**📁 Phase 1: Sequential Directional Trials**

**Script**: gui\_phase1.py

**Goal**: Capture baseline-aligned EEG signals while the subject focuses on one direction at a time, repeated in sequence.

**Trial Breakdown:**

* **Total Trials**: 20 (5 per direction)
* **Trial Structure**:
  1. **Direction Prompt** (2 sec): Red text in the top-right corner shows the direction (e.g., "Forward").
  2. **Stimulus Period** (10 sec):
     + Arrows are statically displayed in four corners.
     + Randomly selected 2 of 4 images are flashed on top of arrows at a time.
     + Each flash lasts FLASH\_DURATION, followed by a brief delay INTER\_FLASH\_DELAY.
  3. **Baseline Period** (10 sec): Blank screen; participant remains still and focuses at the center.

**Flow:**

* All 5 trials for “Forward” are completed first, then 5 for “Backward”, and so on.
* GUI guides user through each trial using SPACE prompts and 5-second countdowns.
* Data for each trial is saved as a CSV in the format:  
  phase1\_trial[trial#]\_[direction].csv

**🔀 Phase 2: Randomized Directional Trials**

**Script**: gui\_phase2.py

**Goal**: Capture EEG signals under more realistic and unpredictable visual conditions, simulating real-time intent switching.

**Trial Breakdown:**

* **Total Trials**: 20 (5 randomized trials per direction)
* **Trial Structure**: Same as Phase 1
  + 2-second direction prompt
  + 10-second stimulus period with image flashes
  + 10-second baseline period

**Flow:**

* Trial order is randomized but ensures 5 trials for each direction.
* Directions are visually prompted one at a time (top-right red text).
* Data for each trial is saved as a CSV:  
  phase2\_trial[trial#]\_[direction].csv