Requirement Assumptions

- Drone attributes should be,
    - Id – primary key which is the drone identification.
    - Serial number – required.
    - Models have below weight limits – required.
        - Lightweight – below 125gr max.
        - Middleweight – below 250gr max.
        - Cruiserweight – 375gr max.
        - Heavyweight – 500gr max.
    - Weight limit – I have removed this attribute since weight limit can be determined from the model. I have implemented a helper class to obtain the weight limits.
    - Battery percentage – required.
    - State – required.
    - Current trip id – This will be filled when loading medication. Null when the drone is IDLE.

- Medication attributes should be,
    - Name – required.
    - Weight – required.
    - Code – required.
    - Image – string value, not required.
        - There are multiple ways to store an image. Upload a cloud, storage, DB as a byte array, as a base64 value...etc.
        - Here I have assumed that the image was uploaded to some cloud or server location and send the URL to API.

- Considering the given requirement, I have assumed below.
    - Medication is a set of drugs or a drug. It is like a set of medicine for a one invoice issued by a doctor.
    - A drone can carry multiple medication packages up to its weight limit, per trip for multiple customers.
    - If a drone is IDLE there is no trip for a drone. Apart from the IDLE state a drone must be on a dispatch process from LOADING to RETURNING.
    - When it is loading medications to a drone, the state must be changed to LOADING.

- When loading medication to a drone, it must assign a trip (trip id) to a drone and medications.

❖ Considering the APIs given, I have assumed below.
- Registering a drone.
  - Always IDLE when registering.
- Loading a drone with medication items.
  - Drone STATE should be changed to LOADING.
  - Total weight of the medications should be equal to or below the weight limit of the drone.
  - A trip should be created in this stage.
- Checking loaded medication items for a given drone.
  - Fetching the medications with LOADED state of its drone. Active trip for the drone, is here.
- Checking available drones for loading.
  - Returning the drones with IDLE state.
  - Here there is no active trip for the drone.
- Check drone battery level for a given drone.
  - Returning the battery state of a drone from 0 to 100.
- Change the state of a drone. (Additional API was implemented by me to keep the correct flow)
  - It is possible to change the state from LOADING to LOADED or any other state from this API.
  - It is not possible to change the state while the drone is IDLE.
  - State change is possible from LOADED state only.
  - Use this API to change the state from LOAD to LOADING before fetching the loaded medications for a given drone.