Explanation of design choices

Below is a textual explanation as to what each class does to bring together a device called Neureset. This device is based off of LENS Neurofeedback system and is designed for a hypothetical consumer EEG direct neurofeedback. It can treat a variety of conditions like- ADHD, PTSD, TBI, anxiety, etc. It makes use of brain function and cognitive performance of humans. Below is the class-wise explanation of classes used to code this device out.

1. MainWindow:
   - Manages the main user interface of the Neureset device.
   - Controls menu options such as starting a new session, viewing session logs, and setting date/time.
   - Handles session progress display, including timers, progress bars, and session status lights (blue, red, green).
   - Manages session interactions like starting, pausing, stopping, and handling contact loss scenarios.

2. GraphWindow:
   - Represents a separate window/widget for displaying EEG waveforms and treatment progress graphs.
   - Provides a graphical interface for visualizing brain wave data during treatment sessions.

3. Electrode:
   - Represents an EEG electrode used in the Neureset system.
   - Generates random amplitude and frequency values for different brain waves (alpha, beta, delta, theta).
   - Calculates and manages dominant frequencies based on amplitude and frequency data.

4. CentralProcessor:
   - Acts as the central control unit for the Neureset device.
   - Manages a collection of electrodes and their interactions during treatment sessions.
   - Calculates baseline frequencies and amplitudes for individual EEG sites and overall baseline for all sites.
   - Controls treatment rounds by adjusting electrode frequencies and handling session data.
   - Communicates with UI classes to update graphs, display session logs, and manage device operations.

These classes work together to simulate the behavior and functionality of the Neureset device, including user interaction, session management, EEG data processing, and treatment delivery.