Music block 4 widgets framework

Dear Sugar Labs,

I am writing to propose a project for Google Summer of Code 2023 that aims to develop a Music Blocks 4 Widgets Framework using TypeScript and React. The project will involve building a widget framework that integrates with the Singer API and allows for the creation of individual widgets on top of that.

Music Blocks is an open-source project that provides an intuitive way for children and beginners to learn and explore the fundamentals of music. Widgets are powerful tools within Music Blocks that expose important concepts in music, such as rhythm, mode, and temperament. With the release of Music Blocks v3, Widgets were subclassed from a common framework and launched from the block language itself, allowing for Widget parameters to be programmed in the block language. However, this added significant complexity to the code and will not be supported in v4.

The proposed project involves developing a new Widget framework for Music Blocks v4 that provides a main widget window and integration hooks to the Singer API. The framework will serve as the foundation upon individual widgets to be built upon. These widgets will generate code as an output, allowing for a more streamlined and efficient user experience.

The project will be developed using TypeScript and React, two widely-used technologies for web development. The project size is estimated at 175 hours, and the proposed timeline for completion is 12 weeks.

The goals of the project are as follows:

- Develop a new Widget framework for Music Blocks v4
- Integrate the framework with the Singer API
- Create a main widget window and paraphernalia
- Build individual widgets on top of the framework
- Ensure widgets generate code as an output
- Write unit tests and documentation for the project

Basic information

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I believe this project would be a valuable addition to Music Blocks and would provide a more efficient and user-friendly experience for users. I have experience with TypeScript and React, and I am excited to contribute to the open-source community through Sugar Labs and Google Summer of Code.

Thank you for considering my proposal. I look forward to hearing from you.

Sincerely,
Rishika S V