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CSC 174 Assignment 1

1. Composite attributes: These are attributes that are composed of smaller parts, each part representing a simpler attribute. For instance as we discussed in class, an address attribute might include sub-parts such as street, city, state, and zip code.

Simple or atomic attributes: These are indivisible attributes that cannot be further broken down into smaller components. They represent basic pieces of information. Example from class, attributes like age or name are simple because they can't be divided into smaller parts.

Single-valued attributes: These attributes hold only one value for each entity instance. In other words, they represent properties that have only one value associated with them at any given time. For instance, the attribute "height" of a person entity would typically be single-valued because a person usually has only one height measurement.

Multivalued attributes: These attributes can hold multiple values for each entity instance. They represent properties that can have more than one value associated with them simultaneously. An example of a multivalued attribute is "phone numbers" for a person entity, as a person may have more than one phone number.

2. Primary keys: These are attributes or sets of attributes that uniquely identify each row in a table. They ensure that each row in a table is distinct. Primary keys must have unique values for each tuple and cannot contain null values. They are crucial for maintaining the integrity and uniqueness of data in a relational database.

Foreign keys: These are attributes in one table that establish a relationship with the primary key in another table. They create links between tables in a relational database. Foreign keys help maintain referential integrity by ensuring that the values in the foreign key column of one table match the values in the primary key column of another table.

How they work together: In a relational database, primary keys and foreign keys work together to establish relationships between tables. The primary key in one table serves as a reference point for the foreign key in another table. This relationship ensures that data in one table is related to the corresponding data in another table, maintaining consistency and integrity across the database. Additionally, foreign keys help enforce constraints such as ensuring that only valid data is inserted into the tables, preventing disconnected records, and maintaining the integrity of relationships between tables.