Part one

Unique Identity: something that doesn't repeat across similar objects!!

1. For each of the following collections of objects, describe how they could be **uniquely** identified.

a. all persons in the world for sending mail

- There are two options here. If it is physical mail delivery, then the person's full name and mailing address. (Some would add contact details)
- In another case, it could be electronic mail so just their email address.

b. all persons for a criminal investigation

- In a criminal investigation, you'd need every detail about the suspect so form the person's fingerprints to the DNA, National Id, and maybe their assigned criminal case number.

c. all telephones in the world

- From research, every telephone should have an IMEI (International Mobile Equipment Identity) number, country code and a phone number.

d. all employees for the purpose of security

- For security purposes, we'd need the employees' ID, biometric data either via fingerprint or facial scan, and their security badge number.

2. Examine your set of objects from the room once again. Consider what constitutes a unique identity for each of these objects?

- My set of objects in the room (assuming we're at the office) would be: chair, laptop, keyboard, whiteboard, air conditioners.
- Their unique identifiers: employee, chair (serial number, brand - not all chairs in the office are of the same brand), laptop and keyboard (MAC address or serial number - again same brand/model, but unique production details), whiteboard (asset ID), air conditioners (serial number)

3. Identify composition and association relationships between the objects in the room.

- COMPOSITION:
    - Laptop → keyboard (Keyboard is a part of the laptop)

- ASSOCIATION:
    - Chair ↔ Office (Chairs are associated with office rooms or workspaces but can exist independently.)

    - Whiteboard ↔ Office (The whiteboard is used within the office but is not a part of another object.)
    - Air Conditioner ↔ Room
    - Laptop ↔ Air Conditioner (Both can coexist in the same room, but their relationship is only contextual/environmental.

4. In the case of the association relationships, which objects **hold custody**?

!! CUSTODY: OBJECT THAT LOGICALLY OWNS OR MANAGES THE RELATIONSHIP.

- Chair ↔ Office → **Office holds custody (**The office assigns or relocates chairs as needed.)
- Whiteboard ↔ Office → **Office holds custody**. (The whiteboard is an office asset so the office determines its placement/use.)
- Laptop ↔ Air Conditioner → **Neither holds direct custody.** (This is like a passive association (e.g., cooling can impact device performance), so contextual, not custodial.)

5. Identify instances of where an association object might be useful. In this case, do constrain yourselves to objects in the room.

!! ASSOCIATION OBJECT: USED WHEN THE RELATIONSHIP BETWEEN TWO OBJECTS HAS ITS OWN ATTRIBUTES THAT NEED TO BE TRACKED.

So maybe examples of instances where this would be useful is in asset management, user assignments, and session logs.

- **Example instance: Employee ↔ Laptop Association**
    - Association Object: LaptopAssignment
    - **Attributes:** Assigned Date, User ID, Condition
    - Purpose: Track who is using which laptop, and under what conditions.
- **Example 2: Room ↔ Air Conditioner Association**
    - **Association Object: ACInstallation**
    - **Attributes:** Installation Date, Maintenance Schedule, Cooling Capacity
    - Purpose: Monitor maintenance schedules and installation info for each AC unit in specific rooms.