Patients in an intensive-care ward in a hospital are monitored by electronic analog **devices** attached to their bodies by **sensors** of various kinds.

Through the sensors the devices measure the patients' vital factors: one device measure **pulse rate**, another **blood pressure**, another **temperature**, and so on.

A **program** is needed to read the factors, at a **frequency** specified for each patient, and store them in a **database**.

The factors read are to be compared with **safe ranges** specified for each patient, and readings that exceed the safe ranges are to be reported by **alarm messages** displayed on screen of the nurses station. An alarm message is also to be displayed if any analog device fails.

Program

+ period: int

+ database: List<Patient>

+ alarmMessages: List<String>

- addPatient(Patient p): void

- monitor(): void

- display(): void

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Patient

+ name: String

+ period: int

+ devices: List<Device>

- addDevice(Device d): void

```
public abstract class Device{
private String name;
private int period;
private List<Device> devices;
}
```

```
public class Program{
    private int period;
    private List<Patient> database;
    private List<String> alarmMessages;
```

*

Device

+ category: String

+ name: String

+ factorDataset: List<Float>

+ safeRanges: List<int>

+ patient: Patient

```
private String category;
private String name;
private List<Float> factorDataset;
private List<Integer> safeRanges;
private Patient patient;
```

<lowerBound, upperBound>

PulseSensor

BloodPressureSensor

TemperatureSensor