**Wearable Epilepsy Device & MC Team**

**T4: Patterns Matching, Association and Prediction**

**Abnormalities** within a **person’s life signals** may warn of an upcoming epileptic **seizure**. So, there will be five **signals** that the **frequency** will be monitored for. The **signal** **frequencies** will be compared to the **patient’s** normal **statistics** to determine if there is an **abnormality**. **Abnormalities** within the **signals** may match a **pattern** that is associated with an **issue**. If an **issue** is detected, a **message** for the epileptic **seizure** will be outputted.

* Nouns:
  + **Abnormalities, Signal**, **Seizure, Frequency, Statistics, Pattern, Patient**, **Issue**
    - **Abnormalities** is an abstract noun which is associated with a patient. Abnormalities are associated with patterns within the Patient class. Therefore, use abnormalities as an attribute within the Patient class.
    - **Frequency** is an abstract noun which is associated with a signal. Frequency represents the integer value being received in the Signal class. Therefore, use frequency as an attribute within the Signal class.
    - **Statistics** is an abstract noun which is associated with a patient. Statistics represents the normal frequency values for a patient’s vital signals. Therefore, use statistics as an attribute within the Patient class.
    - **Seizure** is an abstract noun which is associated with issues. Issues describes what is causing the seizure. Therefore, a seizure class or attribute is not needed.
    - **Pattern** is an abstract noun which is associated with an issue. Each issue has a pattern of abnormalities associated with it. Therefore, use pattern as an attribute for the issue class.
    - **Message** is an abstract noun which is associated with an issue. Each issue needs to be identified. Therefore, use message as an attribute for the issue class.
* Patient Class
  + Description
    - Creates object representing the patient.
  + Entity Class and Control Class
    - Holds the normal stats for the patient and compares them with the signal.
  + Attributes
    - Abnormalities – Represents if an abnormality was detected within a signal.
    - Statistics – Normal signal frequencies for the patient.
* Signal Class
  + Description
    - Creates objects representing the Integer values being received from the signals.
  + Boundary Class
    - Receives input from an outside source.
  + Attributes
    - Frequency – The frequency being received from the signal.
* Issue Class
  + Description
    - Creates objects representing the Integer values being received from the signals.
  + Entity Class
    - Holds the pattern of abnormalities representing the issue.
  + Attributes
    - Pattern – Represents what pattern of signals causes the issue.
    - Issue Message – The output describing what issue is occurring.