

## Important Functions Explained

### `recognizeFace(data)`

This function handles the openCV thread that can detect faces. It is useful in both turning the mirror on and off, as well as exporting a video feed to be shown in TKInter. Without openCV, getting even a regular video feed to show in TKInter would be difficult. However, since OpenCV's format of pulling images frame by frame and then displaying them is so natural to TKInter's display method, it only required some extended thought to figure out how to show video in TKInter

### `getWeather(data):`

This function is important as it contains most of the code needed to pull information out of the PyOWM API. I opted to then format this data inside this function, so that it would be ready to use in any other function, since `getWeather` is called sparingly, and the values it obtains do not need to be constantly updated. This allows the mirror to run faster as it does not have to recall the weather API constantly. (This is also useful since the PyOWM API only allows for 60 calls a minute when on the free version)

### `recognizeSpeech();`

This function is where all the natural language processing happens, primarily through the use of NLTK part of speech tagged sets, and through checking of noun, verb, and proper noun parts of speech. I opted to use sets to store all the synonym sets, since then checking if a certain word was in a set would run constant time. In addition, the synonym sets are built inside the `init` function, since they do not change throughout the course of the program, and only need to be built once.