SNHG* Checklist
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1 FFT Generation (Rhys)
The FFT Handler will:
- Loop back guitar audio to headphones
- Buffer incoming audio
- Window audio for FFT processing
- Buffer FFT output
- Provide FFT data for peak detector and FFT display

2 Peak Detection (Rhys)
The Peak Detector will:
- Identify local maxima in FFT output
- Reject peaks with low power

3 Harmonics Processor (Rhys)
The Harmonics Processor will:
- Identify peaks with integer-multiple frequency of other peaks
- Separate fundamental frequencies from their harmonics
- Reject peaks without harmonics

4 FFT Display (Rhys and Ruth)
Rhys generates the signals and writes to the buffer, Ruth generates a display from the buffer. The FFT portion of the display will demonstrate:
- Display frequency range relevant to guitars (includes 80-800Hz)
- Color-code detected peaks, fundamentals, and harmonics
- Display names of detected notes (time permitting)

*Some of these are Not Going to Happen
5 Timespace Filtering (Ruth)

The Timespace Filter will be able to:

- Reject transient fundamentals
- Correctly identify musical notes by frequency
- Correctly detect chords played one string at a time (time permitting)

6 Chord Detection (Ruth)

The Chord Detector will:

- Detect requested chords
- Detect and identify incorrect chords
- Name the string that causes the chord to be incorrect, if there’s only one wrong string (time permitting)

7 Gameplay (Ruth)

The interactive game portion of SNGH will:

- Request preprogrammed sequences of notes and chords
- Validate notes and chords
- Provide programmable time limit for playing a chord
- Provide choices for chord sequences via a menu (time permitting)
- Guitar tuning mode (time permitting)

8 Main Display (Ruth)

SNGH’s main display will show:

- Miniature version of FFT display
- Current requested chord displayed as a tab (including chord name)
- The next chord to be requested
- The current game score
- A countdown timer bar indicating time remaining to play the chord
- Feedback on the chord played - if it was correct, and what it was if it was wrong
- Recommended chord fingering (time permitting)
- Celebratory dancing dinosaurs (time permitting)