**Coursera Bootstrap Course: Ideation Report**

*Soham Bhadra*

**INTRODUCTION**

In this report I propose to develop a website called **ColourTone** that presents a new way to play musical notes based on colour associations with specific notes. Currently, playing various musical instruments requires users to learn the different methods of holding and fingering the instrument in order to produce the desired sound.

ColourTone instead provides a way to play multiple instruments by pressing/clicking the same set of buttons on the screen. Each button corresponds to a note. The buttons are colour-coded according to their note, and this colour mapping can be changed as per the user’s desire. There is also an option to transpose the chord (i.e., play in a different base chord). Of course, this requires that the user know the names of the various notes (C, C-sharp, D, etc.), for which guides below each button are shown according to the *solfège* (do-re-mi) system to aid those who are not familiar with chord names.

This system has the benefits of not having to learn the various ways of holding a specfic instrument, but instead being flexible enough to accommodate a number of instruments using the same on-screen buttons. Also, the colours associated with the keys can help visual learners. These are made possible by means of a beginner-friendly interface.

The ColourTone website will be built using Bootstrap and optimised for mobile devices.

**PROPOSED FEATURES**

* **Colour mappings:** Each note (such as C, D and E) is given a specific colour. The mappings from colours to notes can be changed by the user as per their preferences, or selected from a set of themes.
* **Instruments:** A range of instruments will be supported. Users can choose from among multiple instruments to play, and the same buttons for the chords can be used for each. However, mixing multiple instruments at once is currently not planned.
* **Higher and lower octaves:** It is important to be able to play notes from higher and lower octaves. Therefore, the number of notes displayed on the screen can be adjusted from the default 12 to accommodate more or fewer keys. On mobile devices this will need a redesigned interface.
* **Keys:** Keys on a computer keyboard are mapped to buttons representing notes. This can be configured by the user. On mobile screens, this does not apply as they are operated by touch.
* **Transposing:** ColourTone will support transposing, i.e., shifting the base note (*do* in the movable-do *solfège* system, which is most popularly used). In other words, a scale does not always have to begin at the C note, but rather the base note (*do*) can be changed to another note.
* **Recording:** Users will be able to record the music they create and export it as a file or share it.
* **Solmisation:** The default *solfège* (do-re-mi) system of solmisation (i.e., assigning names to notes) can be changed to other systems, such as the *sa-re-ga-ma-pa* system used in Indian music.

**EXISTING SERVICES**

After detailed explorations, I have concluded that the proposed ColourTone website is the first app or website of its kind that allows users to play on-screen notes according to colour-based cues. Therefore, a competing website does not exist currently. There are websites that allow users to play the piano based on chord names, but these do not have a colour aspect to them, and the keys are shaped like ordinary piano keys. ColourTone’s button arrangement, while similar, is not the same. Existing websites like Virtual Piano Online1 have the ability to play the piano using keyboard keys, as well as record and save played music. But they are optimised only for usage with a computer keyboard, and not on mobile screens. Also, their design is dated, which is what I seek to improve.

However, there are approaches that correlate the frequency of a musical note with the corresponding frequency of a colour in the spectrum of visible light.2 For instance, Musical Colors3 is a company that sells colour-coded stickers for pianos and guitars that can be pasted on individual keys or strings. In any case, these have not been extended to websites or apps that allow users to play instruments based on colour cues.

**REFERENCES**

1. Virtual Piano Online (<https://www.apronus.com/music/flashpiano.htm>).
2. Endolith (<http://www.endolith.com/wordpress/2010/09/15/a-mapping-between-musical-notes-and-colors/>).
3. Musical Colors (<https://www.musicalcolors.com/>).