



# Implementation Of Digital Audio Workstation in MusicBlock

## About Me

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## Why SugarLabs?

I am looking for challenging coding opportunities so that my skills can get enhanced and my work impacts the betterment of society. Google Summer of Code 2022 provides the perfect opportunity. After going through the organization list of GSOC 2022, SugarLabs MusicBlocks is a perfect match for me. I have explored other open-source organizations and successfully set up them; however, after reviewing their project ideas and their wonderful community, I decided that I should focus on the SugarLabs project. Once this decision was made and after reaching out to the SugarLabs community, it proved to be a good fit for reaching my project goals. Becoming a part of this fantastic community not only for GSOC but, in the future, is planned. While being very well versed with the application stack that SugarLabs employs will give me a head start in the learning curve, I am also impressed by the sugar work which is dedicated to the children and promotes collaborative learning through various sugar activities and developing their mindset in a fun way.

## The Project- Implementation of DAW(Digital audio workstation in Music Blocks)

## Synopsis-

This project aims to implement a digital audio workstation (DAW) on a music website using JavaScript and other relevant technologies. The DAW will allow users to create, edit, and mix music tracks directly on the website, making it a valuable tool for music enthusiasts and professionals alike. The goal of this project is to provide a user-friendly and feature-rich DAW that can run smoothly on any modern browser, while also ensuring that the website remains responsive and performs well.

## What it means to accomplish-

1. Design and implement a user interface for the DAW that is intuitive and easy to use.
2. Develop a sound engine that can generate and manipulate audio in real-time.
3. Implement tools for creating, editing, and mixing music tracks, including effects, EQ, and automation.
4. Ensure that the DAW can run smoothly on any modern browser, including mobile devices.
5. Implement collaboration features that allow multiple users to work on a project simultaneously.
6. Test and debug the DAW thoroughly, ensuring that it is stable and free of critical bugs.
7. Develop documentation and tutorials for using the DAW and customizing it for specific needs.

## Timeline-

### Before the Community Bonding Period(April 4- May 4)

- Contribute in general to SugarLabs.
- Fix the open issues.
- Discuss different possible approaches for the project with the mentors.
- Learn More about the technologies used for the Project.

### Community Bonding Period (May 4 - May 29)

- Introduce myself to everybody.
- Explore the code base and the discussion with the mentors about the enhancement and addition of the new features
- Participating in Sugar activities and meetings
- Discussion of the possible feature which can be implemented in the community.

### Coding Period

**May 29 to July 10**

May 24 to June 1

- Research and analysis of existing DAWs and technologies.
- Design the user interface for the DAW, including toolbars, menus, and panels.

	<ul style="list-style-type: none"><li>• Develop a plan for implementing the sound engine and audio processing tools.</li></ul>
June 1 to June 20	<ul style="list-style-type: none"><li>• Implement the sound engine using JavaScript and other relevant technologies.</li><li>• Develop basic tools for creating and manipulating audio, including audio file import/export.</li></ul>
June 20 to July 10	<ul style="list-style-type: none"><li>• Develop tools for editing audio, including cutting, pasting, and adjusting audio levels.</li><li>• Implement effects and EQ tools, including reverb, delay, and compression.</li></ul>

### July 14 to August 15

July 14 to July 25	<ul style="list-style-type: none"><li>• Develop automation tools for modifying audio parameters over time.</li></ul>
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July 26 to August 5	<ul style="list-style-type: none"><li>● Implement collaboration features that allow multiple users to work on a project simultaneously.</li></ul>
August 6 to August 15	<ul style="list-style-type: none"><li>● Test and debug the DAW, including performance and stability testing.</li><li>● Develop documentation and tutorials for using the DAW and customizing it for specific needs.</li></ul>

### **Buffer Period - August 15 to August 25**

This period is allotted for the finishing of the webpage and in case given tasks are not completed according to the timeline then this time will be utilized in finishing them.

### **Final Submission-**

A Full Fledged DAW Workstation will be implemented which can record and manipulate audio

## PerExpectation From Mentors

- Help me understand the existing code of Sugar whenever I am incapable of doing so on my own.
- Suggest me some study material to have a clearer view of how things are done ideally.
- Help me come to a decision when I have more than one way of doing things and tell me why that is the best option.
- Take time to review my work and provide timely insight.

## Commitments

I will be having my college summer vacation during the GSoC period. So, I can commit more than 35 hours a week which is more than the requirement that Google has suggested. Since I am already familiar with contributing to Sugar and had spent months understanding the codebase, I won't take much time initially to understand the practices and understand the quality of code and work that is needed. The later weeks would be more coding intensive. The plan is detailed enough to allow for any backlogs, especially in the last two weeks

## After GSoC,

I would like to keep contributing to SugarLabs and will be available to resolve issues and manage to pull requests. Even if I am not selected this year, I would like to help this project by resolving issues, suggesting new ideas, and participating in discussions. I usually help out people with code and will love to mentor some young coders.

## Introduction

I am in the third year of my Bachelor in Computer Science Engineering course. Computers especially software part have always interested me. I find myself as a coding enthusiast who is on a journey of learning something new each day of my life and a future full-stack developer. I have always loved working on algorithms and their visualizations emphasizing writing readable code. It has been 3 years since I started programming. I am very comfortable with, Frontend technologies like HTML, CSS, JavaScript as well TypeScript, and also learning ReactJS and Backend -NodeJs, ExpressJs as well MongoDB for Databases and have also experience in C/C++ and Python. I also have good experience in Git, Javascript, MySQL, and other technologies, and also worked on developing RESTful APIs. My major interest is in Data Structures and Algorithm Design and practicing my coding skills on HackerRank and CodeChef-like platforms. I have also written web application programs and developed websites that are available on my GitHub account. I developed the habit of reading the readme Files and writing code first on paper to improve the efficiency of my work and hence I can write clean and efficient codes. I am looking forward to the challenges awaiting me. In my opinion, the main objective of GSoC is to learn and gain experience, I hope to accomplish that.

## Projects And Participations

### Schedule Manager

Tech stack- HTML, CSS, JavaScript, NodeJS, MongoDB

A website that helps to make a to-do list

GitHub-<https://github.com/MohitGupta14/TODOList.git>

### Unstop Hackathon

Made a Website for DaretoCompete in which users can register themselves in a Particular course of their choice.

Tech stack- HTML, CSS, EJS, JavaScript, NodeJS, MongoDB, ExpressJS

URL- <https://codevita1.herokuapp.com/>

GitHub-<https://github.com/MohitGupta14/codevitaHackathon>

### Devpost Hackathon

This project is a part of the Hackathon event organized by devpost which is about the demonstration of the usage of the courier. We have incorporated the courier API and tried to give an easy and single-page approach to sending emails with templates to the desired person using courier API.

Tech stack- HTML, CSS, JavaScript, ReactJS, NodeJS, MongoDB, ExpressJS

Github-<https://github.com/MohitGupta14/Courier-Hacks>

## Contributions

Merged PR with Sugar(MusicBlocks) -

- [#3229](#) - Making Take a Tour section Responsive for all types of devices
- [#3237](#) - Fixing the image issue and the functionality of the Movable Do block

Open PR with Sugar(MusicBlocks)

- [#3250](#) (approved) - Implemented Recording Feature
- [#3252](#) (approved)- Implemented Full-Screen Mode

Issues with Sugar(MusicBlocks) -

- [#3233](#) (working) - Fixing buttons in the firefox browser(smartphones)
- [#3255](#)(working)- Working on the implementation of a sound bar to control the audio output

Other - [All Pull Requests](#)



## References-

<https://www.sugarlabs.org/>

<https://www.sugarlabs.org/music-blocks/>

<https://github.com/sugarlabs/musicblocks/issues>

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**THIS PROPOSAL IS MY THIRD PREFERENCE**