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sugarlabs Music Blocks

Dickinson
Computer Science Senior Seminar 23-24

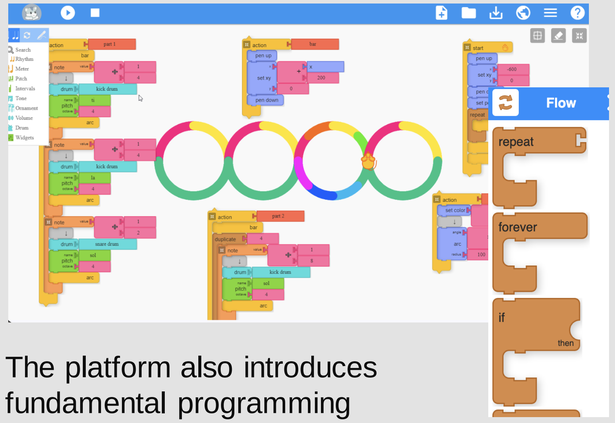
Background

Sugar Labs is an ecosystem of software tools and activities designed for children to make education fun and accessible.

Our team focused on Music Blocks, a creative and educational tool designed to introduce children to the concepts of music composition and programming through a visual, block-based interface.

Music Blocks

In Music Blocks, blocks represent musical elements and commands to create compositions.



The platform also introduces fundamental programming concepts like loops, conditionals, sequencing, and variables in a musical context.

Team Mission

Empower children through Music Blocks by enhancing its functionality via our contributions to bug fixes, comprehensive documentation, and the development of engaging lesson plans and educational projects.

Contributions

Issue	Description	Result
Issue #3327	Create a crossword using a musical alphabet with the aim to teach students letters, spelling and musical composition.	Created a crossword project that has been approved by the developer.
Issue #2630	Add JSDOC style comments to JavaScript files throughout the repository to make Music Blocks code more readable and accessible to newcomers.	Added JSDOC commenting with addition of expected output to various functions of multiple files within the /js directory of Music Blocks.
Issue #2808	Applied our knowledge of CSS and JavaScript to ensure that the pitch drum matrix widgets are scaled and aligned in full screen mode.	Added CSS code to improve the physical appearance of a page to scale and perfectly align the content.

Contributions In-Depth

Subteam 1: Ethan & Sophia "A.I. Generated Lesson Plans"
Walter Bender tasked us to use a language model to generate new lesson plans pertaining to music and programming. Our subteam used Python, LangChain, and Meta's Llama 2 language model to create original lesson plans based on pre-existing Music Blocks data.

Subteam 2: Belgin & Myra "Crossword Project"
Familiarized ourselves with Music Blocks coding while contributing to its enhancement. Beginning with a quiz, we transitioned it to a crossword grid format using Inkscape and Music Blocks. Our methodology garnered approval from Walter Bender, the co-founder of Sugar Labs.

Subteam 3: Sai & Mel "Scaling Content"
Walter Bender challenged us to leverage our CSS skills in order to improve the appearance of the Sugar Labs application. As a result, we were required to familiarize ourselves with an advanced understanding of CSS and JavaScript prior to working on issues involving the appearance of widgets.

Reflection

Challenges:
- Music Terminology & Language
- Music Block Coding
- Locating Widgets

What we Learned:
- Working within a Community
- Role of music in early education
- Musical coding

Future Contributions:
- Closing more issues
- Creating more widgets that Walter suggests
- Improve visual elements

Highlights:
- Opportunity to collaborate and be guided by co-founder, Walter Bender
- Made contributions that will enhance musical education experience

Languages and Libraries

Python JavaScript

Acknowledgements

We want to acknowledge the continued and immense guidance from Walter Bender, co-founder of Sugar Labs as well as the support of Professor MacCormick in making contributions to Sugar Labs.