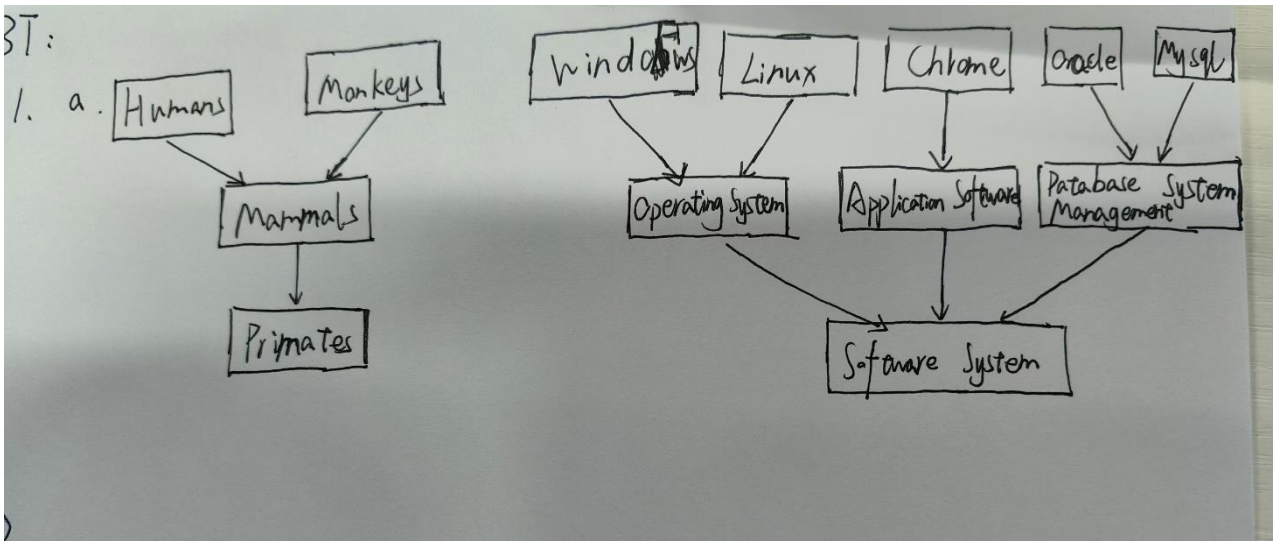
BT:

1.



2.a. Entity: A collection of certain types of things, concrete people and things, abstract concepts and connections

b. Entity type: Refers to a category of things or concepts that exist independently in a particular domain, such as an organization, system, or application.

c. Entity instance: An entity instance is a specific occurrence of an entity type. It is an individual member of the entity type. For example, if the entity type is "Student," a particular student with a name like "John Doe" and a student ID of 12345 is an entity instance

d. Optional: In the context of ER relationships, an optional relationship means that an entity instance of a particular entity type may or may not be related to an entity instance of another entity type. The presence of a relationship is not a requirement for the existence of the entity instance.

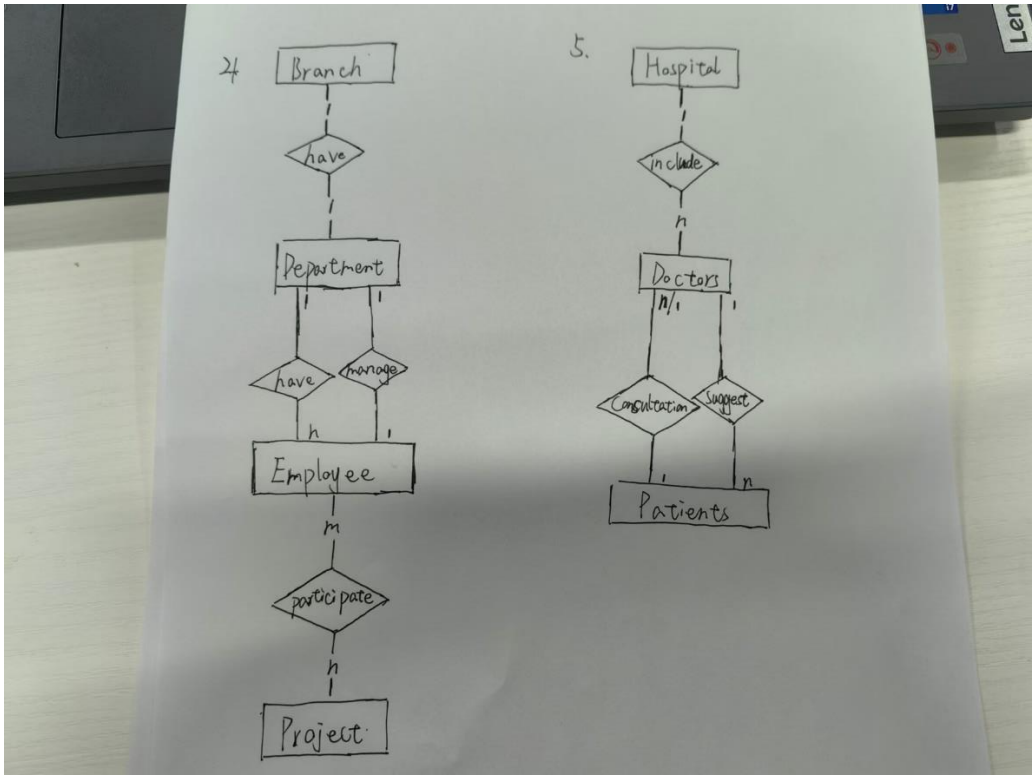
e. Mandatory: In the context of ER relationships, an optional relationship means that an entity instance of a particular entity type may or may not be related to an entity instance of another entity type. The presence of a relationship is not a requirement for the existence of the entity instance.

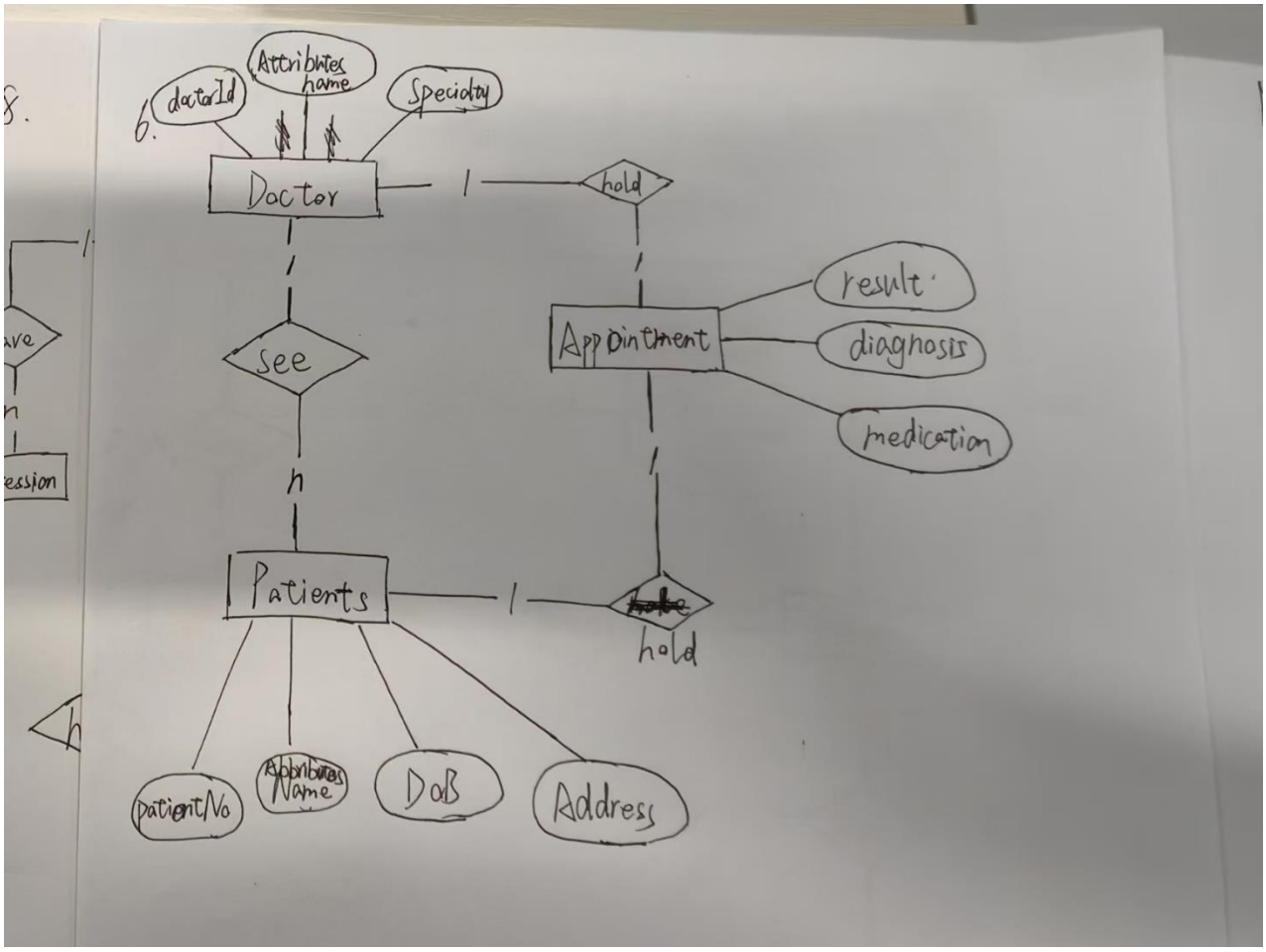
f. Cardinality: Cardinality in the ER model describes the numerical relationship between two entities. It defines how many entity instances of one entity type can be related to entity instances of another entity type. Cardinality is usually expressed as a ratio such as one - to - one (1:1), one - to - many (1:N), or many - to - many (M:N).

3. A data model is an abstract model that organizes and structures data elements and the relationships between them. It provides a conceptual framework for representing and understanding the data in a system. Data models can be represented using diagrams, such as Entity - Relationship (ER) diagrams, or through formal languages and notations.

Reasons:1. Effective Data Organization, 2. Communication and Understanding, 3. Database Design and System Scalability

4,5,6,7,8,9.


4
Branch
have
Department
have
manage
Employee
participate
Project
5.
Hospital
include
Doctors
Consultation
Suggest
Patients


6.
doctorId
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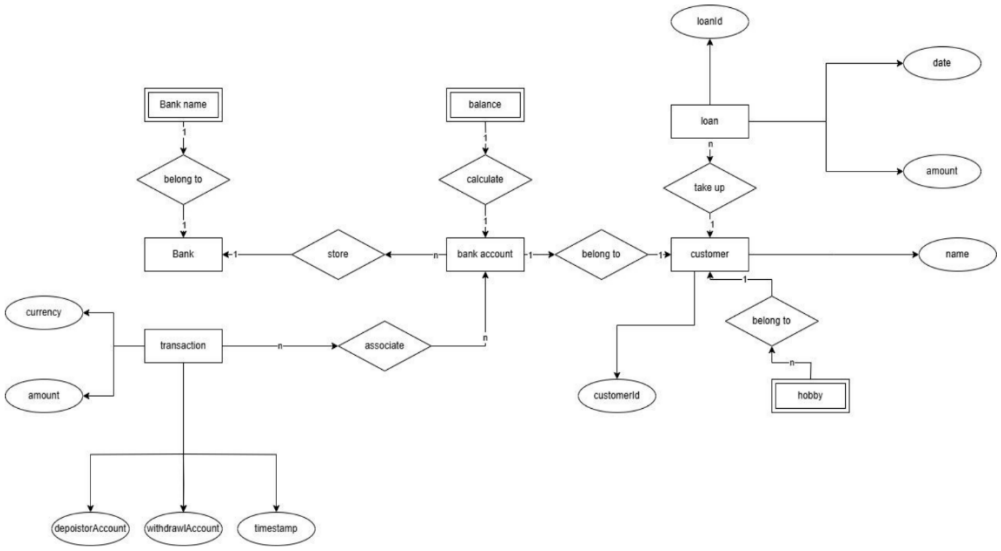
loanId
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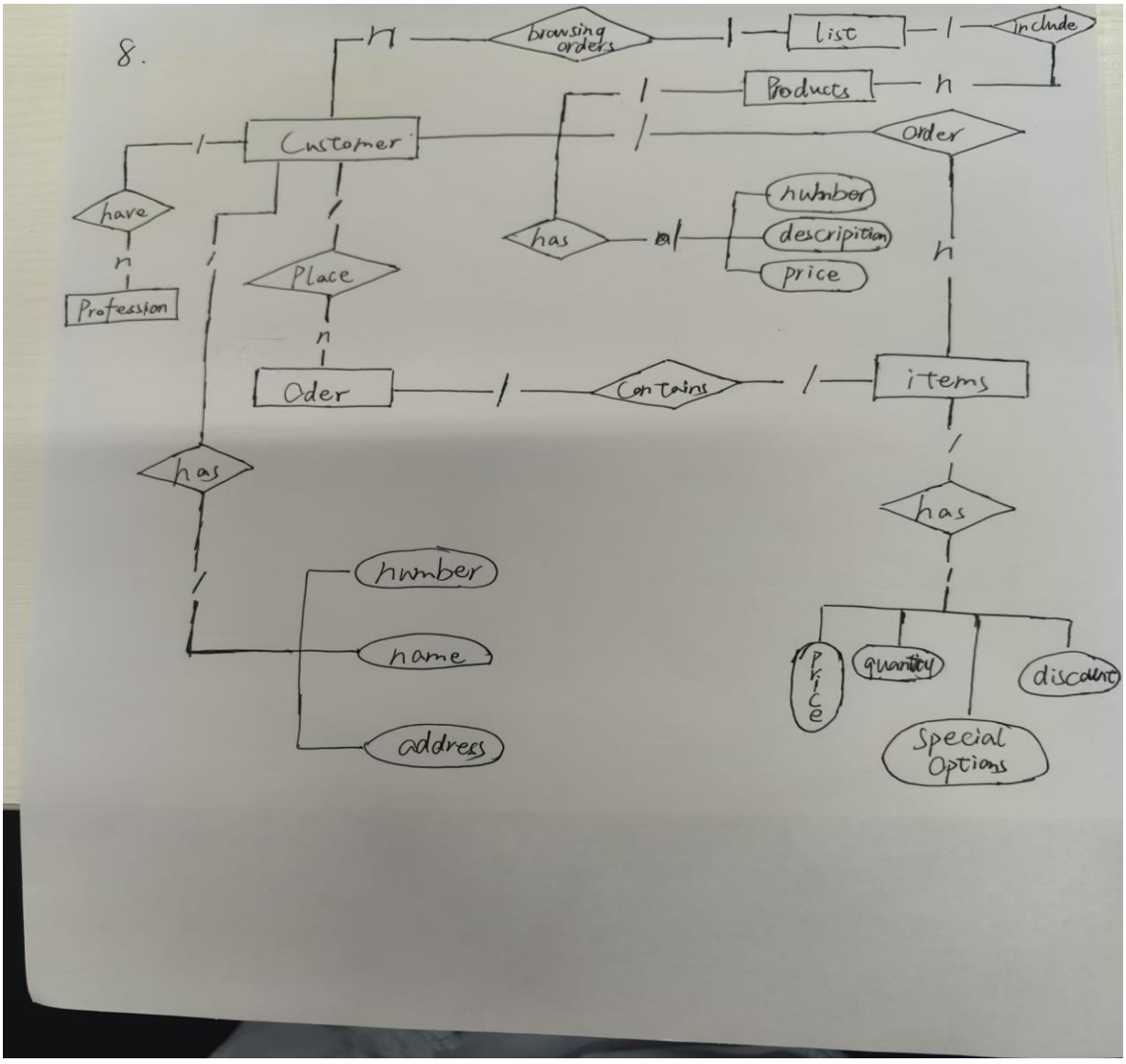
8.
browsing orders
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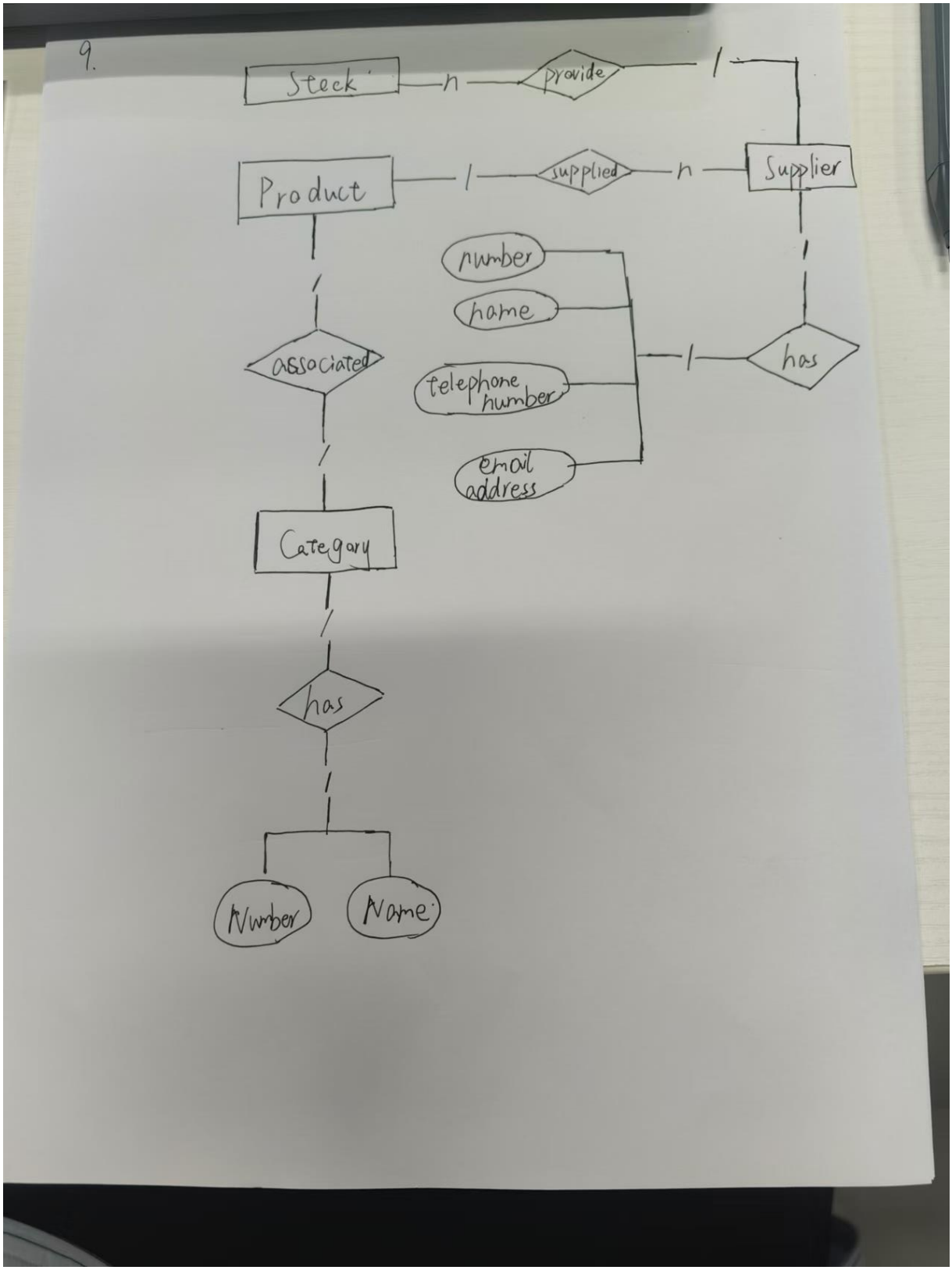
Special Options

9.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Category
has
Number
Name