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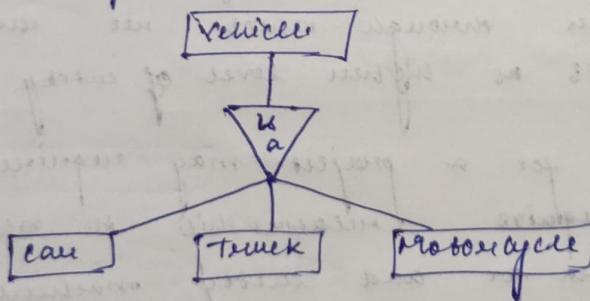
DBMS ASSIGNMENT 1

Ques 1: Differentiate between generalization, specialization and aggregation with example of each and proper diagram.

Ans: Generalization

- It is the process of extracting common properties from a set of entities and create a generalized entity from it.
- It is a bottom up approach in which two or more entities can be generalized to a higher level entity if they have some attributes in common.
- It is a form of abstraction that specifies two or more entities (sub class) having more features that can be generalized into a single entity (super class) at higher level hiding all the differences.

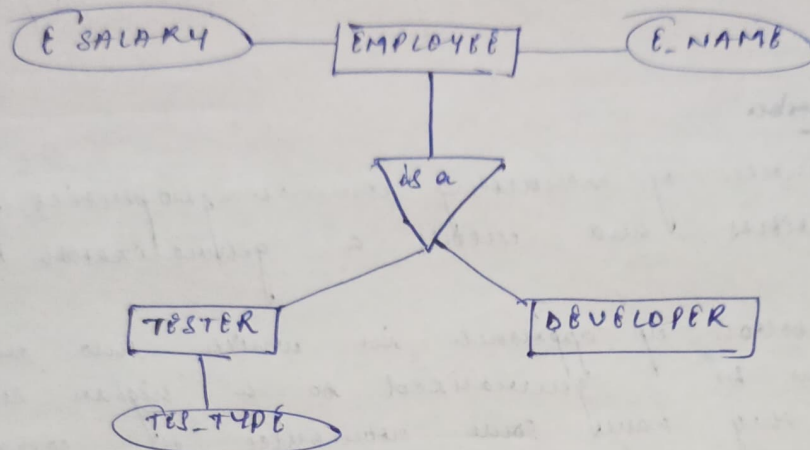
eg- we can have three sub-entities as car, Truck, motorcycle and these three entities can be generalized into one general super class as vehicle.



Specialization

- It is a process of identifying subjects of an entity that shares different characteristics.
- It breaks an entity into multiple entities from higher level (super class) to lower level (sub class).
- It is a top-down approach in which we first define the super class and then sub class and then their attributes and relationships.

eg - EMPLOYEE entity in an Employee Management System can be specialized into developer, Tester, etc. In this case, common attributes like E_NAME, E_SAL become part of higher entity (EMPLOYEE) and specialized attributes like TES_TYPE become part of specialized entity (TESTER).

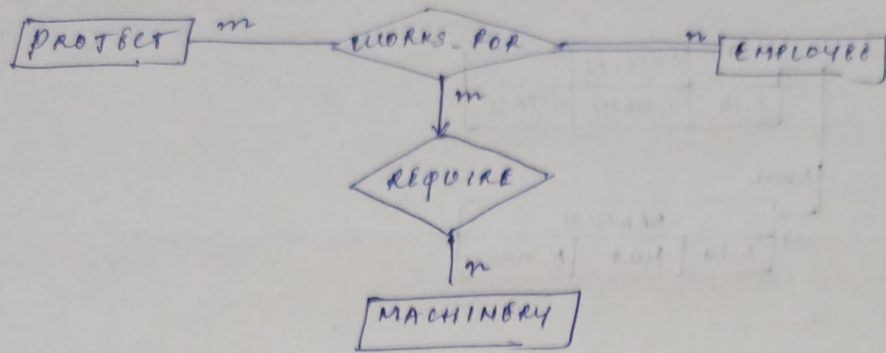


Aggregation

- An ER diagram is not capable of representing relationship b/w an entity and a relationship which may be required in some scenarios.
- In those cases, a relationship which its corresponding entities are aggregated into a higher level entity.
- It is an abstraction through which we can represent relationships as higher level of entity sets.

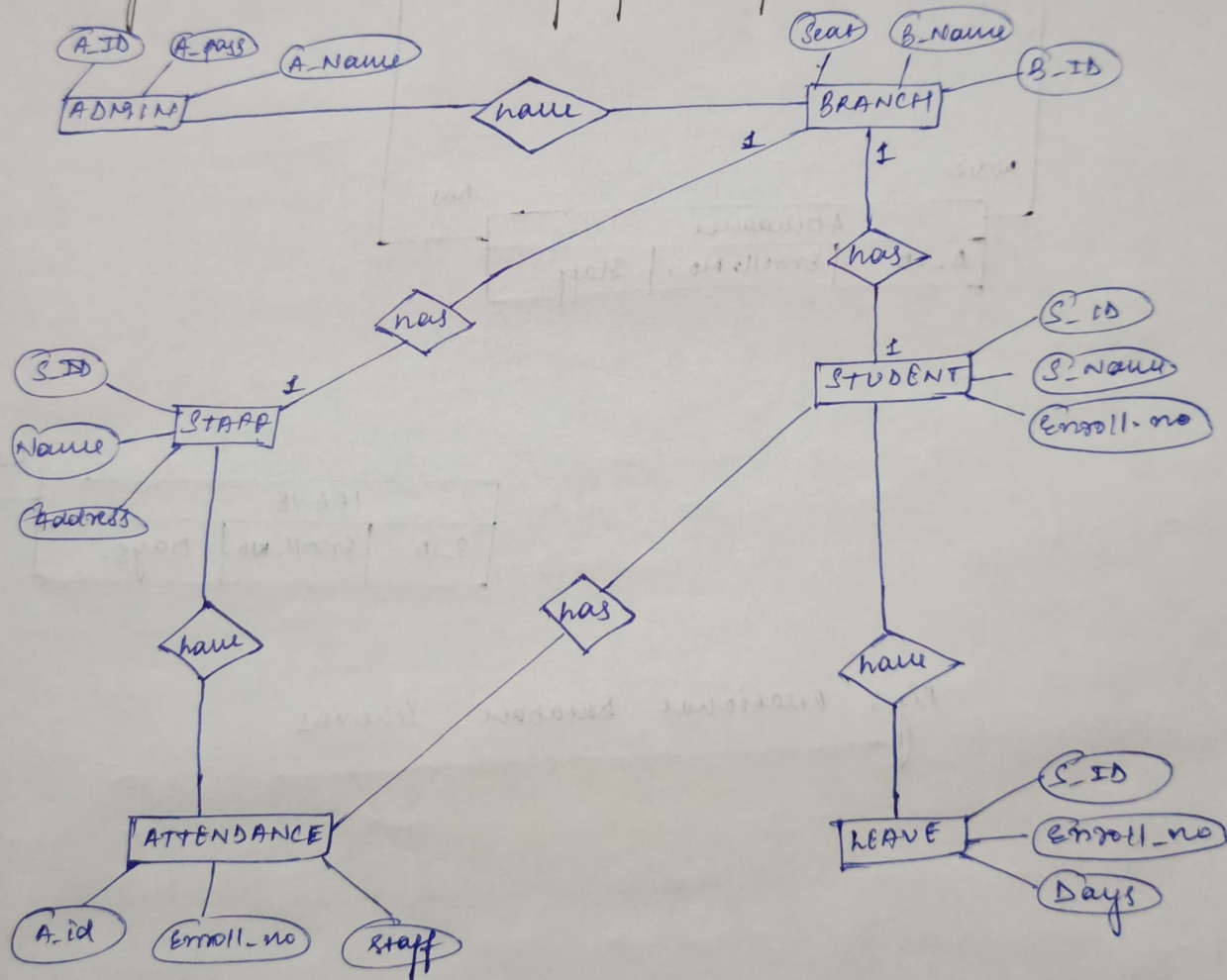
eg - Employee working for a project may require some machinery. So require relationship is needed b/w relationship work for and entity machinery.

Using Aggregation, means for relationships which its entities EMPLOYEE and PROJECT is aggregated into single entity and relationship REQUIRE is created between aggregated entity and Machinery.



Ques 2: Design ER diagram and its respective relational schema of university Attendance System (you can consider Sap-portal for this).

Ans:



E-R diagram of student Attendance Management System

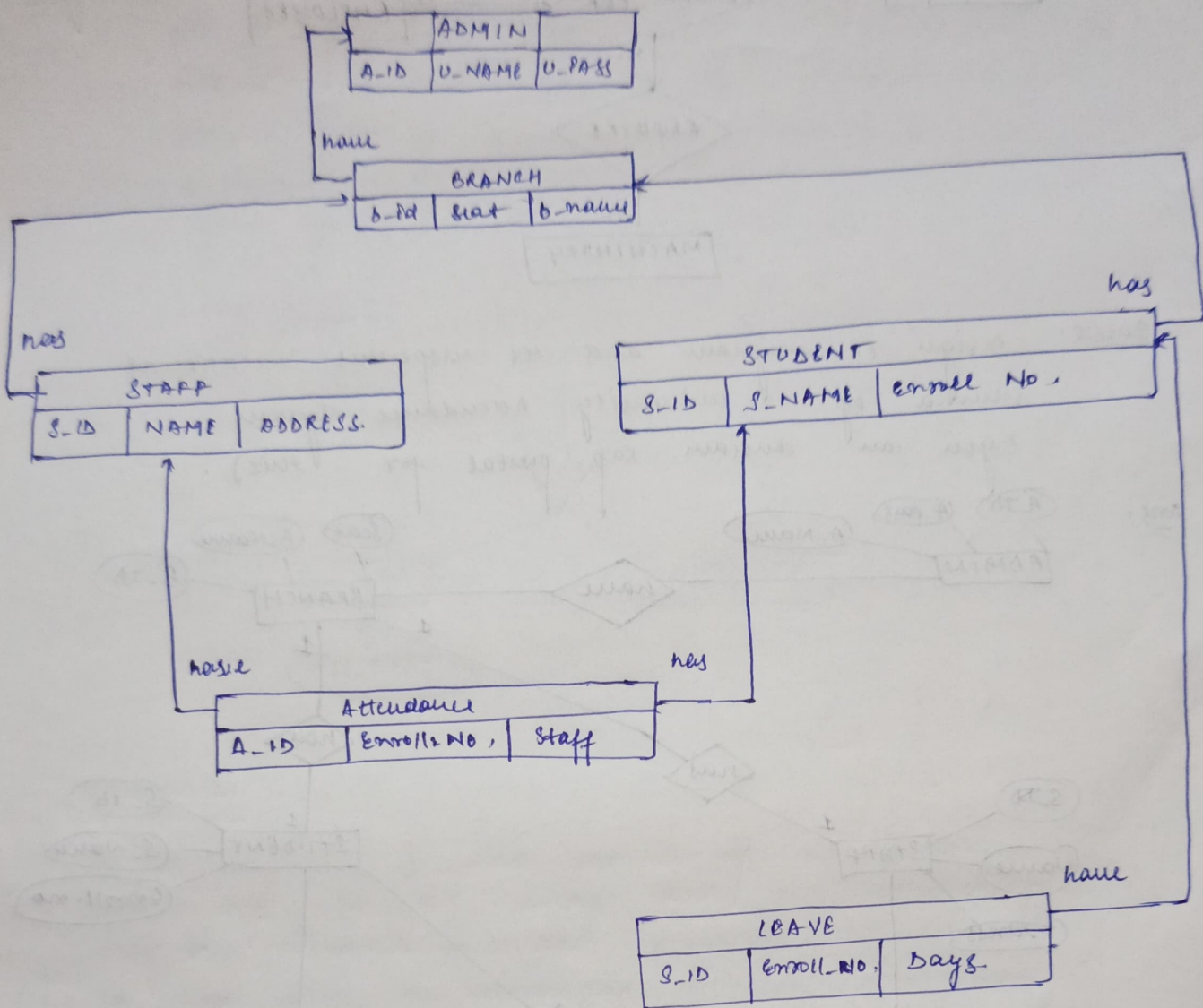


Fig: Relational Database Schemas