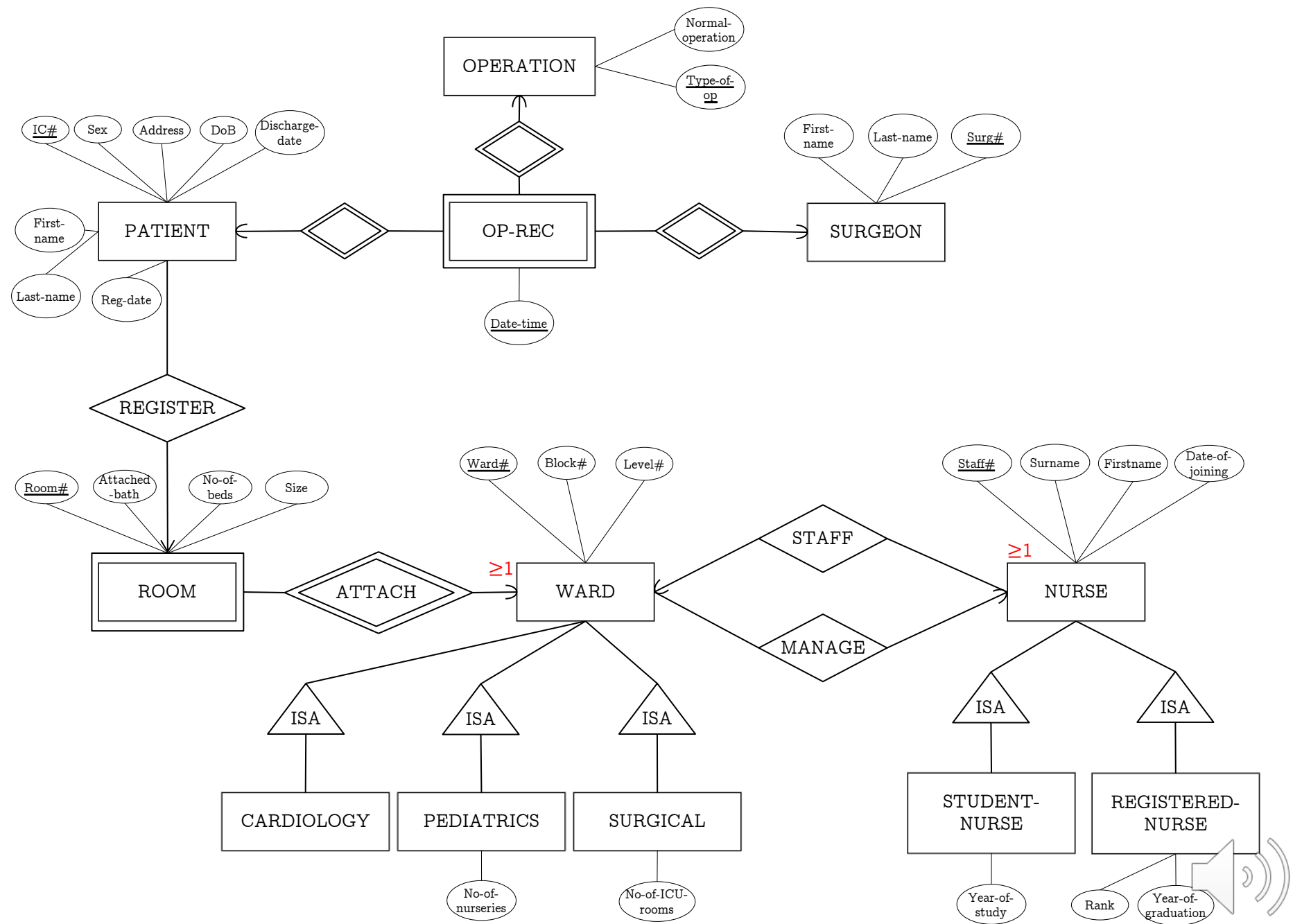



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A person in a green shirt and black shorts stands on a rocky peak, arms raised in triumph against a bright blue sky with soft clouds. The person is wearing a backpack and running shoes.

Do the best
you can until you know better.
Then when you know better, do better.

~ Maya Angelou

ALL THE BEST

