Sprint 3 Plan, FRT, Team Name, 10/28/2022

Goal:

Create a basic webpage that allows for fm synthesis to happen.

- Task Listing:
  - User Story 1: As a user, I need my visual keyboard to play the correct notes on the keyboard.(20)
    - Task 1: Implement Tone.js into the keyboard(5)
    - Task 2: Use Tone.js to play the right notes for each key.(5)
    - Task 3: Implement the Octave Keys function to allow user to change octave. (5)
    - Task 4: Format the octave keys so the user understands what they do. (5)
  - User Story 2: As a user, I need a webpage that allows me to upload my own unique mp3 files. (5)
    - Task 1: Create a folder and naming system to save uploaded files.(5)
  - User Story 3: As a user, I need to have my uploaded file synthesized to play on my keyboard. (16)
    - Task 1: Serialize and send parameter data from genetic algorithm to front end synthesizer
  - User Story 4: As a user, I want to be able to get a variety of synth sounds, and timbres from the synthesizer. (12)
    - Task 1: Find the settings that are able to be changed on the FM synthesizer. (5)
    - Task 2: Create an interface that can change the settings of the synthesizer from a JSON file (7)

        - Task 3: Create a JSON file template that will have the parameters for the synthesizer. (5)
    - User Story 5: As a user, I want to be able to visualize my uploaded sound, aswell as the resynthesized sound I am playing. (16)
        - Task 1: Research different spectrogram tools to visualize frequency over time, and sound waves. (3)
        - Task 2: Implement the decided on tool, and test the tool against different audio sources. (5)
        - Task 3: Compile the data visualization in a way that makes it easy to send to the front end from the backend. (3)
        - Task 4: Enable the front end to display these visualizations in an intuitive way. (5)

● Team Roles

- Dylan Sutro: Project Owner,
- Anthony White: developer
- Radhika Gadre : developer
- Deva Empranthiri : Scrum Master
- Gary Finco: developer

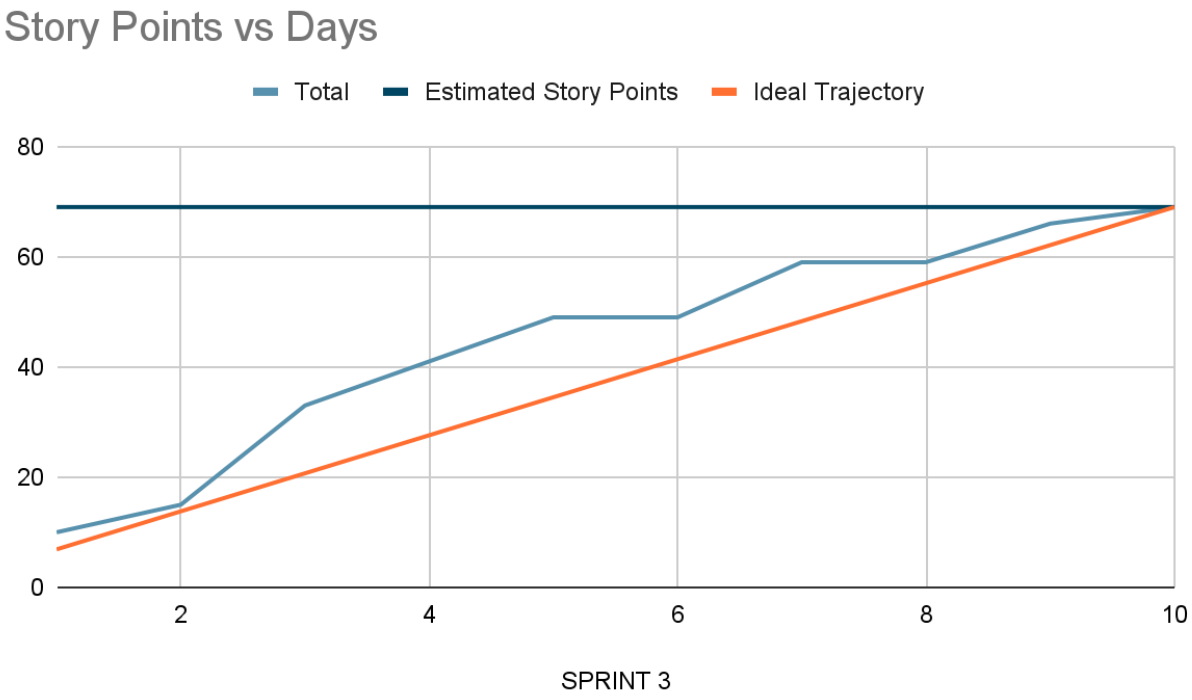
● Initial Task Assignment

- Dylan Sutro:
    - SPIKE: Determine more fitness function options including at a minimum spectral analysis.
    - BUG: Tweak correlation calculation in fitness function such that truncated audio is penalized.
    - TASK: Increase synthesizer complexity using ADSR and FM synthesis chain algorithms
    - BUG: Only fingerprint and analyze target once
    - SPIKE: Redesign genetic algorithm to work with parallel processing during selection

        - Create functionality to use a JSON file to send synth settings to the front-end page.
    - Anthony White:
        - Use Tone.js to play the right notes for each key.(5)
        - Implement the Octave Keys function to allow user to change octave. (5)
        - Find the settings that are able to be changed on the FM synthesizer. (5)
    - Radhika Gadre :
        - Determine method of FM synthesis in python
        - Researched asyncio and genetic algorithm; create basic outline and pseudocode for genetic algorithm
        - Implement genetic algorithm
        - Doing more research on the fitness function
        - Take input from the user - target sound, mutations, etc.
        - Research different spectrogram tools to visualize frequency over time, and sound waves. (3)
        - Implement the decided on tool, and test the tool against different audio sources. (5)
    - Deva Empranthiri :
        - Create a folder and naming system to save uploaded files.(5)
        - Research a way to send the synth settings to the front-end page.(3)
        - Create a JSON file template that will have the parameters for the synthesizer. (5)
        - Compile the data visualization in a way that makes it easy to send to the front end from the backend. (3)
    - Gary Finco:
        - Implement Tone.js into the keyboard(5)
        - Format the octave keys so the user understands what they do. (5)

- Create an interface that can change the settings of the synthesizer from a JSON file (7)
- Enable the front end to display these visualizations in an intuitive way. (5)

● Initial Burnup Chart



● Scrum Board

- https://trello.com/b/5hg928Ff/fm-resynthesis

● Scrum times

- Mondays: 1:00 PM
- Wednesdays: 1:30 PM
- Fridays: 1:30 PM