



# sugarlabs

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## Improve and maintain 15 Sugar activities.

(Draft-Proposal)

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### Basic Details

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### Objective

Sugar labs has more than 250 activities. These have scope for improvement, bugs, features, updated human translations, and releases. Many of the activities which have high pedagogical value have not been maintained since many years. The objective is to test, analyse and improve at least 15 activities which are either a part of Fructose or have strong pedagogical values. I will be selecting activities from **Fructose** to add the **original design features** that are not yet implemented and activities from **Honey** in which I will be adding the **common features** that fulfills the basic design of a game. Also, I will select activities that need to be ported to **GTK+ 3** to have a fully functional UI.

### Why Sugar labs ?

I want to bring innovative learning methods in the root level i.e, to elementary school children, and Sugarlabs empowers me to do exactly this. Also, the One Laptop Per Child initiative inspired me to be a part of Sugar Labs and serve the society.

# Project

Currently,

1. There are many activities that are **not ported to python3 and GTK+ 3** .
2. There are also many game-like activities that are ported but **lack basic functionalities of game design**.
3. There are few activities from Fructose that **lack original design functionalities**.

Hence my work would involve,

1. **Porting** activities to **GTK+ 3**.
2. Adding **features of basic game design principles** and **activity specific** to the Honey activities that are games.
3. Adding **basic functionalities** for Fructose activities.

## Fructose

### 1. Chat activity

- Add a timestamp to each message.
- Increase the height of the entry widget and accept touchscreen or mouse drawing, as well as text.
- Transmit the drawing and text to the shared activity instance.
- Receive and render both the drawing and the text.
- Add a clear entry button to the entry widget.

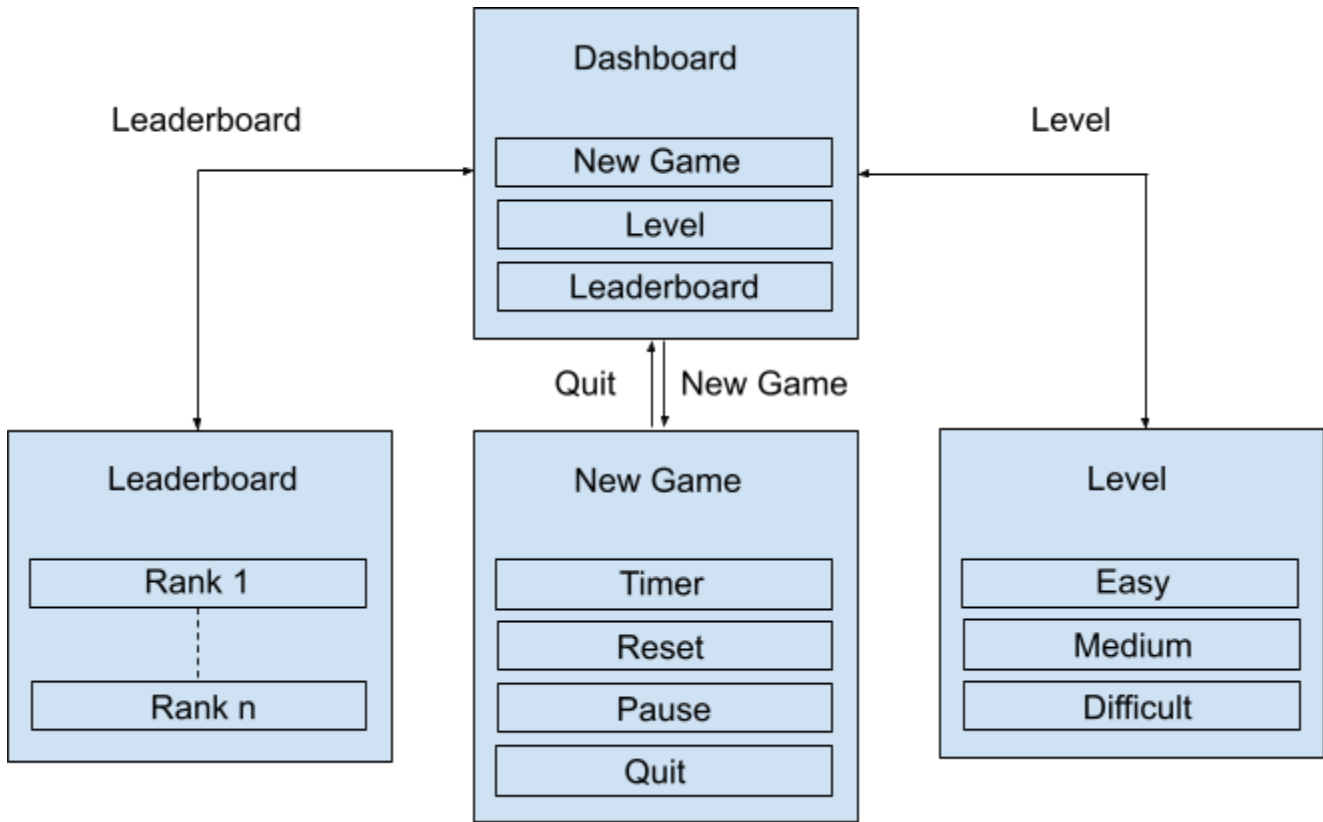
The above features addresses the issues [#17](#)

### 2. Imageviewer activity

- Add basic image editing tools:
  1. Crop
  2. Filters

## Honey

The activities from **Honey** are those which are already ported, have high pedagogical value and have a lot of scope for improving the activities that attract the elementary children. Adding the basic features and few activity specific features will make the learning activities as attractive as video games.



Basic workflow of a game.

1. Features that add more value to an activity as a game,
  - a. Add Time constraint (Timer).
  - b. leaderboard.
    - i. If the activity allows collaborating with peers, then the leaderboard consists of highscore of all the peers.
    - ii. If not, then the progress of the same child can be kept track.
  - c. Goodies at appropriate stages to encourage. It might be in the form stars or badges for playing the activities on a regular basis.
  - d. Varied difficulty Levels.
2. Add Help(If the activity does not have the Help page).
3. Add Translations to English and Kannada to both the Help activity web page and the activity.
4. Contribute to the documentation.
  - a. Update the Readme, activity documentation in help-activity repository according to the changes made in the activity.
  - b. Update any documentation that might ease the new contributors for better understanding.
5. Fix issues that are required for an activity to be released.

Lately, I have been working on [JAMath activity](#) to achieve the above goals in PR [#20](#).

## Porting activities to GTK+ 3

Porting activities would be done by following the [gtk3-porting-guide](#) and refer to previous PRs made on porting to GTK+ 3.

## Selected Activities

Sl.No	Activity	Tasks
1.	<a href="#">Recall-activity</a>	<ul style="list-style-type: none"><li>● Basic game design - feature</li><li>● Create Help page</li></ul>
2.	<a href="#">compress-activity</a>	<ul style="list-style-type: none"><li>● Port to GTK+ 3</li></ul>
3.	<a href="#">chat</a>	<ul style="list-style-type: none"><li>● Add a timestamp to each message.</li><li>● Increase the height of the entry widget and accept touchscreen or mouse drawing, as well as text.</li><li>● Transmit the drawing and text to the shared activity instance.</li><li>● Receive and render both the drawing and the text.</li><li>● Add a clear entry button to the entry widget. (<a href="#">#17</a>)</li></ul>
4.	<a href="#">Triples activity</a>	<ul style="list-style-type: none"><li>● Basic game design - feature</li><li>● Multiple levels</li><li>● Create Help page</li><li>● Fix <a href="#">#6</a></li></ul>
5.	<a href="#">Bounce activity</a>	<ul style="list-style-type: none"><li>● Port to GTK+ 3</li></ul>
6.	<a href="#">turtlepond</a>	<ul style="list-style-type: none"><li>● Basic game design - feature</li><li>● Multiple levels</li><li>● Complete PR <a href="#">#12</a>, <a href="#">#10</a></li></ul>
7.	<a href="#">classify-cats</a>	<ul style="list-style-type: none"><li>● Basic game design - feature</li><li>● Multiple levels</li><li>● Fix <a href="#">#3</a></li></ul>
8.	<a href="#">imageviewer-activity</a>	<ul style="list-style-type: none"><li>● Basic image editing tools.</li></ul>
9.	<a href="#">Cardsort activity</a>	<ul style="list-style-type: none"><li>● Basic game design - feature</li><li>● Create Help page</li><li>● Fix <a href="#">#9</a></li></ul>
10.	<a href="#">Arithmetic activity</a>	<ul style="list-style-type: none"><li>● Port to GTK+ 3</li></ul>
11.	<a href="#">Wordcloud</a>	<ul style="list-style-type: none"><li>● Input text split by newlines (<a href="#">#2</a>) - feature</li></ul>

		<ul style="list-style-type: none"> <li>• Emoji, cursor visibility and Special character support in text input - feature</li> </ul>
12.	<a href="#">Labyrinth activity</a>	<ul style="list-style-type: none"> <li>• Port to GTK+ 3</li> </ul>
13.	<a href="#">lq-activity</a>	<ul style="list-style-type: none"> <li>• Basic game design - feature</li> <li>• Create Help page</li> </ul>
14.	<a href="#">foodforce2-activity</a>	<ul style="list-style-type: none"> <li>• Port to GTK+ 3</li> </ul>
15.	<a href="#">wikipedia-activity</a>	<ul style="list-style-type: none"> <li>• Yet to figure out :)</li> </ul>

## Note

As rightly said by the mentor, it's hard to estimate the duration to complete a task well in advance. In case I complete the above tasks, I'd like to work on porting activities python 3, test and review open PRs, take up a few more activities to enhance features and fix issues.

## Tools and technologies

Python, GTK+ 3, OpenCV and other activity specific python modules.

## Development Environment

OS : Ubuntu 20.10

Sugar Desktop version : 0.117

Version control : Git

IDE: Visual Studio Code

## How will it impact Sugar labs?

This project aims to provide at least 15 fully functional activities with strong pedagogical values that would be ready to release in [Sugar Activity Library](#) (ASLOv4). Implementation of these features will enhance the user experience by making it more interactive and fun. This way, student engagement with the activity increases leading to efficient use of the activities. There are more than 250 Sugar activities, but only a few activities are released on ASLOv4 as support for Python 2 was withdrawn by the Python Foundation, It is important to port the activities to Python3 and to GTK+ 3 for fully functional activity and update to make them ready to release on the Sugar activity Library at the earliest.

# About me

I'm an open source enthusiast, currently pursuing B.E in Computer Science. I'm a junior at Vidyavardhaka College Of Engineering, Mysore. I spent my freshman year learning and solving coding challenges on Data structure. I was introduced to open source in the sophomore year and I explored different fields of Computer Science like Internet Of Things, Web Technologies, Image processing and have done real time working projects using open source tools.

I have organized coding contests and workshops at [Open Source Lab](#) which is a [student-led](#) community of FOSS enthusiasts(Open Source Community). I took a workshop at [Tinkering Lab](#), MICA Pre University College where I taught teenagers to hack on arduino boards and build cool tech. I regularly take part in Ideathons and hackathons. I won Infosys Summer Of Ideas and TIE PitchFest.

I'm also the moderator of Open Source Community and I spend many hours working at Open Source Lab before and after college hours. Besides, I teach Yoga at [Mysore Vivekananda Yoga Education and Research Institution](#). Many of my yoga students are elementary school children. I have tested many SugarLabs activities by letting the students use them. This could come handy to test the new feature of the activities based on their feedback.

## Previous work

1. [Music Visualiser](#), a music visualiser system using Arduino Uno and Sound detection sensor module that creates patterns in the LED synchronising with any piece of music. I took up this project out of curiosity and to explore the field of IOT.
2. Home Automation using NodeMCU and Thingr API. Automated lights and fans at Open Source Lab using open source hardware(NodeMCU) and software(Thingr platform).
3. [Home Automation using Telegram bot](#).Control home appliances with a telegram bot client. This increased UX drastically since users didn't have to open a URL each time they wanted to turn on a fan.
4. [Institutional Website](#) for [Mysore Vivekananda Yoga Education and Research Institution](#). I volunteered to build a website for the institution where I teach yoga to increase the outreach and bring an online presence.
5. [Dynamic Document scanner](#) using Python and OpenCV. Built this at e-Yantra competition by IIT Bombay.
6. [Maze encoder](#) for ball balancing platform using Python and Lua integrated with CopelliaSim simulator. Built this at a competition by [IIT Bombay](#). Through the process, I became comfortable programming with python and various modules.

# Contribution to Sugar Labs

## Issues

1. <https://github.com/sugarlabs/browse-activity/issues/116> (open)
2. <https://github.com/sugarlabs/jamath-activity/issues/19> (closed)
3. <https://github.com/sugarlabs/wordcloud/issues/10> (open)
4. <https://github.com/sugarlabs/stick-hero-activity/issues/31> (open)
5. <https://github.com/sugarlabs/followme/issues/14> (open)
6. <https://github.com/sugarlabs/arithmetic/issues/8> (open)

## PRs

1. <https://github.com/sugarlabs/jamath-activity/pull/18> (merged)
2. <https://github.com/sugarlabs/jamath-activity/pull/20> (yet to merge)
3. <https://github.com/sugarlabs/jamath-activity/pull/21> (in progress)

## Working Schedule

I am comfortable working for 7 to 8 Hrs. per day, generally between 10 AM and 11 PM (IST). I have no prior commitments during the summer. Due to unexpected situations if I take a day off, I will keep the mentor informed and compensate for it by working extra 2 Hrs. on the following days.

## Timeline

Date	Agenda
17 <sup>th</sup> May 2021 to 6 <sup>th</sup> June 2021	<ul style="list-style-type: none"><li>➤ Review and understand the codebase of the selected activities.</li><li>➤ Discuss about the first 7 activities with the mentor.</li><li>➤ Continue to contribute to Sugar labs by raising and fixing issues especially fixing those issues that could help me better insights on my project.</li><li>➤ Checkout all the previous contributions to selected activities. Especially those which have incomplete PRs for port to GTK+ 3.</li></ul>
7 <sup>th</sup> June 2021 to 13 <sup>th</sup> June 2021	<ul style="list-style-type: none"><li>➤ Start working on the first 2 activities (1 &amp; 2). These activities are from Honey. The work involves adding common features and to port</li></ul>

	<p>to GTK+ 3.</p> <ul style="list-style-type: none"> <li>➤ Apply changes suggested by the mentor.</li> </ul>
14 <sup>th</sup> June 2021 to 20 <sup>th</sup> June 2021	<ul style="list-style-type: none"> <li>➤ Work on the activity 3. The work involves adding basic design features to the chat activity from Fructose.</li> <li>➤ Take feedback from the mentor and apply suggested changes to the first 3 activities.</li> </ul>
21 <sup>st</sup> June 2021 to 27 <sup>th</sup> June 2021	<ul style="list-style-type: none"> <li>➤ Fix the bugs of PRs and complete the work of the first 3 activities(if any).</li> <li>➤ Start working on the next two activities (4 &amp; 5) from honey. Work involves adding basic features and proting to GTK+ 3.</li> <li>➤ Test and Implement changes and apply changes.</li> </ul>
28 <sup>th</sup> June 2021 to 04 <sup>th</sup> July 2021	<ul style="list-style-type: none"> <li>➤ Start working on the next two activities (6 &amp; 7).</li> <li>➤ Test and apply changes suggested by the mentor.</li> <li>➤ Fix issues and complete the work of activities 4, 5, 6 and 7.</li> </ul>
05 <sup>th</sup> July 2021 to 11 <sup>th</sup> July 2021	<ul style="list-style-type: none"> <li>➤ Test, fix issues and complete the work of any previous activity(if any).</li> <li>➤ Discuss with the mentor and begin working on the next activity imageviewer from Fructose (8).</li> </ul>
<b>Deliverables for 1st evaluation</b>	<b>7 ready to release activities.</b>
12 <sup>th</sup> July 2021 to 16 <sup>th</sup> July 2021 (Evaluation Period)	<ul style="list-style-type: none"> <li>➤ Discuss and receive feedback from the mentor.</li> <li>➤ Continue working on activity 8.</li> </ul>
17 <sup>th</sup> July 2021 to 18 <sup>th</sup> July 2021	<ul style="list-style-type: none"> <li>➤ Discuss about the next 8 activities with the mentor.</li> </ul>
19 <sup>th</sup> July 2021 to 25 <sup>th</sup> July 2021	<ul style="list-style-type: none"> <li>➤ Test and complete the work of activity 8.</li> <li>➤ Begin working on the next two activities (9 &amp; 10).</li> <li>➤ The work involves adding activity specific features.</li> </ul>
26 <sup>th</sup> July 2021 to 1 <sup>st</sup> August 2021	<ul style="list-style-type: none"> <li>➤ Test and Implement changes of PRs opened for activity 9 and 10.</li> </ul>



	<ul style="list-style-type: none"> <li>➤ Begin working on the next two activities (11 &amp; 12).</li> </ul>
2 <sup>nd</sup> August 2021 to 8 <sup>th</sup> August 2021	<ul style="list-style-type: none"> <li>➤ Test, fix issues and apply changes to activities 11 and 12.</li> <li>➤ Begin working on the next two activities (13 &amp; 14).</li> </ul>
9 <sup>th</sup> August 2021 to 15 <sup>th</sup> August 2021	<ul style="list-style-type: none"> <li>➤ Test and complete working on activities 13 and 14.</li> <li>➤ Start working on 15th activity.</li> <li>➤ Discuss, test and fix issues of the activities from 8 to 15.(if any)</li> </ul>
<b>Deliverables for final evaluation</b>	<b>8 release ready activities.</b>
16 <sup>th</sup> August 2021 to 23 <sup>rd</sup> August 2021	<ul style="list-style-type: none"> <li>➤ <b>FINAL EVALUATION</b></li> </ul>

## Reporting Progress

I will communicate and report the progress with the mentor using the sugar-devel mailing list, Github and IRC channel on a daily basis.

## Post GSoC Plan

It has been a great experience contributing to SugarLabs so far. I am strongly influenced by the vision of Sugar Labs to explore, discover, create and reflect through collaboration, Thus, I look forward to contributing more and being a member of SugarLabs (Irrespective of being a part of GSoC). Since there are many more activities that need to be released, I would like to continue to maintain, document and enhance the value of activities by adding new features in order to release more activities. With the experience gained during GSoC, I also plan to write new innovative activities for SugarLabs. Apart from coding contributions, I plan to involve myself by utilizing this platform to teach kids. I noticed a few of GSoC participants previously have become current mentors, inspiring me to become one! :)