Setting up Raspberry Pi for Mindful Lights:

We utilized many tutorials and online resources to configure the Raspberry Pi to run Mindful Lights.

Keyboard configuration:
In order to use the ~ we had to configure the keyboard to US via terminal the command line is: sudo raspi-config

Tutorials for keyboard changing and general configuration:
https://www.raspberrypi.org/forums/viewtopic.php?f=28&t=80127
and
https://www.youtube.com/watch?v=L1F-TxTPyiM

Locating the Raspberry Pi IP address:
Terminal command line: hostname -I
OR you can type in: ifconfig
IP address located at: wlan0 inet adde: xxx.xx.xx.xxx

Setting up WIFI:
If you need to configure your wifi settings we used this tutorial:
http://weworkweplay.com/play/automatically-connect-a-raspberry-pi-to-a-wifi-network
We had to modify it a little in order to connect to the network we were using. SEE images….

Getting Arduino:
To install Arduino we used this tutorial: http://razzpisampler.oreilly.com/ch10.html
It was very straight forward and the commands were:
sudo apt-get update
sudo apt-get install arduino
*Note: setting up serial communication took a bit more work and we did this as part of the processing set up.

Getting Processing:
Installing Processing took a few extra steps to get it on the Pi as well as make the serial ports accessible.

Tutorials we used:
http://scruss.com/blog/2014/01/07/processing-2-1-oracle-java-raspberry-pi-serial-arduino-%E2%98%BA/
https://www.youtube.com/watch?v=9H5ZuRXfZfA (6:30min in)

The code we were trying to run utilized loadPixels() and we had to go into terminal and adjust some configuration files in oder for Processing to run our sketch correctly.

Step 1:
command line: sudo nano /boot/config.txt
tutorial: http://elinux.org/R-Pi_configuration_file

Step2:
Add the following in terminal to config.txt:
framebuffer_depth=32
framebuffer_ignore_alpha=1
tutorial: https://github.com/processing/processing/issues/2010

*Note: loadPixels() will work after a reboot
*Note: This was all done prior to processing being offered as a downloadable app for the Pi. For more information: https://www.raspberrypi.org/blog/now-available-for-download-processing/

Getting Fadecandy:
Putting Fadecandy on pi:
We followed the Fadecandy server in terminal part of this tutorial:
https://learn.adafruit.com/1500-neopixel-led-curtain-with-raspberry-pi-fadecandy/fadecandy-server-setup
For the fcserver.json part we only used part of what was written in the tutorial because we were only using one Fadecandy. Ours looked like:
{
        "listen": ["127.0.0.1", 7890],
        "verbose": true,
        "color": {"gamma": 2.5, "whitepoint": [0.7, 0.7, 0.7]},
        "device": [
                {
                        "type": "fadecandy",
                        "map": [[0,0,0,512]]
                }
        ]
}

After installing Fadecandy onto Pi and rebooting, check Fadecandy (usb should be plugged in) serial number in the command line type:
sudo fcserver

*Note: works better after restart!!! (you will feel like you are failing if you keep trying to get serial number before reboot!)

Access Pi from Mac terminal:
We also did some remote access to the Pi

how to ssh into pi: https://www.raspberrypi.org/documentation/remote-access/ssh/unix.md
In terminal: ssh pi@<IP>

Back up and clone Pi SD card:
To back up and close our working sd cards we used these tutorials:
http://computers.tutsplus.com/articles/how-to-clone-raspberry-pi-sd-cards-using-the-command-line-in-os-x--mac-59911
and
http://thepihut.com/blogs/raspberry-pi-tutorials/17789160-backing-up-and-restoring-your-raspberry-pis-sd-card

Restoring Pi from Clone:
We messed something up and could not open terminal so we were very happy we had made a back up of our Pi when it worked. So we all we had to do was to reformat the SD card and then put the .dmg file of the good Pi back on the card.
To do that we utilize the previous examples and noticed a few things.
Restoring command lines after you put the SD card into your computer and have reformatted it, in the command line:

Step 1: This will locate the SD card
diskutil list

Step 2: Then you need to unmount the SD card before you reformat it. The number will change for us it was 4.
diskutil unmountDisk /dev/disk4

Step 3: Now you can format the SD card
sudo newfs_msdos -F 16 /dev/disk4

Step 4: Restoring the cloned disk image. We saved ours as raspberrypi.dmg on our desktop
sudo dd if=~/Desktop/raspberrypi.dmg of=/dev/disk2

Next you wait this will take a wile…. like a few hours…

Run from Terminal:
Making Pi run a program from terminal tutorial:
http://www.raspberry-projects.com/pi/pi-operating-systems/raspbian/scripts

running our app from

X11 problem fixer:
https://www.linuxquestions.org/questions/linux-general-1/can%27t-connect-to-x11-window-server-using-%27-0-0%27-as-the-value-of-the-display-variable-178234/

Terminal notes https://help.ubuntu.com/community/UsingTheTerminal

Neat trick:
View command line ls stuff in a tree the -L 1 means level one.
tree -L 1

$HOME is equal to writing /home/pi/