

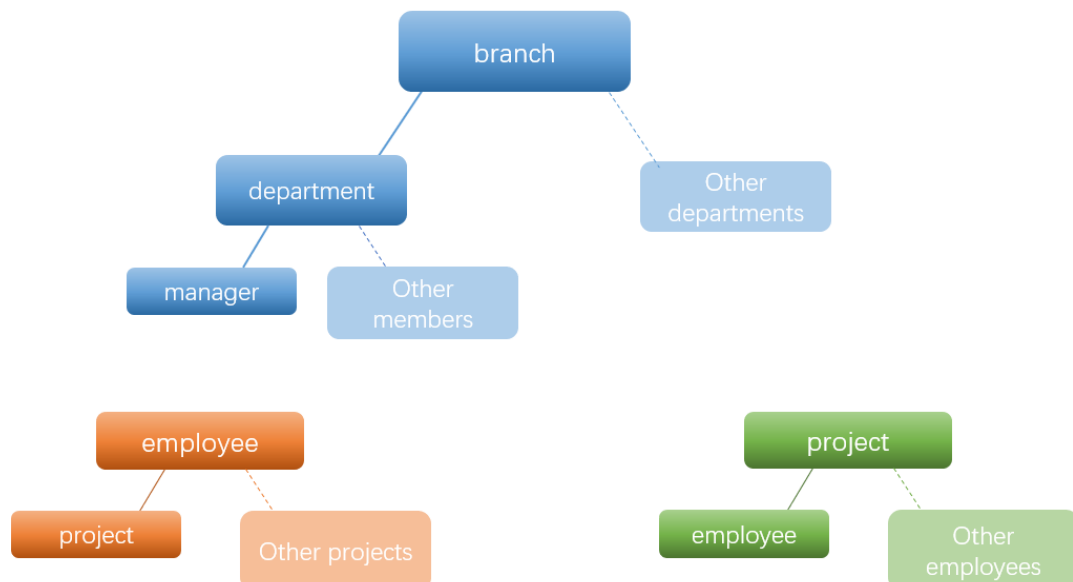
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BASIC TASKS

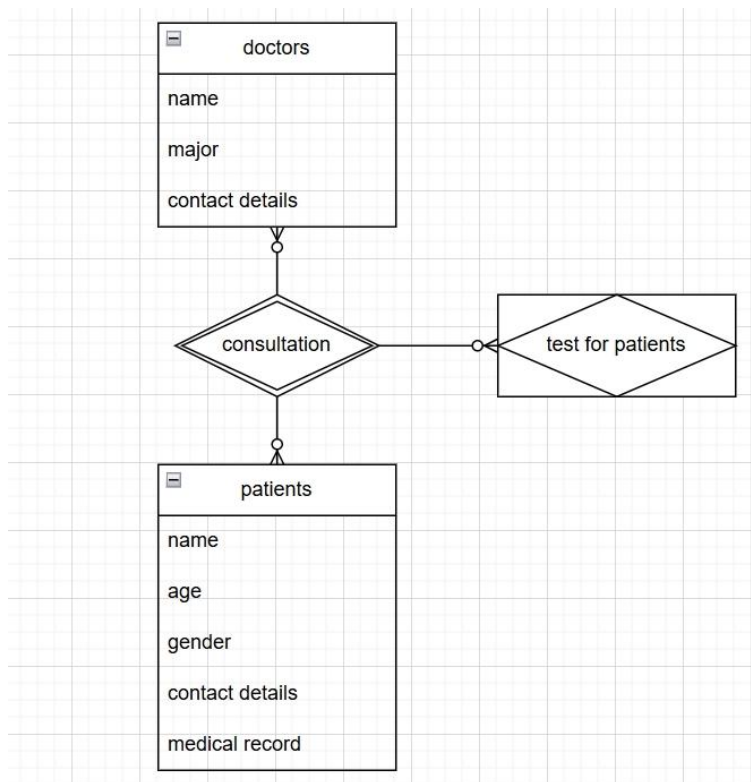
1.
 - Mammals
 - Primates
 - Monkeys
 - Humans
 - Software System
 - Operating System
 - Linux
 - Windows
 - Database management system
 - Oracle
 - Mysql
 - Chrome
2.
 - a. **Entity:** Entity represents any object or concept that can be recognized as data stored in the system
 - b. **Entity type:** Entity type is a classification of entities that share common attributes or features
 - c. **Entity instance:** An entity instance is a specific instance or example of an entity type
 - d. **Optional:** In entity relationships, selectivity represents the non inevitability of an entity's participation in the relationship
 - e. **Mandatory:** Mandatory means that entities must participate in a certain relationship. Contrary to selectivity, if a relationship is mandatory, then all entities must establish a connection with at least one related entity
 - f. **Cardinality:** The cardinality describes the degree of participation in the relationships between entity types. It defines how many associations can be formed between one entity type and another entity type in a relationship. The cardinality can be one-to-one (1:1), one to many (1: N), or fully correlated (M: N)

3. A data model is a theoretical representation of data structures that specifies the organization of data, the relationships between data, and the principles of data management. The data model not only describes the static characteristics of data (data types, structures, and relationships between data), but also describes the dynamic characteristics of data (rules for creating, changing, and deleting data). The data model is the foundation of database design, and common data models include hierarchical models, network models, relational models, object-oriented models, and semi-structured data models (such as XML).
4. Develop an ER diagram which represents a firm and the relationships between entities such as a branch, department, employee and project:

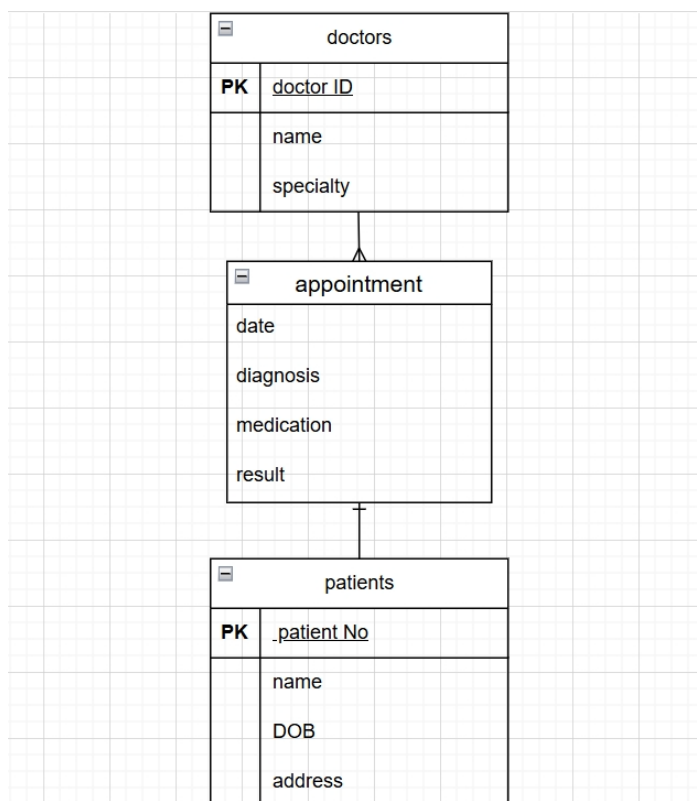
A large enterprise with multiple branches across the country. Within each branch, there are different departments operating. In these departments, there is a group of busy employees who may each be involved in one or more projects, and each project may also require cross departmental collaboration.



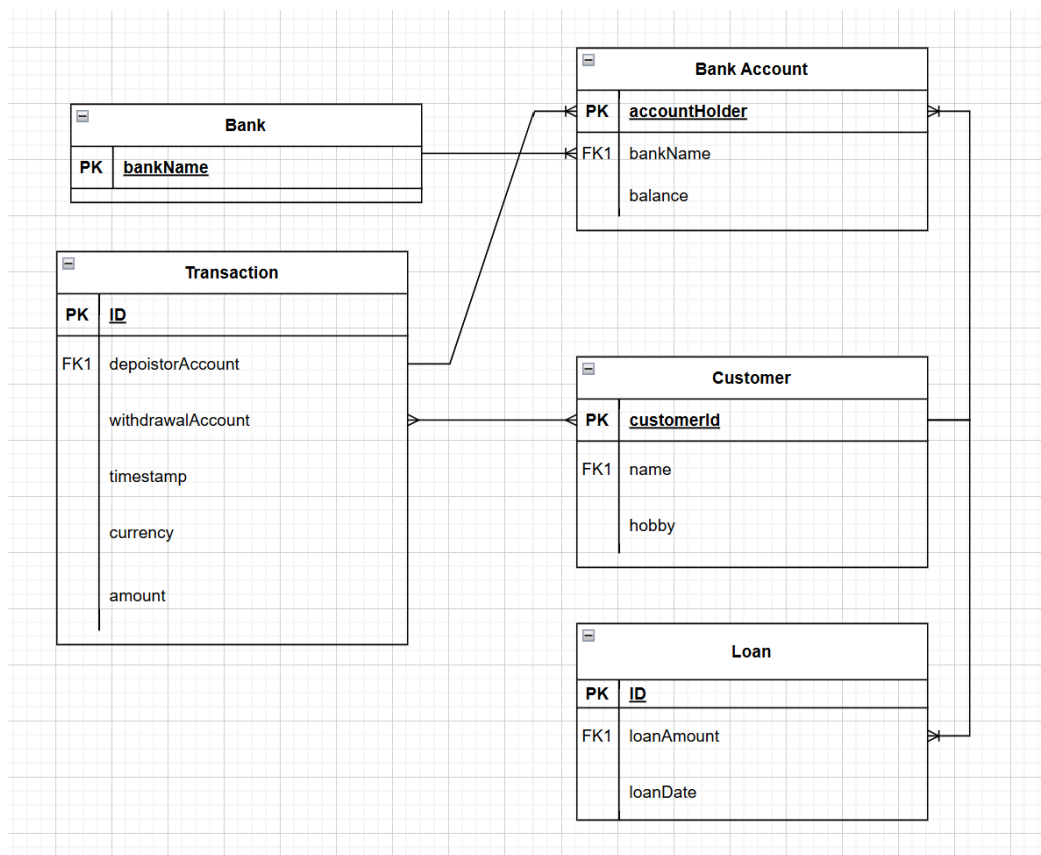
5.



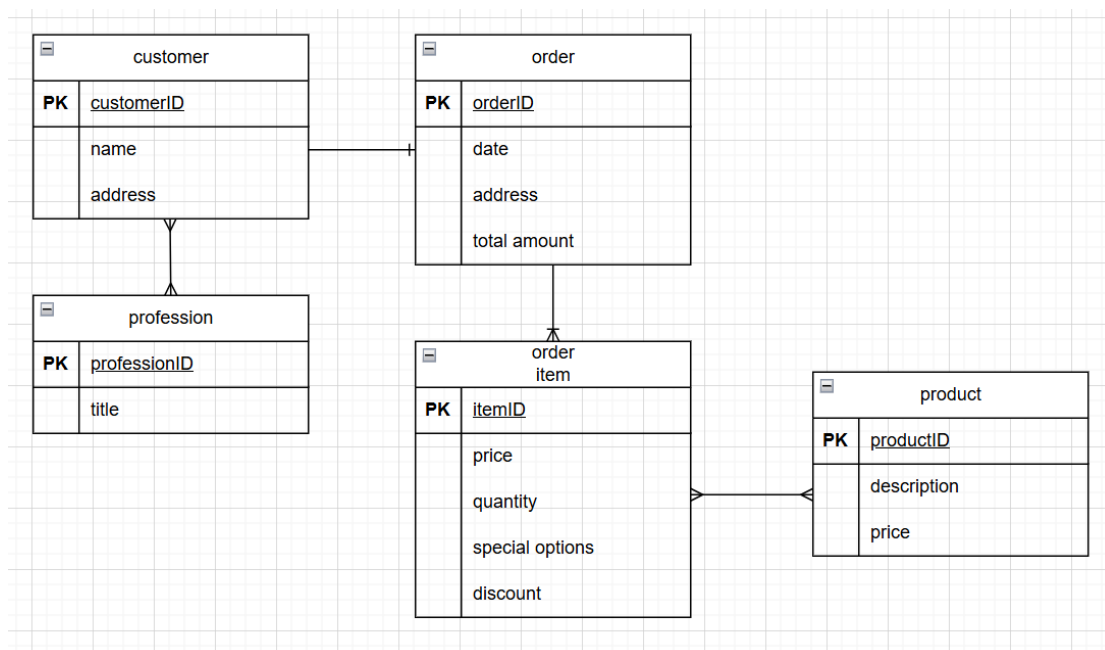
6.



7.



8.



9.

