



sugarlabs

Improve and maintain 12 Sugar activities.

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 for many years. The objective is to test, analyze and improve at least 12 activities which are either a part of Fructose or have strong pedagogical values. I will be selecting activities from **Honey**. These activities are mostly written in Python. I will be working on **feature enhancement** such as common features that fulfills the basic design of a game, **collaborations**, **bug fixes** and overall maintenance of the activities. Also, I will select activities that need to be ported to **Python3** and **GTK+ 3** to have a fully functional UI. The goal is to maintain, update and new releases in the ASLO-v4.

Why Sugar labs ?

I want to bring innovative learning methods in the root level i.e, to elementary school children, and Sugar Labs empowers me to do exactly this. Also, the One Laptop Per Child initiative inspired me to be a part of Sugar Labs and serve 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 and Python3.
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.

Activity Maintenance Checklist

(with reference to the [maintainer checklist](#))

1. Port to Python3 and GTK+ 3, if not done already.
 2. Test the activity :
 - a. Look for improvements such as UI enhancement, fix expensive processing.
 - b. See if the game design features are present. Develop it if not already present.
- If any of these is beyond the ability to implement, create issues so other contributors can take it up.
3. Check if there are issues that act as blocker and need to be fixed for a release. Fix them.
 4. Check if there are any incomplete open PRs that are abandoned, try to complete them.
 5. Refactor code, Flake8 fixes.
 6. Check if the Readme.md is created and updated aligning with the latest release of the activity.
 7. Check and update the activity documentation in the help-activity repository, update any documentation that might ease the new contributors for better understanding.
 8. Check if and refresh the POT files if there are any new translations.
 9. Contribute for translations.
 10. Release the activity on ASLO-v4.

Basic Game Design Features

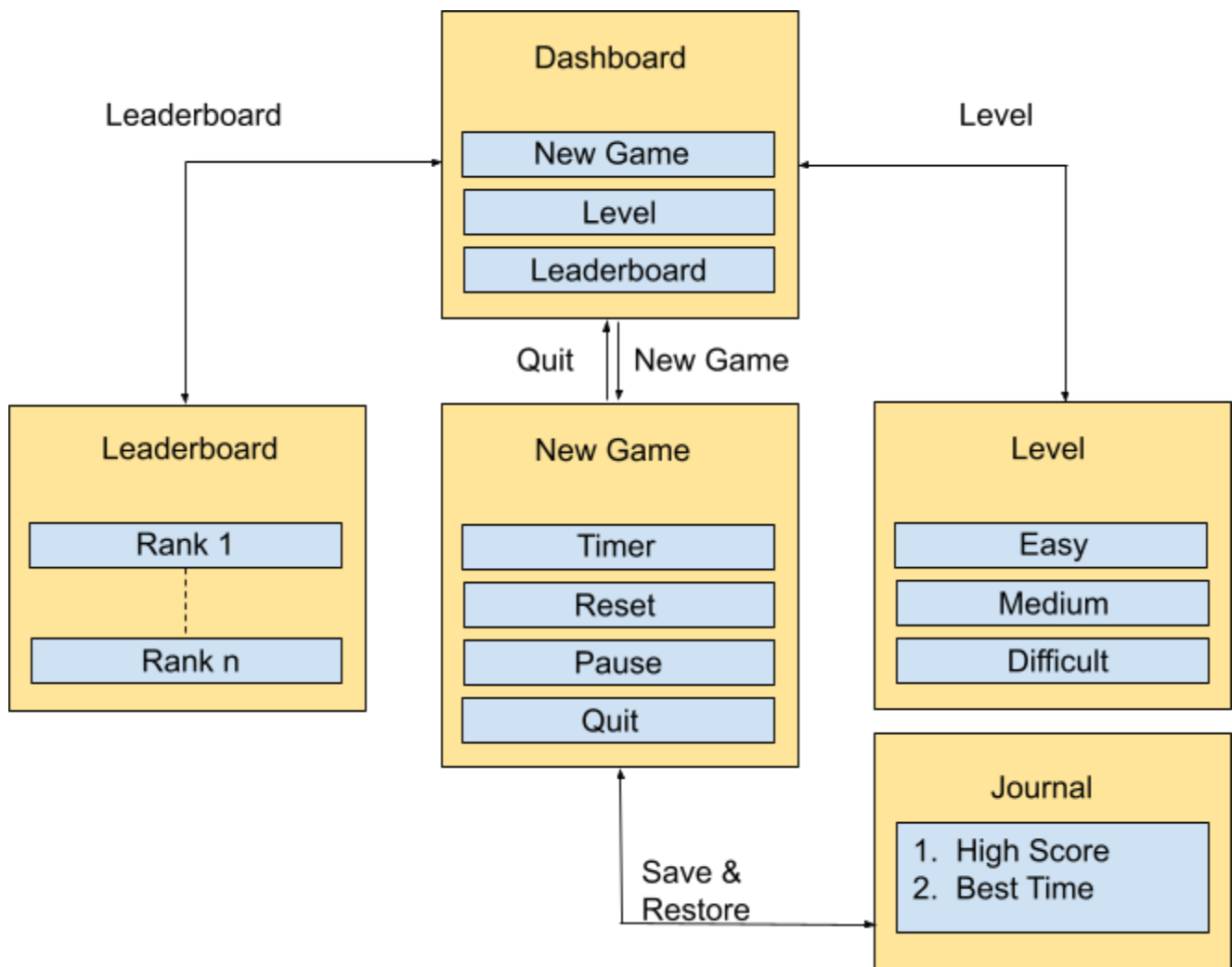


fig: Basic workflow of a game.

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 of 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.

Porting activities to GTK+ 3 and Python3

Porting activities would be done by following the [gtk3-porting-guide](#), [Python3-porting-guide](#) and refer to previous PRs made on porting to GTK+ 3 and port to Python3.

Previously, I've worked on 13 activities to achieve the above goals. Lately, I have been working on [Number Rush](#) in PR [#2](#).

Selected Activities

SI.No	Activity	Tasks
1.	2-cars-activity	<ul style="list-style-type: none"> ● Port to Python3 (complete open PR #9)
2.	compress-activity	<ul style="list-style-type: none"> ● Port to GTK+ 3 and Python3
3.	jump-activity	<ul style="list-style-type: none"> ● Fix issue #10 : CPU heating up due to expensive processing. ● Fix issue #11 : Formatting of source code
4.	Triples activity	<ul style="list-style-type: none"> ● Feature: Basic game design ● Multiple levels ● Fix issues #6
5.	Bounce activity	<ul style="list-style-type: none"> ● Port to GTK+ 3 and Python3
6.	dotsAndBoxes	<ul style="list-style-type: none"> ● Feature: Collaboration (fix #13) ● Feature: Basic game design
7.	dasher-activity	<ul style="list-style-type: none"> ● Port to Python3 ● Feature: Basic game design
8.	cellgame	<ul style="list-style-type: none"> ● Fix #4: Add support for mouse ● Fix #3: Display resolution dynamic sizing
9.	Cardsort activity	<ul style="list-style-type: none"> ● Feature: Basic game design ● Create Help page ● Fix issues #9

10.	Wordcloud	<ul style="list-style-type: none"> ● Feature: Input text split by newlines (#2) ● Feature: Emoji, cursor visibility and Special character support in text input
11.	lq-activity	<ul style="list-style-type: none"> ● Feature: Basic game design ● UI enhancement
12.	foodforce2-activity	<ul style="list-style-type: none"> ● Port to GTK+ 3 and Python3

Note

I might change the work on a few activities based on the mentor's suggestions. Also, since it's hard to estimate the exact duration to complete a task well in advance. In case I complete the above tasks within time, I'd like to work on porting activities to python 3, test and review open PRs, take up a few more activities to enhance features and fix issues.

I'm familiar with the code structure of activities, adding features, translations, refreshing POT files and making new releases, hence I intend to complete the tasks related to these concepts. On the other hand, I'm new to a few tasks such as Collaborations and some critical porting. Though I've been going through some PRs related to these topics, I might exceed the time to complete those tasks.

(Thanks to the comments in an open [PR](#) in Paths activity, very insightful! :))

Tools and technologies

Python, GTK+ 3 and other python modules (as required by activity specific features).

Development Environment

Device: RaspberryPi 400
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 12 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 senior 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 spent my junior year contributing to [Sugar Labs](#) as a part of [Google Summer of Code](#) last summer.

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 Entrepreneurial pitch deck - 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 Sugar Labs activities by letting the students use them. This could come handy to test the new feature of the activities based on their feedback. Currently, I'm interning at [Scientist Technologies](#) as a full stack developer using flask, Vue.js, Node and MongoDB.

Other works

1. [Music Visualiser](#), a music visualiser system using Arduino Uno and Sound detection sensor module that creates patterns in the LED synchronizing 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 Thinger API. Automated lights and fans at Open Source Lab using open source hardware(NodeMCU) and software(Thinger 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

Previously, I have contributed to Sugar Labs by [Improving and maintaining 15 activities](#) during Google Summer of Code 2021 under the mentorship of [Ibiam Chihurumnaya](#), [Srevin Saju](#), [Jui Pradhan](#), [Saumya Mishra](#). The project mainly focussed on feature enhancement, bug fixing, UI enhancement, porting to Python3, translation and making new releases of 15 activities on ASLO-v4.

Working Schedule

I am comfortable working for 7 to 8 Hrs. per day, generally between 5 PM and 12 AM (IST). Due to unexpected situations if I take a day off, I will keep the mentor informed.

Project Type

The project type is large. (350 hours)

Timeline

Duration	Agenda
20 th May 2022 to 12 th June 2022 (Community Bonding Period)	<ul style="list-style-type: none"> ➤ Review and understand the codebase of the selected activities. ➤ Discuss about the first 6 activities with the mentor. ➤ Continue to contribute to Sugar labs by raising and fixing issues especially fixing those issues that could help me better insights on my project. ➤ Checkout all the previous contributions to selected activities. Especially those which have incomplete PRs for port to GTK+ 3 and Python3 and collaborations.
Week 1 13 th June 2022 to 19 th June 2022	<ul style="list-style-type: none"> ➤ Start working on the first 2 activities (1 & 2). These activities are from Honey. The work involves adding common features and to port to GTK+ 3 and Python3. ➤ Apply changes suggested by the mentor.

Week 2 20 th June 2022 to 26 th June 2022	<ul style="list-style-type: none"> ➤ Start working on the 3rd activity. ➤ Get 1st and 2nd activity reviewed and make necessary changes.
Week 3 27 th June 2022 to 3 rd July 2022	<ul style="list-style-type: none"> ➤ Fix the bugs of PRs and complete the work of the first 3 activities(if any). ➤ Start working on the 4th activity from honey. Work involves adding basic features. ➤ Test and Implement changes and apply changes.
Week 4 4 th July 2022 to 10 th July 2022	<ul style="list-style-type: none"> ➤ Start working on the 5th. ➤ Work involves porting to Python3 and GTK+ 3. ➤ Test and apply changes suggested by the mentor. ➤ Fix issues and complete the work of activities 4, and 5.
Week 5 11 th July 2022 to 17 th July 2022	<ul style="list-style-type: none"> ➤ Explore the activities that have collaboration features and understand the codebase. ➤ Start working on the 6th activity.
Week 6 18 th July 2022 to 24 th July 2022 (Evaluation Period)	<ul style="list-style-type: none"> ➤ Discuss and receive feedback from the mentor. ➤ Complete the work on 1- 6 activities.
Deliverables for 1st evaluation	6 ready to release activities.
Week 7 25 th July 2022 to 31 st July 2022	<ul style="list-style-type: none"> ➤ Begin working on the 7th activity. ➤ Work involves porting to Python3.
Week 8 1 st August 2022 to 7 th August 2022	<ul style="list-style-type: none"> ➤ Explore the activities involving support for mouse and display resolution dynamic sizing and understand the codebase. ➤ Start working on the 8th activity. ➤ Apply changes suggested by the mentor.
Week 9 8 th August 2022 to 14 th August	<ul style="list-style-type: none"> ➤ Test and complete the work of activity 8. ➤ Begin working on the 9th activity. Work involves adding game design features.

2022	<ul style="list-style-type: none"> ➤ The work involves adding activity specific features.
Week 10 15 th August 2022 to 21 st August 2022	<ul style="list-style-type: none"> ➤ Test and Implement changes of PRs opened for activity 8 and 9. ➤ Begin working on the 10th activity.
Week 11 22 nd August 2022 to 28 th August 2022	<ul style="list-style-type: none"> ➤ Test, fix issues and apply changes to 10th activity. ➤ Begin working on the 11th activity.
Week 12 29 th August 2022 to 5 th September 2022	<ul style="list-style-type: none"> ➤ Test and complete working on activities 10 and 11. ➤ Start working on the 12th activity. ➤ Discuss, test and fix issues of the activities from 7 to 12.(if any)
Deliverables for final evaluation	6 release ready activities.
6 th September 2022 to 12 th September 2022	➤ FINAL EVALUATION

Reporting Progress

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

Post GSoC Plan

It has been a great experience contributing to Sugar Labs 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 (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 Sugar Labs. Apart from coding contributions, I plan to involve myself by utilizing this platform to teach kids.