

## Project Task part 2

### AlertGenerator State Diagram

This diagram visualizes the lifecycle of an alert from its generation to its resolution. The diagram has 4 main states Generated, Sent, Acknowledged, and Resolved.

- **Generated:** This is the state in which the patient's data meets the thresholds, e.g abnormal heart rate. This highlights the ability to detect and react to abnormal conditions of the patient, which allows the information to be relayed to a professional.
- **Sent:** When the alert is generated, it is sent to the medical staff, such as a nurse or a doctor, resulting in the "Sent" state. This ensures that the alerts capture immediate medical attention from the staff.
- **Acknowledged:** This state is reached upon professional acknowledgement of the alert. This step confirms that the alert has been noticed by a member of the medical staff, and urges them to act on the issue.
- **Resolved:** This is the final state of the cycle where an alert is considered resolved, either automatically or manually depending on the situation of the patient. This state highlights the conclusion of an alert with a clear resolution, ensuring the safety of the patient.

### AlertGenerator Sequence Diagram

The sequence diagram highlights a utilization/wider representation of the state diagram, with extra steps including Data access from its storage, to provide a sequential representation of the AlertGenerator system.

- **Live Monitoring:** The process first monitors a type of data, such as the Heart Rate, in real time to check if the data is within a normal/acceptable range.
- **Exceeding Threshold:** Upon entering an abnormal state, the system relays the information to the AlertGenerator, which analyzes the data and verifies it using historical data of the patient, to confirm trends or anomalies in the data regarding the patient's state.
- **Alert Generator:** Then, the AlertGenerator creates and sends an alert which is relayed to the medical staff, where they are able to act upon it through manual intervention, or the state of the patient stabilizes automatically.
- **Resolving Alert:** Upon stabilization of the state of the patient, the alert is resolved, and the system returns to an idle “monitor phase”.