Alert Generation System

Data

-heartRate
-bloodPressure
...

+getHeartRate()
+getBloodPressure()

↑ evaluates

AlertGenerator

+evaluateData()
+generateAlert()

—creates→

Alert

-patientId: string
-condition: string
-timestamp: datetime

use ↓

PatientProfile

- patientId: String
- name: String

+getAlertThresholds():
List<AlertThreshold>

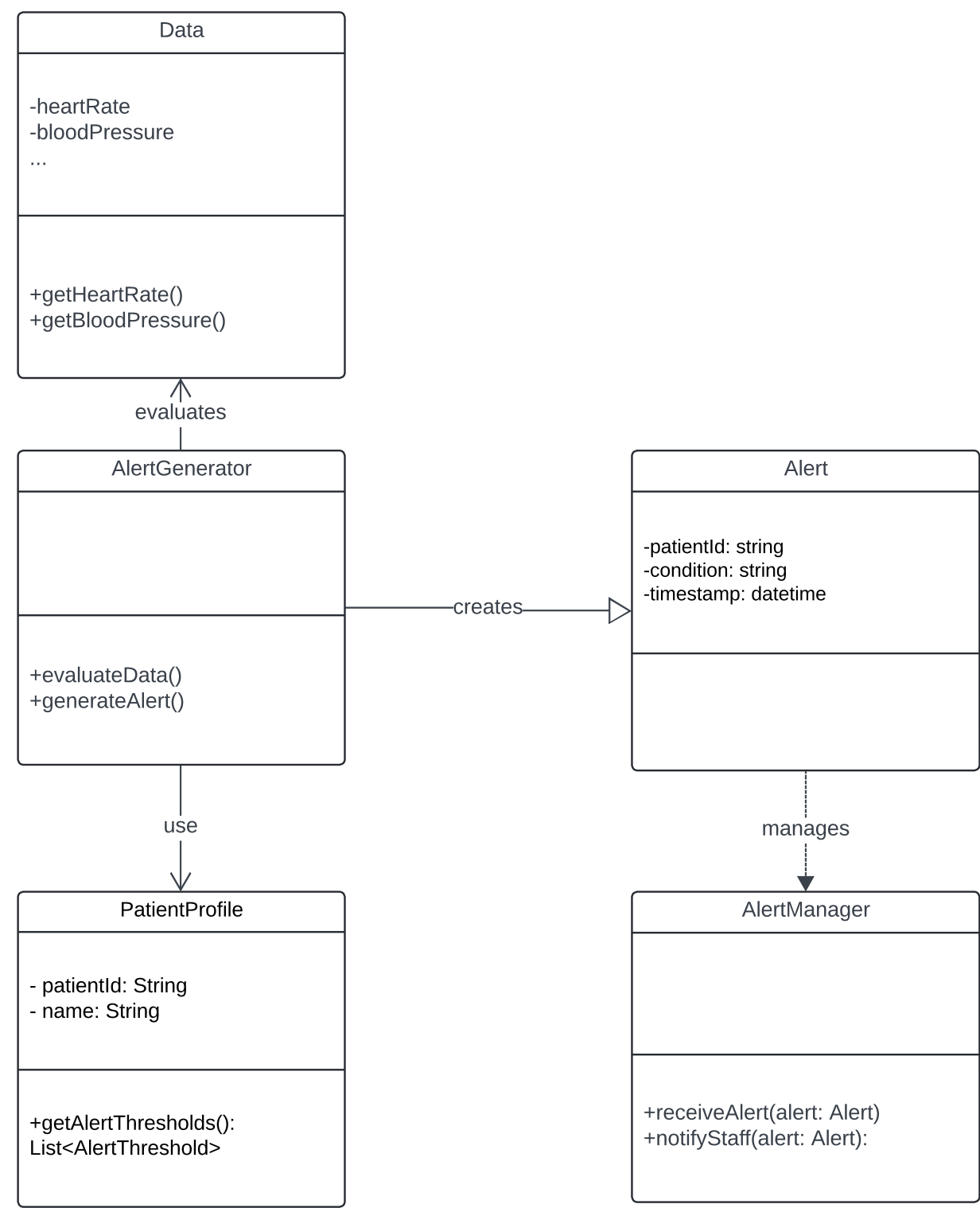manages ↓

AlertManager

+receiveAlert(alert: Alert)
+notifyStaff(alert: Alert):

The UML class diagram shows the core components and their relationships within an alert generation system. This system is designed to monitor real-time patient data and generate alerts when necessary.

1. Data (PatientData):
   • Attributes: Includes real-time monitoring data such as heart rate and blood pressure.
   • Methods: getHeartRate() and getBloodPressure() are used to retrieve the respective real-time data.
   • Relationship: AlertGenerator uses PatientData to evaluate patient status.
2. PatientProfile:
   • Attributes: Contains patient ID (patientId) and name (name).
   • Relationship: AlertGenerator uses PatientProfile to obtain the patient's personalized alert thresholds.
3. AlertGenerator:
   • Methods: evaluateData(PatientData) is used to evaluate data, and generateAlert(Alert) is used to generate alerts.
   • Relationship: Uses PatientProfile and PatientData for data evaluation and creates Alert objects when necessary.
4. Alert:
   • Attributes: Contains patient ID (patientId), the condition that triggered the alert (condition), and a timestamp (timestamp).
   • Relationship: Created by AlertGenerator and managed by AlertManager.
5. AlertManager:
   • Methods: receiveAlert(Alert) receives alerts, and notifyStaff(Alert) notifies medical staff.
   • Relationship: Manages Alert objects and notifies the relevant medical staff