# Aarushi Summer 2024 Project

## Project Title: Optimizing App-Based Cognitive Experiments to Study Decision-Making and Affect in Humans

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### Background:

The subjective well-being task (SWB) is designed to study how different types of outcomes from choices someone makes affects their behavior, emotions, and brain. We include a type of feedback on someone’s choices called counterfactual feedback. Counterfactual outcomes are the outcomes of the decisions you *did not* make. So, if I tell you choose X or Y and you choose Y and win $5, you’re going to be happy right? But, what if I told you that you would’ve won $10 if you chose X?

### Goals:

Currently, our experimental paradigm for this task is **dreadful.** The task is made terribly, it’s incredibly buggy, ugly, and inefficient (and worse..). This is your opportunity to be innovative, creative, and hone your problem-solving skills.

### To-Dos:

* Your top priority should just be to learn! Try to download the task code and get it running in psychopy. It sounds pretty simple, but trust me this task code has a way of ruining things…
* As you’re trying to get the task running, you’ll notice the code is very incompatible with newer psychopy versions. It would be great to fix some of the bugs in the code so it runs more smoothly.
* Next most important is working on the aesthetics and graphics of the task. Integrate instructions with the code instead of pixelated screen shots. Improve outcome results (Something besides ugly green/red boxes?).
* Improve mood rating graphics and functionality. The slider is very clunky and hard to use. Also, the arrow should really be randomly placed on the slider every mood trial instead of leaving it in one place.
* “Gamify” the task and instructions. Christina Maher has a great github tutorial for this. More interesting instructions really improve patient’s behavioral performance and interest in the task.
* Overall, the task needs to be about half of the length.
* The BDI questionnaire integrated into the code is very buggy and should be improved. Also the way some of the questions are worded are silly…

### Long-term Ideas:

* Remove halfway breakpoint
* Make a version of SWB that doesn’t have mood ratings
* Remove photodiode square for online studies
* Change dollar amounts to points?
* Cue counterfactual outcome for the gambles

### Getting Started:

Currently the task requires an older version to run – Download here:

* <https://github.com/psychopy/psychopy/releases/tag/3.2.4>

Links to download PsychoPy (it’s free!):

* <https://www.psychopy.org/download.html>
* <https://www.psychopy.org/builder/>
* <https://psychopy.org/troubleshooting.html>
* <https://www.psychopy.org/changelog.html>
* <https://www.psychopy.org/tutorials/versionControl.html#useversion>
* <https://www.psychopy.org/download.html>

### PsychoPy Video Tutorials:

There are great videos on YouTube to get you started. Let me know which are your favorite and are the most helpful!

* <https://www.youtube.com/watch?v=0a05xCc6X8s>
* <https://www.youtube.com/playlist?list=PL6PJquR5BWXllUt585cRJWcRTly55iXTm>
* <https://www.youtube.com/playlist?list=PLuqBA9VDSXk7Z06RtJ6Gh6Y5YznVrFrK6>
* <https://www.youtube.com/@PsychoPy_official/videos>
* <https://www.youtube.com/watch?v=aZ00WchEbdw>
* <https://www.youtube.com/watch?v=VV6qhuQgsiI>
* <https://www.youtube.com/watch?v=0dJgLf7BxbE>
* <https://www.youtube.com/watch?v=bprYeBzkUc8>
* <https://www.youtube.com/watch?v=oWA-plDlu7g>
* <https://www.youtube.com/watch?v=fIw1e1GqroQ>
* <https://www.youtube.com/watch?v=bfbtqGCKf-A>
* <https://www.youtube.com/watch?v=qvT1JxcLPag>
* <https://www.youtube.com/watch?v=6KXz8_3LwR0>
* <https://www.youtube.com/watch?v=45NRWjFiYK0>
* <https://www.youtube.com/watch?v=IUjFoE6-hCA>
* <https://www.youtube.com/watch?v=Kcr3--LTvBk>
* <https://www.youtube.com/watch?v=E4LcWESNu10>
* <https://www.youtube.com/watch?v=o6gG1LRngmU>

### Online Resources:

Many scientists use this platform, so there are a lot of helpful online resources. If you find any of these helplful, let me know!

* <https://workshops.psychopy.org/teaching/index.html>
* <https://moryscarter.com/vespr/psychopy.php>
* <https://docs.google.com/presentation/d/e/2PACX-1vT76DDSE_Kf0ZsGj98rsIk5AKRg12NICDHtW46bAH_-BJ_ZFzdnJ_81nqZ-AH2a2UH1JXplQfkPXFSk/pub?start=false&loop=false&delayms=10000&pli=1&slide=id.p>
* <https://gitlab.pavlovia.org/vespr/interactive-slider>
* <https://discourse.psychopy.org/t/psychopy-online-demos/22319>
* <https://psychology.nottingham.ac.uk/staff/lpzjd/psgy1001-21/psychopy-basics.html>
* <https://github.com/TU-Coding-Outreach-Group/cog_summer_workshops_2021/tree/main/psychopy>
* <https://tu-coding-outreach-group.github.io/cog_summer_workshops_2021/psychopy/index.html>
* <https://workshops.psychopy.org/teaching/index.html>
* <https://lukas-snoek.com/introPy/>
* <https://github.com/remayer/WS19_Python_for_Psychologists>
* <http://sapir.psych.wisc.edu/programming_for_psychologists/>
* <https://lukas-snoek.com/introPy/week_2/psychopy.html>
* <https://tu-coding-outreach-group.github.io/cog_summer_workshops_2021/psychopy/index.html>

### Advanced Resources:

* <https://github.com/pyglet/pyglet/tree/pyglet-1.5-maintenance>
* <https://www.psychopy.org/_modules/psychopy/hardware/keyboard.html#Keyboard>