Team 3: What the Hack - Music Therapy Full Product Backlog

**Sprint 1**

**As a user I want to allow the app to access my webcam, so that I can take a picture:**

* Display webcam using opencv
* Start a thread that constantly pools the video sensor for the most recently read frame
* Set a callback to handle when the window is closed
* Allow python to access the webcam
* Allow the user to choose which camera to use if more than one camera is connected (presented in sprint cycle 2)
  + Modify application settings for configuring camera source
  + Modify main app to receive configuration value

**As a user, I want to take a picture of my face using my webcam, so that I can evaluate my facial expression:**

* Research on available implementation option to take a still picture
* Implement the selected option to capture picture when button is clicked
* Add a capability to save the picture in a jpeg format
* Add capability to save onto a directory for future emotional analysis

**Sprint 2**

**As a user I want my emotions to be read based off of my picture, so that I am aware of my emotions:**

* Read input picture then crop face and resize picture to match the dataset
* Predict the picture against the dataset
* Pass result of the mood back to the main program

**As a user I want to receive feedback based off of facial expression, so that I can improve my mood:**

* Each emotion should have list of corresponding feedbacks
* Program the app to randomly display a feedback based on the input(the emotion detected)

**Sprint 3**

**As a user I want to have the ability to configure the number of songs for each mood, so that the song selection process is totally random for each mood:**

* Modify song selection function
* Change structure of SongConfiguration JSON file
* Modify application settings to add a new variable to configure number of songs per mood

**As a user, I want to be able to access a working web application to take my photo:**

* Implement web integration for user to take photo using browser:
* Create Flask project
* Use Flask project to create development server
* Build URL using Flask

**As a user, I want to use an interface in the browser so that I can see my photo and receive feedback via the internet:**

* Use Flask to create canvas to display video stream
* Create HTML page to communicate with Flask in Python Script
* Create working buttons that allow the user to take picture or check mood

**Sprint 4**

* Test accuracy of program to read correct facial expressions
* Test program on different faces to confirm reliability
* Complete web integration of application
* Test that music/feedback options match up to each mood