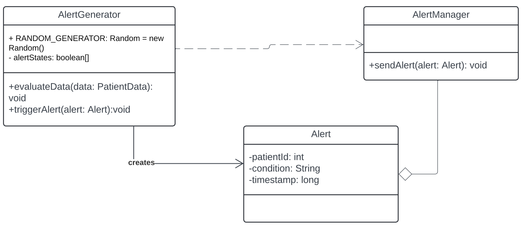
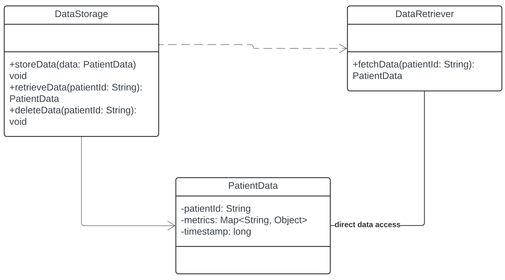
Alert Generation System



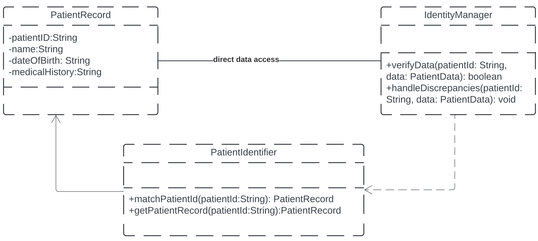
AlertGenerator monitors incoming patient data, evaluates it against predefined criteria (like abnormal heart rate or blood pressure levels), and decides if an alert should be triggered. AlertGenerator has a direct association with Alert since it creates objects of type Alert. AlertGenerator uses AlertManager to manage and send alerts once they are created, indicating a dependency or association.AlertManager manages multiple Alert objects, suggesting a composition relationship (AlertManager directly manages the lifecycle of Alert objects).

Data Storage System



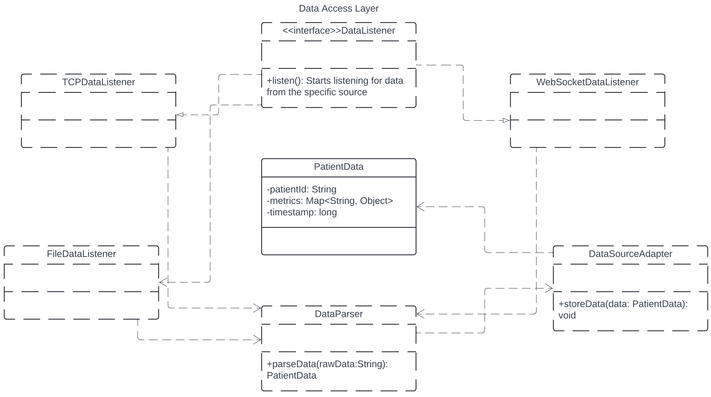
DataStorage has a direct association with PatientData as it manages storage and retrieval of these objects. It uses DataRetriever to ensure secure access to data, indicating a dependency. DataRetriever may also directly interact with PatientData when fetching data, suggesting another association.

Patient Identification System



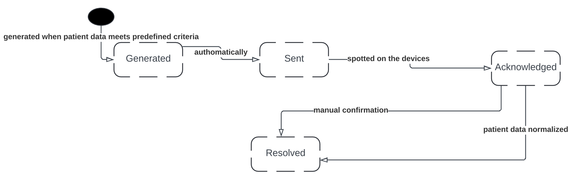
PatientIdentifier has a direct association with PatientRecord since it retrieves and works directly with these data objects. It works with PatientRecord objects created within Data Storage System. IdentityManager depends on PatientIdentifier to ensure accurate data verification, suggesting a dependency relationship. IdentityManager may also interact directly with PatientRecord for updating or correcting records, indicating another association.

Data Access Layer

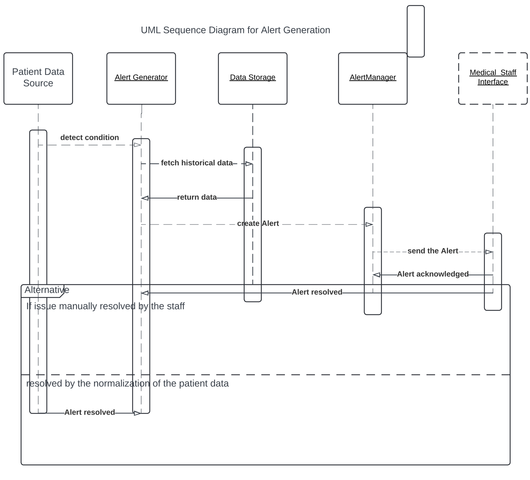


DataListener is an interface implemented by TCPDataListener, WebSocketDataListener, and FileDataListener, indicating inheritance. Each DataListener has an association with DataParser because it sends raw data to the parser for formatting. DataParser is associated with DataSourceAdapter, which takes the parsed data for storage. DataSourceAdapter depends on the Data Storage System (in the diagram represented by the PatientData class), suggesting a dependency for storing data.

State Diagram of the Alert Generation System



UML Sequence Diagram for Alert Generation



The sequence diagram takes into consideration all the fazes. The specific change in patient data triggers the Alert Generator to querry Data Storage about historical data. Then an Alert is generated and sent by the Alert Manager. The staff acknowledges the allert which is being communicated to the Alert Manager to prevent further notifications. Then two options arise: the staff resolves the Alert manually or the state of the patient will change therfore "detriggering" the Alert in Alert Generator.