Getting started/setup:
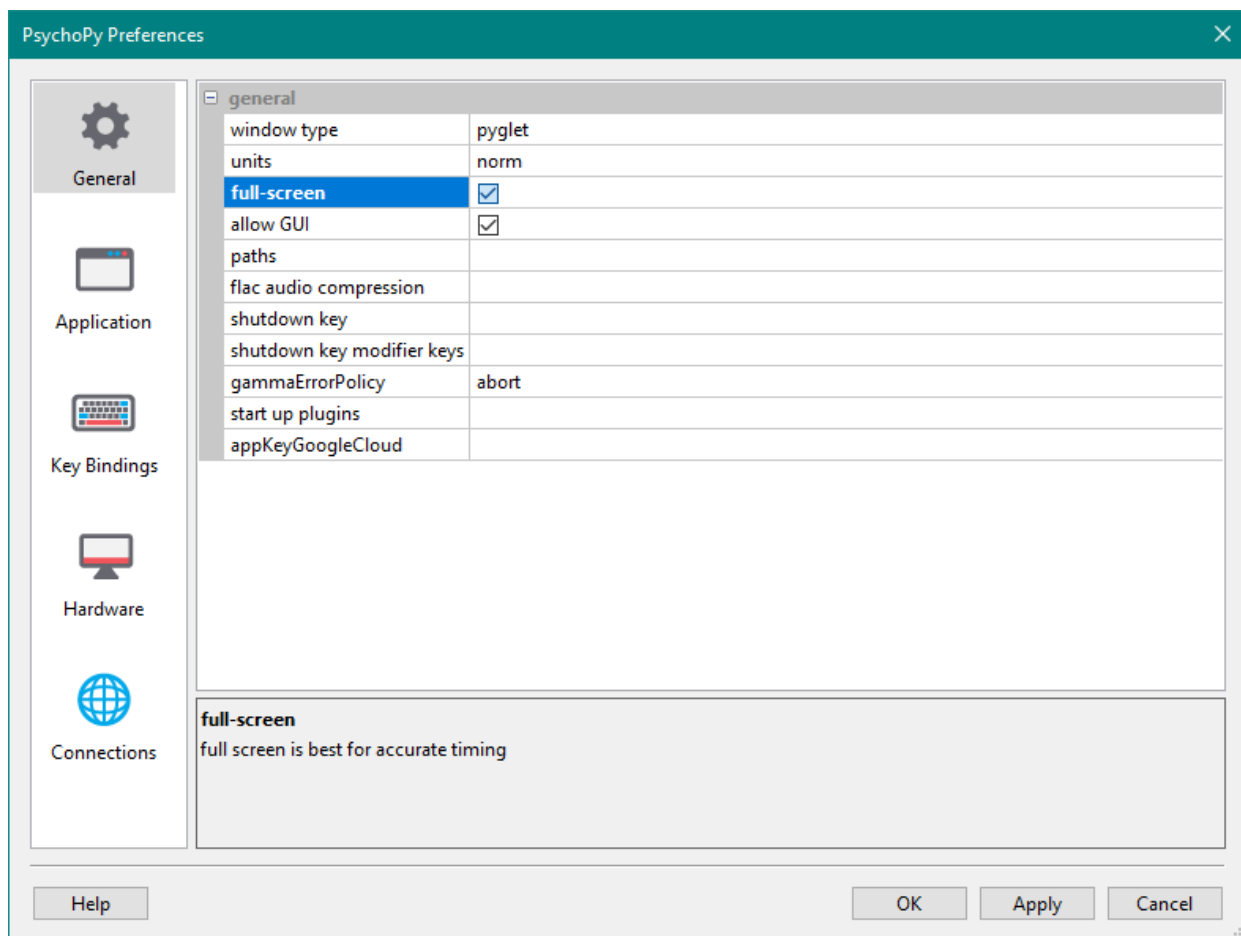
1. Install PsychoPy for your machine.
   - Official installation for specific operating systems can be found here: https://www.psychopy.org/download.html

2. Download and extract the experiment runner if you don't already have it.
   - Download available here.
   - Extract the downloaded folder (PsychoPy can't open ZIP files).

3. Open PsychoPy and enable the correct sound library.
   - Navigate to the hardware menu in preferences.
     i. On Mac/Linux menu bar: **PsychoPy > Preferences > Hardware**
     ii. On Windows: **Files > Preferences > Hardware**
   - Change the field **audio library** to PTB (pictured below):
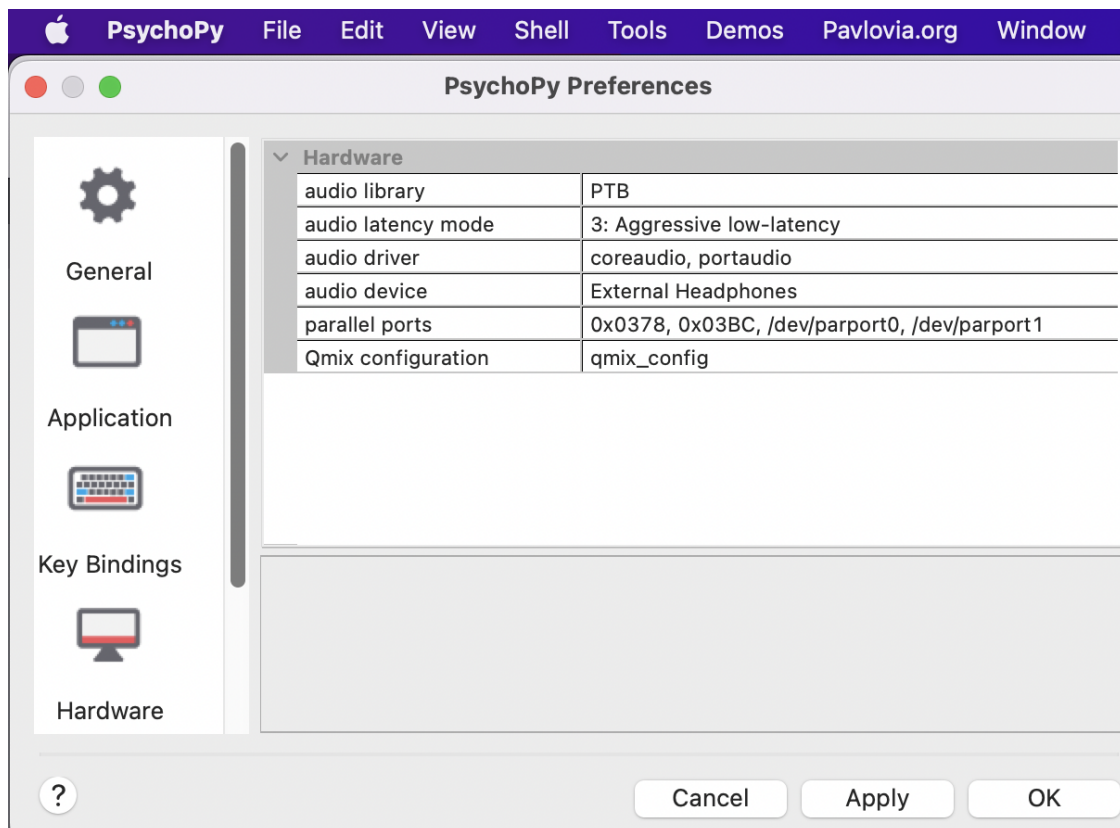
     i. Hit **Apply.**
     ii. Press **OK** or the close window button to exit preferences.

4. *OPTIONAL*: Enable full screen mode to potentially improve timing performance.
   - Navigate to the general menu in preferences
   - Check the full-screen checkbox
   - Press the **Apply** save your preferences
   - Press **OK** to close the menu

PsychoPy Preferences

general	
window type	pyglet
units	norm
full-screen	☑
allow GUI	☑
paths	
flac audio compression	
shutdown key	
shutdown key modifier keys	
gammaErrorPolicy	abort
start up plugins	
appKeyGoogleCloud	

full-screen
full screen is best for accurate timing

General
Application
Key Bindings
Hardware
Connections

Help   OK   Apply   Cancel

Setting up an example data file:

1. To ensure an input file is compatible with the program, ensure that:
   - The first line/row is "reserved" for potential headers.
     i. If you choose not to use headers, then put placeholder texts or whitespace in the first line/row.

- ○ With the exception of the header line/row:
  - i. The rest of the FIRST column is for words.
  - ii. The rest of the SECOND column is for the "delays" corresponding to the word in the same row.
  - iii. All other columns are not read by the program.

2. As an example, check this .csv in table and comma-separated text formats:

- ○ Yellow = headers
- ○ Blue = words
- ○ Green = delays
- ○ Gray = *ignored*

3. For a more realistic example, check out the example_*data.csv* file.
   - ○ It's located in the same directory as *runner.py*.

4. **IMPORTANT**: Input data files can only be read if it is in the same directory/folder as *runner.py*

Importing and running the program:

1) Open up the PsychoPy coder.

2) Import the runner.py program into the PsychoPy coder.
   ○ **File > Open**
   ○ Navigate to the *final_ver* directory/folder using your OS's file manager.
   ○ Select *runner.py* and hit **Open**.
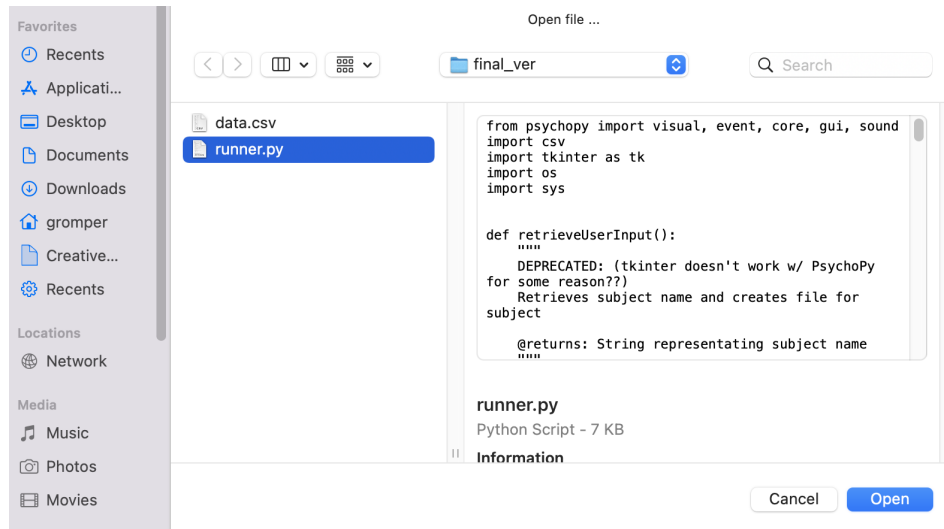
3) Now, you can run *runner.py* by hitting the **Run experiment** button.
   ○ One of the big green "play" buttons at the top of the coder's GUI.
   ○ Enter the appropriate fields.
      i) <u>IMPORTANT</u>: Avoid special symbols (e.g., %, \, #) when naming data files and directories for subjects.
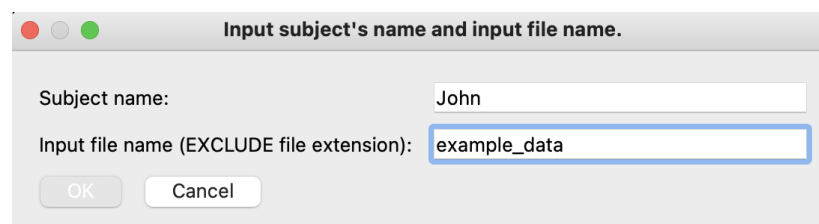
   ○ Once fullscreened, press your *continueKey* button(s) twice to skip the instructions and start the experiment.
      i) To exit the runner's stimuli window while full-screened: press the key assigned to the ["quitButton" variable](#).
         (1) If unresponsive, try to do the following.

(a) MacOS: **Press ⌘ + Q** (Command + Q)

(b) Linux: **Control + Q** or **Control + W** or **Alt + F4**

(c) Windows: Bring up task manager (**Control + Shift + Esc**) and end all Python tasks (usually, the experiment window is the one using the most resources so you could just exclusively end that task).

  (i) If the task manager isn't visible, try pressing **Alt + O** and then **Enter** to bring it to the top window layer.

Customizing the program:

1) To customize variables, first, navigate to line 114 of *runner.py* (pictured below).

```
123    # -------------------- CUSTOMIZE PROGRAM HERE --------------------
124    continueKey = ['6']
125    startFixationTime = 1
126    textFont = 'Times New Roman'
127    textContrast = 1
128    wordSize = 0.25
129    wordColor = (-128, -128, -128)
130    instruction = "Random instructions here. Read this if you want :)"
131    instructionSize = 0.1
132    instructionColor = (-128, -128, -128)
133    fixationSize = 0.15
134    fixationColor = (-128, -128, -128)
135    quitKey = 'q'
136
```

2) When modifying variables, ensure the "syntax" remains the same, or else the program won't work.
   a) Include all quotes, brackets, parentheses, etc. as shown.

3) Explanation of each variable:
   a) `continueKey = ['6']` means that the number 6 on the keyboard is used to proceed through the instruction text and to start the experiment.
      i) To add additional keys, simply include them in the brackets.

  ii) Say you want to use the keys 6, 7, or 8 to perform this function, then simply set `continueKey = ['6', '7', '8']`

b) `startFixationTime = 1` means that the initial fixation time is set to 1 second (i.e., 1 second elapses between the second keypress of *continueKey* and the first word being displayed).

c) `textFont = 'Times New Roman'` means all text is in Times New Roman font.

  i) <u>Note</u>: Fonts used MUST be installed on your system, else the program will crash.

    (1) Pre-installed fonts on MacOS are found <u>here</u>.

    (2) Pre-installed fonts on Windows 10 are found <u>here</u>.

d) `textContrast = 1` dictates the color contrast of all text.

  i) Any floating point value/decimal between -1 and 1 works.

e) `wordSize = 0.25` means that the size of the words the subject will be reading will be of size 0.25.

  i) <u>Note</u>: Values larger than 0.75 may crash the program.

f) `wordColor = (-128, -128, -128)` basically means that the words the subject will be reading will be in **black** colored font.

  i) In this case, the RGB values are (Red: -128, Green: -128, Blue: -128).

  ii) Because PsychoPy has *signed* RGB values, values range from -128 to 127 instead of the typical 0 to 256. This ultimately means that (R: -128, G: -128, B: -128) is **black** and (R: 127, G: 127, B: 127) is white.

g) `instruction = "Random instructions here. Read this if you want :)"` represents the text that is displayed upon the start of the program.

h) `instructionSize = 0.1` means that the size of the instruction text is 0.1.

  i) <u>Note</u>: Values larger than 0.75 may crash the program.

i) `instructionColor = (-128, -128, -128)` means that the instruction text will be in **black** colored font.

  i) For an explanation, read the subpoints of (4f).

j) `fixationSize = 0.15` means that the size of the "fixation cross" is 0.15.

  i) <u>Note</u>: Values larger than 0.75 may crash the program.

k) `fixationColor = (-128, -128, -128)` means that the fixation cross's color is **black**.

  i) For an explanation, read the subpoints of (4f).

l) `quitButton = 'q'` means that the Q key on the keyboard can be pressed to terminate the experiment window.