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1.

Entity type defines a collection (or set) of entities that have the same attributes.

Entity set is the collection of all entities of a particular entity type in the database at any point in time.

Difference among entity type, entity set, and entity: Entity is a thing with an independent existence, while entity type is a collection of those entities that shared the same attributes, and entity set represents all entities in an entity type at some point in time.

2.

The concept of weak entity is used when an entity types that do not have key attributes of their own and it cannot be identified without an owner entity

3.

{Previous_Education ({College's Name}, {Start Date}, {End Date}, {Degree_Entry (Name (Level, Department), Month, Year) }, {Transcript(Name, Semester, Year, Grade)}) }

4.

The requirements for ER diagram:

Strong entities:

An airport can have airport code, city, state name

An airplane type can have type name, max seats, company

An airplane can have airplane id, total number of seats

A flight can have airline, number, weekdays

Weak entities:

Flight_LEG can have LEG number

Fare can have restrictions, amount, code

LEG_Instance had number of available seats and date

A seat has seat number

The constraint for the ER diagram:

An airport could have many flight_legs to departure from and arrive to it and it had the scheduled departure and arrival time.

A flight_leg must have an airport to departure from and arrive to.

An airport could have multiple airplane types and any airplane type can land in multiple airports

An airplane can only be one type

A flight_leg must have a flight

A leg_instance could only have one airport to depart and arrive

5.

a) Combinations of attributes have to be unique: DaysTime, Year, Sem, CRoom, SecNo.

b) Combinations of attributes have to be unique: DaysTime, Year, Sem