

Assignment 3

Your task is to program a psychological experiment of your own choice in Python.

It can be any of the following:

- An experiment that will be used in some other module, e.g. final project, mini-projects etc.
- An experiment that you read about in a paper and you wish to replicate and/or extend.
- A famous psychological experiment.



Your submission will be assessed on the quality of the code and the complexity of the program. Complexity may be:

- Visual, e.g. complex animations, fancy layouts, custom elements etc.
- Procedural, e.g. complex experimental design, high flexibility
- Other (i.e. anything you can imagine): e.g. use of audio/video, data downloaded from the internet in real-time, having multiple participants at the same time in a cooperative or adversarial mode etc.
- All of the above

As a guide, you should think of the experiment in assignment 2 in its basic implementation as a starting point. The more advanced your program is compared to that experiment the better. If you are uncertain about the complexity of the experiment you are planning to implement, i.e. whether it's too simple or unrealistically complicated, have a look at the FAQ below and if you're still unsure, send us an email with a brief high-level description.

Note that many of the above suggestions require the use of libraries not discussed in class which means that you will have to do your own research. As always, we're happy to help with advice and suggestions (during surgery sessions or through the forum) but we will not write code for you.

Apart from your program, you **must also submit a document** containing:

1. **Experiment overview:** A high level description of your experiment (aim, brief background etc.)
2. **Description of procedure:** A description of how your experiment works (similar to a paper's method/procedure section).
3. **Experimenter's manual:** Imagine that you hand your program over to a colleague who will run the experiment but has no programming experience. Describe what your colleague needs to do to run your experiment and interpret its results, e.g. any settings that the experimenter can change, any input files required, location/format/interpretation of output etc.
4. **Program highlights:** Aspects of your program that merit special mention due to their complexity, novelty etc.

This document should not go over 1000 words (although there will be no penalty for exceeding this limit)

Notes

- Unlike previous assignments, this time we allow for code and techniques that were not discussed in the lectures. However, you **must** comment on instances of such code to show

that you understand what the library/syntax/technique is doing and how and, most crucially, why you preferred it over standard techniques, if applicable.

- You are also allowed to use code from YOUR previous submissions in order to achieve specific **sub**tasks (e.g. demographics). But remember that submitting an experiment that on the whole is too similar to your previous submission will be severely penalized and may not achieve a pass grade.
- As always, make sure that you design (in paper) your program carefully before you start writing it and that you extensively test it before you submit it. Having a friend or two to go through your experiment is a great idea. Remember that in reality, a small bug may result in a great loss of time and money.

FAQ

- The most common question is how complicated the experiment should be.
 - The simple answer is: the more complex the merrier.
 - The more involved answer is: use assignment 2 as the basis. That program, in its basic implementation, consisted of the following: consent, demographics, a simple choice between a couple options, a debrief page, output to a csv and had 3 conditions between participants. Anything too similar to that won't be great. For example, an experiment where participants make a choice between a 2 things and which has 4 between-participants conditions counts as too similar. Having said that, any "simple" experiment can be infinitely extended or can be implemented in a very advanced way.
- Try to impress us! Remember that we are less interested in the validity of the experiment itself (e.g. whether it answers an important question – or any question for that matter) and more in the program complexity and the quality of the code.
- In the accompanying document, explain (among others) why we should be impressed (in the program highlights section).
- Start simple and then expand. Do not start writing an unrealistically complicated experiment. If, in doubt, ask.
- Keep the accompanying document short - e.g. no need for extensive background information, just enough to convey the rationale.
- **Important:** Keep the duration of the experiment short. It's the overall structure that matters not the number of trials. If your experiment works with 2 trials, it should be easy to expand to 200 trials (unless it's a badly written experiment) – but, when marking, we really prefer to go over 2 rather than 200 trials.
- Take into account the feedback you got in the first two assignments - do not repeat the same mistakes!

Best of luck!

