Assignment 1

In this assignment, you will analyze and plot surrogate data that represents the outcome of a learning experiment, specifically the performance of three participants, one under the influence of 400 mg of caffeine, one of 200 mg of caffeine and one who was not exposed to any caffeine and acts as a control. Dependent variable is reaction time. This data is contained in the workspace "Assignment1_data.mat". All tasks below are to be executed within a single script that is expected to do the following things:

1) Load the workspace with the data.

2) Each matrix represents when the participant responded (in ms) after the onset of the trial, for each of 300 trials. There is also a matrix of triggers – when the stimulus came on after the beginning of the trial. To get reaction times (response after stimulus onset) per trial, the onset time of the stimulus has to be subtracted from the overall response time, for a given trial. The stimulus onset times have been jittered by the experimenter so that participants can't anticipate when a stimulus will come on. Compute reaction times for each trial and participant before moving on.

3) Sometimes the participant jumped the gun – responding before the stimulus came on. These reaction times will be represented as negative numbers. Please identify valid trials – those with positive reaction times and put the associated reaction times in new data structures (something like "validTrials"), one for each participant.

4) Plot all of the valid data in the same figure, one trace for each participant (black = control, blue = 200 mg caffeine, red = 400 mg caffeine). The y-axis should represent reaction time per trial and the x-axis valid trials (from the first one to the last one).

5) Save the workspace with the new variables (in particular validTrials), with a new filename.