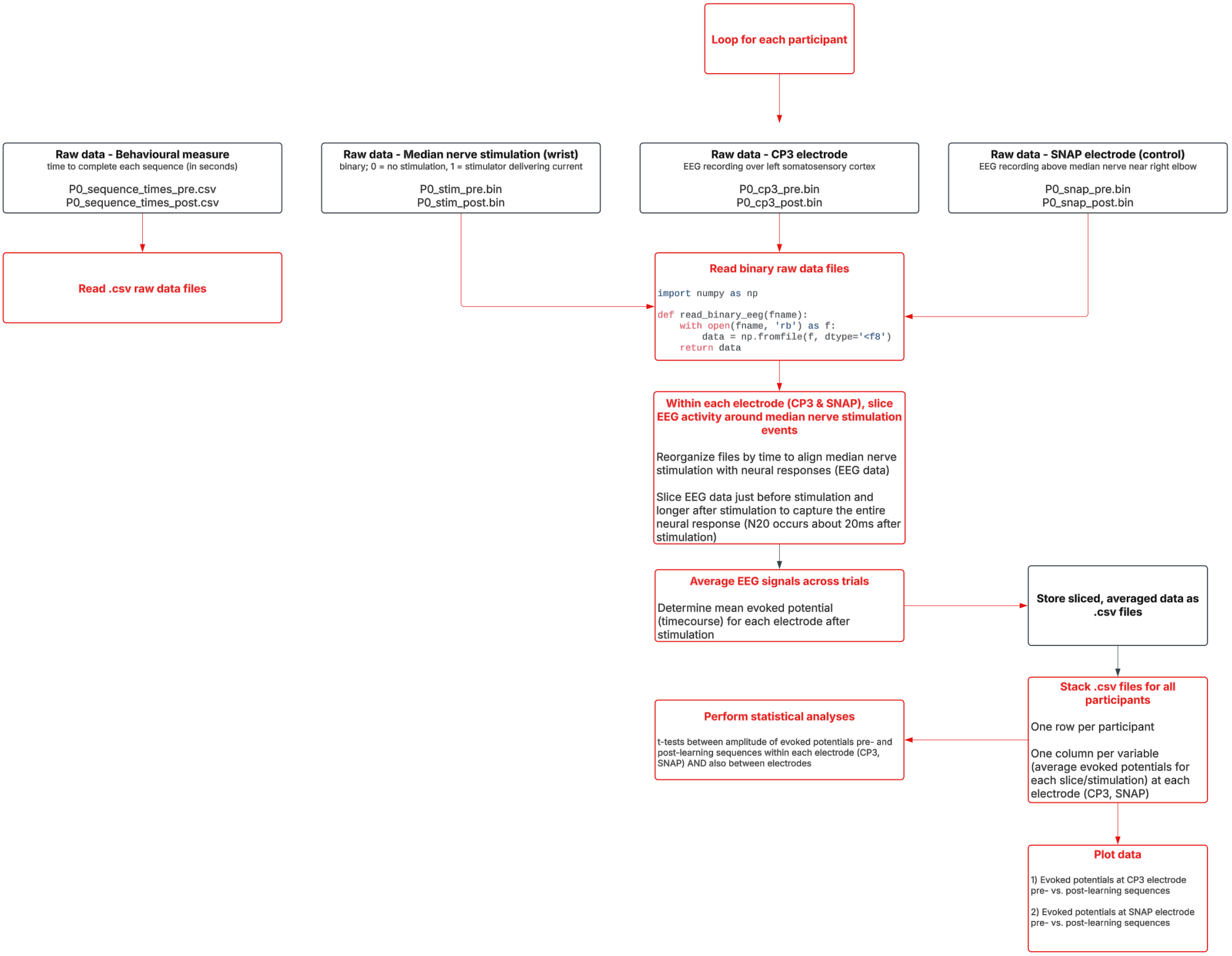
Loop for each participant
Raw data - Behavioural measure
time to complete each sequence (in seconds)
P0_sequence_times_pre.csv
P0_sequence_times_post.csv
Raw data - Median nerve stimulation (wrist)
binary; 0 = no stimulation, 1 = stimulator delivering current
P0_stim_pre.bin
P0_stim_post.bin
Raw data - CP3 electrode
EEG recording over left somatosensory cortex
P0_cp3_pre.bin
P0_cp3_post.bin
Raw data - SNAP electrode (control)
EEG recording above median nerve near right elbow
P0_snap_pre.bin
P0_snap_post.bin
Read .csv raw data files
Read binary raw data files
import numpy as np
def read_binary_eeg(fname):
with open(fname, 'rb') as f:
data = np.fromfile(f, dtype='<f8')
return data
Within each electrode (CP3 & SNAP), slice EEG activity around median nerve stimulation events
Reorganize files by time to align median nerve stimulation with neural responses (EEG data)
Slice EEG data just before stimulation and longer after stimulation to capture the entire neural response (N20 occurs about 20ms after stimulation)
Average EEG signals across trials
Determine mean evoked potential (timecourse) for each electrode after stimulation
Store sliced, averaged data as .csv files
Stack .csv files for all participants
One row per participant
One column per variable (average evoked potentials for each slice/stimulation) at each electrode (CP3, SNAP)
Perform statistical analyses
t-tests between amplitude of evoked potentials pre- and post-learning sequences within each electrode (CP3, SNAP) AND also between electrodes
Plot data
1) Evoked potentials at CP3 electrode pre- vs. post-learning sequences
2) Evoked potentials at SNAP electrode pre- vs. post-learning sequences