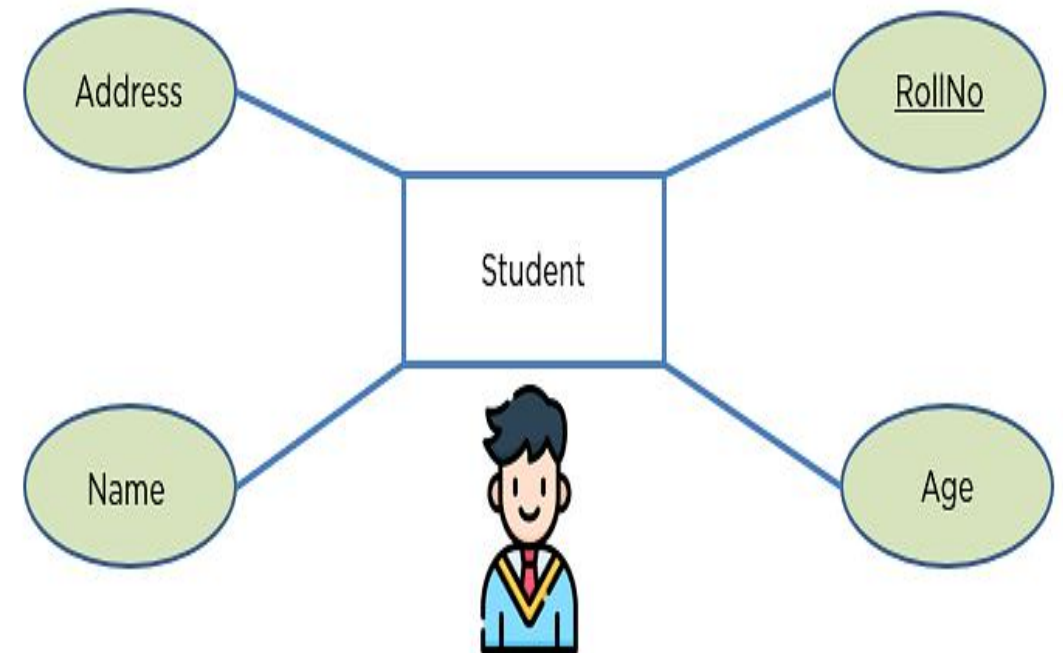# In Entity Relationship(ER) Model attributes can be classified into the following types.

- Simple/Atomic and Composite Attribute

- Single Valued and Multi Valued attribute

- Stored and Derived Attributes

- Complex Attribute

- Key Attribute and Non-Key Attribute

Remember:

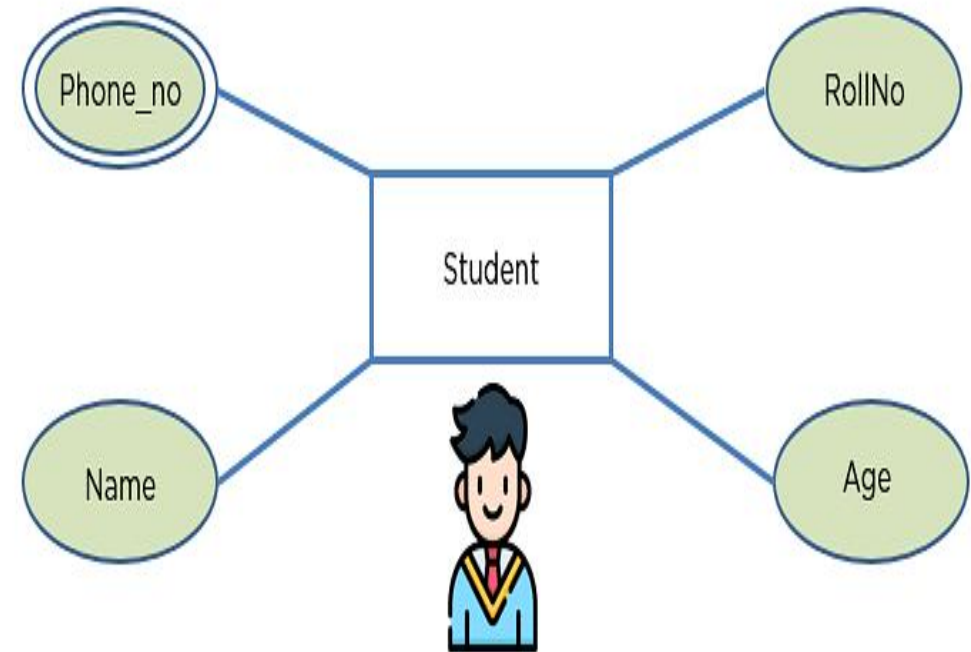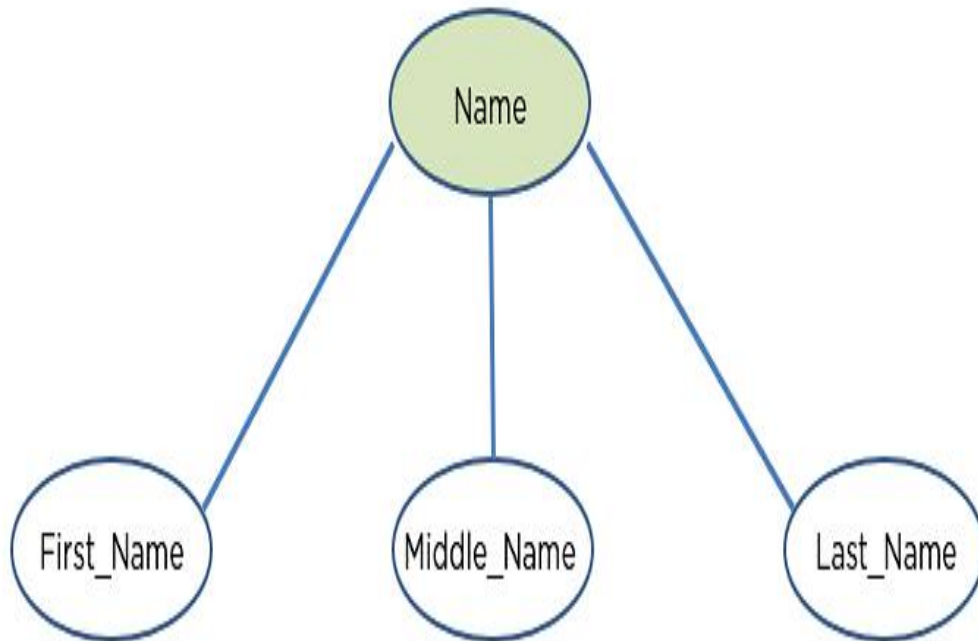In SQL, the same name can be used for two (or more) attributes as long as the attributes are in different relations.

attributes

- **Simple / Atomic Attribute**   --VS--   **Composite Attribute**
  (Can't be divided further)   (Can be divided further)

- **Single Value Attribute**   --VS--   **Multi Valued Attribute**
  (Only One value)   (Multiple values)

- **Stored Attribute**   --VS--   **Derived Attribute**
  (Only One value)   (Virtual)

- **Complex Attribute**
  (Composite & Multivalued)

Employee ID: An employee ID can be a composite attribute, which is composed of sub-attributes such as department code, job code, and employee number.

- **Atomic Attribute:** An attribute that cannot be divided into smaller independent attribute is known as atomic attribute.
  e.g. ID's, PRN, age, gender, zip, marital status cannot further divide.

- **Single Value Attribute:** An attribute that has only single value is known as single valued attribute.
  e.g. manufactured part can have only one serial number, voter card, blood group, price, quantity, branch can have only one value.

- **Stored Attribute:** The stored attribute are such attributes which are already stored in the database and from which the value of another attribute is derived.
  e.g. (HRA, DA…) can be derive from salary, age can be derived from DoB, total marks or average marks of a student can be derived from marks.
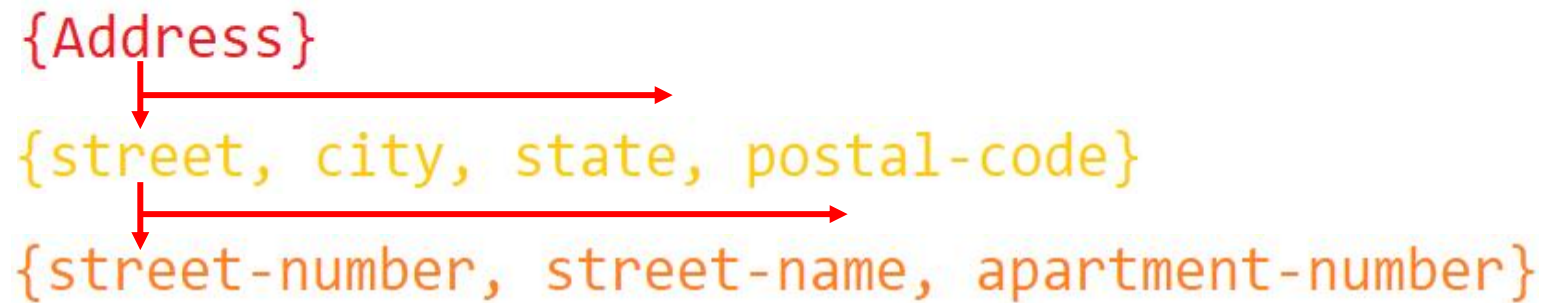
Composite VS Multi Valued Attribute

Composite Attribute

Person Entity

- *Name* attribute: (firstName, middleName, and lastName)

- *PhoneNumber* attribute: (countryCode, cityCode, and phoneNumber)

{Address}

{street, city, state, postal-code}

{street-number, street-name, apartment-number}

Multi Valued Attribute

Person Entity

- *Hobbies* attribute: [reading, hiking, hockey, skiing, photography, . . .]

- *SpokenLanguages* attribute: [Hindi, Marathi, Gujarati, English, . . .]

- *Degrees* attribute**:** [10th , 12th, BE, ME, PhD, . . .]

- *emailID* attribute*:* [saleel@gmail.com, salil@yahoomail.com, . . .]

entity relationship diagram