

## **6.111 FINAL PROJECT: DIGITAL TUNER CHECKLIST**

### **Roshni**

1. Make a blank staff display on the top half (approximately) of the monitor screen
2. Display a note somewhere on the staff on the monitor screen
3. Display the text "frequency," "note number," etc., on the monitor screen below the staff
4. Display an arbitrary frequency (a number in Hz), note number (a number from 1-88), etc., on the monitor screen next to the corresponding text
5. Display a mouse cursor on the screen
6. Display a note where the mouse cursor clicks
7. Display the most recent keyboard input
8. Display the note (on the staff, the frequency, note number) corresponding to the keyboard input
9. Demonstrate functionality of the Playtone module: Play (through speakers)/display information (frequency, note number, location on staff) of any of the 88 notes in the ROM, selected by the inputs from the user, either from switches (corresponding to the note number), mouse (note corresponding to location clicked on staff), or keyboard (note corresponding to number entered by user)
10. Ensure inputted note corresponds to output of speakers (by connecting output signal to speakers to the logic analyzer)/video display (making sure note is in correct location on staff, correct frequency and note number are displayed)
11. prioritize the inputs
  - a. record > playback > playtone
    - if more than one "mode" button (referring to record, playback, or playtone) is pressed, select the mode based on the above priorities
  - b. switches > mouse > keyboard
    - in the playtone mode, the user can specify the note they want to hear in 3 ways: using the switches to select a note number 1 through 88 is highest priority, followed by a mouse click on the staff, followed by the input of a note number from the keyboard

### **Linda**

1. Find frequency of pure tone
  - a. Make Matlab simulation work
  - b. Make verilog filter
2. Determine the correct corresponding note number using ROM.
  - a. Determine search algorithm
  - b. Use DDS-generated signal and see if the right frequency comes out.
3. Record a signal and play it back
  4. Use last played tone and find the frequency of the tone from an instrument.
    - a. Repeat 2 for user-inputted signal

**Both**

1. Record an input and play it back, and display the corresponding note information (location on staff, frequency, and note number) on the monitor screen.