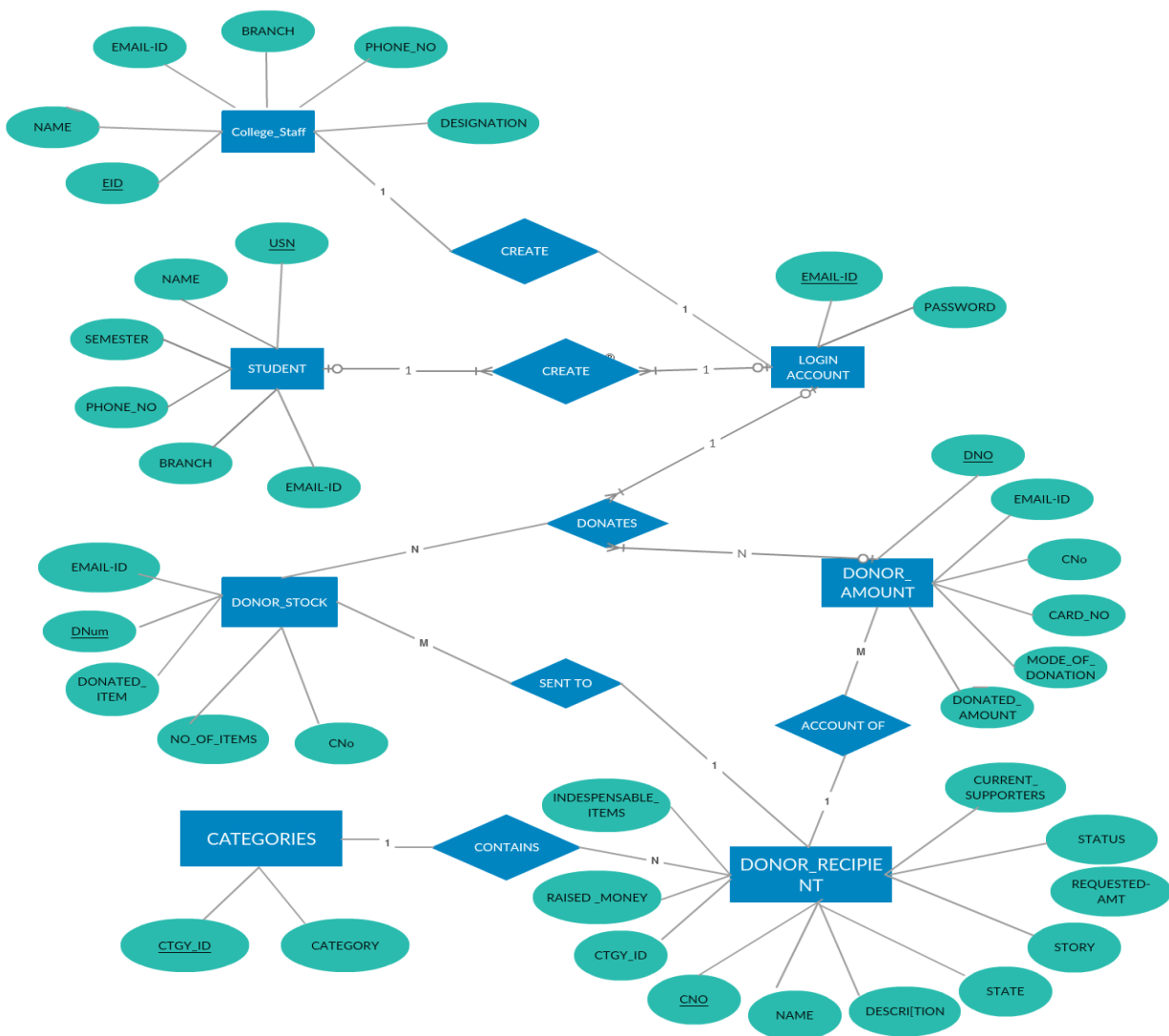# CHAPTER 2

ER DIAGRAM AND SCHEMA DIAGRAM

An entity-relationship model is composed of entity types and specifies relationships that can exist between instances of those entity types.
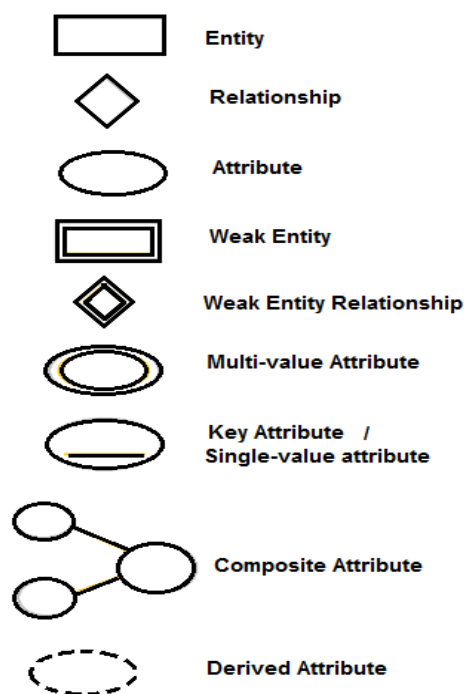
2.1 ER Diagram

Figure 2.1: ER Diagram of FRDM

The E-R Diagram in Figure 2.1 describes entities, attributes and relationships.

- An *entity relationship model*, also called an *entity-relationship (ER) diagram*, is a graphical representation of entities and their relationships to each other, typically used in computing in regard to the organization of data within databases or information systems. An entity is a piece of data-an object or concept about which data is stored.

- Entity types like STUDENT and CLG_STAFF are in rectangular boxes

- Relationships like CREATES and DONATES are in diamond boxes, attached to entity types with straight lines.

- Attributes are shown in ovals, each attached by a straight line to entity or relationship type.

- Key attributes (like USN, EID) are underlined.

- **Cardinality ratio** – maximum number of relationship instances that an entity can participate in. Here, the cardinality ratio between instances has been shown. Ex: 1:N, N:M, etc.

- Symbols and Notations for ER Diagram are as follows.

Symbol	Meaning
▭	Entity
◇	Relationship
⬭	Attribute
▣	Weak Entity
◈	Weak Entity Relationship
⬭⬭	Multi-value Attribute
⬭	Key Attribute / Single-value attribute
⬭-⬭	Composite Attribute
⬭ (dashed)	Derived Attribute

2.2 SCHEMA Diagram

A database schema is the skeleton structure that represents the logical view of the entire database. It defines how the data is organized and how the relations among them are associated. It formulates all the constraints that are to be applied on the data.

Schema representation for Fund Raising Database Management-

1. Underlined Attribute represent primary key in above schema.
2. The referenced attribute represents foreign key.
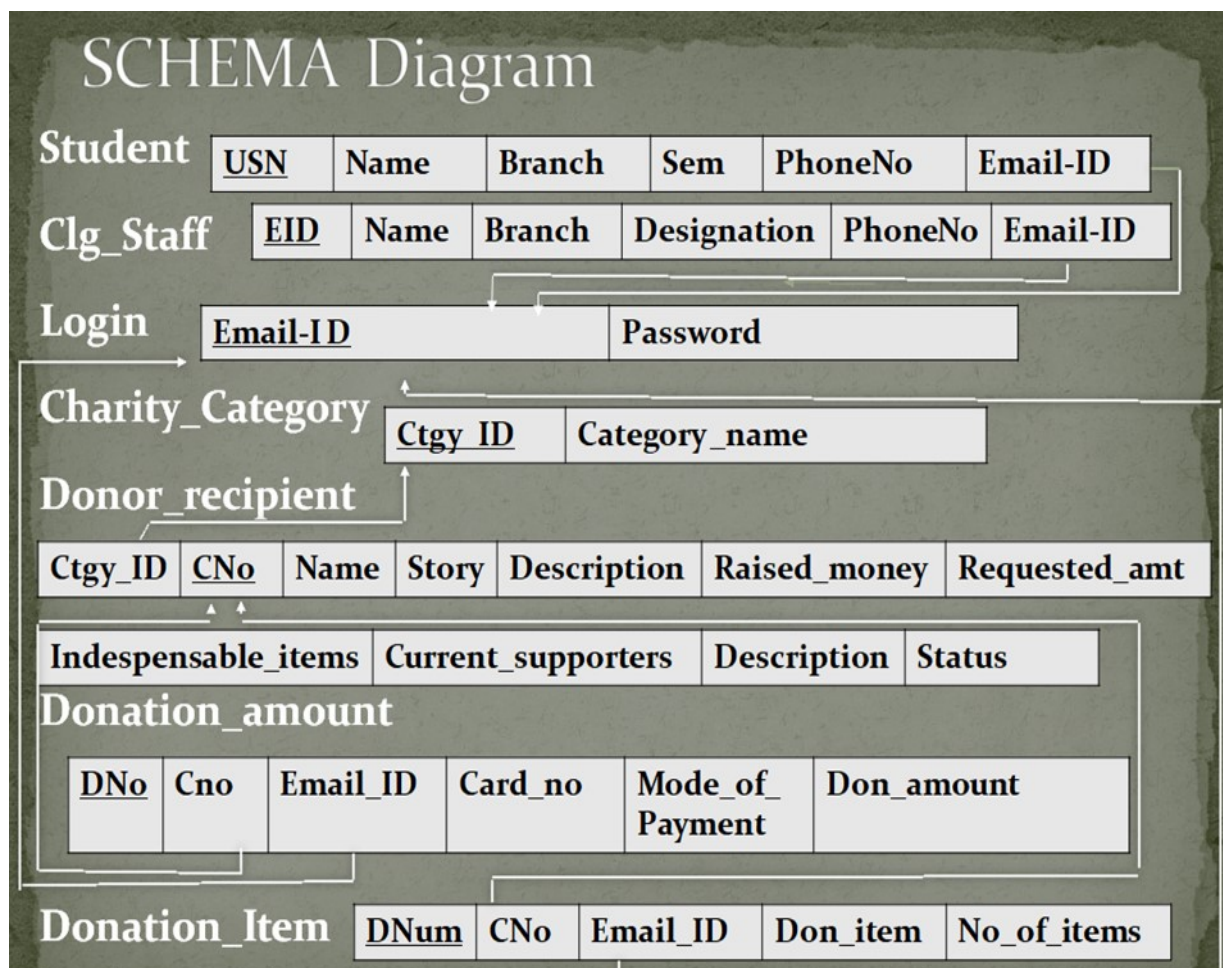3. One or more underline attribute in a table represent composite key.

Figure 2.2: SCHEMA Diagram of FRDM