

GSoC'22 Project Proposal

Sugar Labs: Exerciser Evaluation Mode

Basic Details

Name: Ahamisi Godsfavour

Email: ahamisivickzyjr@gmail.com

Github: <https://github.com/Ahamisi>

Language: English Language

Location: Lagos, Nigeria

Timezone: GMT+1

Education Details

I am a Systems Engineering undergraduate student at the University of Lagos, pursuing a Bachelor of Engineering degree, currently in my 2nd year.

My first shot at computers was during summer in highschool. Starting with the famous Microsoft Word Packages. Fascinated by the awesomeness of microsoft packages led my quest for more. Soon after I entered the whole world of programming with Javascript as my first programming language. Fast track to today. I'm able to build awesome applications with Javascript, PHP, and Python with multiple interests in Web, Web3, Artificial Intelligence and Augmented Reality. To show for my expertise I've been awarded **Javascript Expert** by Puralsight, **Certified Web Professional (CWP)** by Template Monster

Share links, if any, of your previous work on open source projects

PULL REQUEST LINK	DESCRIPTION
Exerciser React	Created a local clone of llaske/ExerciserReact:master.
Sugarizer	Completed The Sugarizer vanilla Activity Development. <ul style="list-style-type: none"> ● Created New Pawn Activity ● Modified Pawn Logo ● Localized the activity and enables various language transitions
Ganassi Racing	<ul style="list-style-type: none"> ● Built entire frontend for landing page ● Enabled instagram feed display using Embed SDK ●
Rocket Animation	Built rocket animation for hero using Javascript
Charity 5000	A charity template for charity foundations in Lagos Nigeria
Covid-19 Tracker	A chrome extension that shows you real-time updates of the daily progression of the Corona Virus at the Global and National Stage
JSX & SVG namespace conflict - Exerciser Activity	Replaced all Svgs in src/template directory with support for React JSX

Details of my other contributions can be found here on my Github Profile [here](#)

Convince us that you will be a good fit for this project, by sharing links to your contribution to Sugar Labs

I began contributing to sugar labs earlier this year. So far I've been able to understand the workflow and codebase for most sugar labs projects.

Notable of my observation that sugar labs is spelt "Sugar Labs" with a space.

The past months have been more of a learning experience for me. Getting familiar with the React Framework for this particular project.

Been able to look at Mankirat Singh's contribution to the project during GSOC 4 years ago and I believe am able to pick up from where he stopped and take the project to a whole new level.

I'm applying to sugar labs for Google Summer of Code 2022 because of her vision to make learning for kids interactive. Luckily for me I've worked on similar projects with the same motive for fostering interactive education through augmented learning. Notable amongst my projects, **Green Learn** made it as a finalist for the [Festival of Urgent Re-inventions](#) 2021.

Besides that, I've volunteered for the Open Source Community Africa (OSCA). A community of creative minds driving the Open Source movement in Africa headed by 2 of sugar labs Alumnis Samson Goddy and Peace Ojemeh

Prerequisite for Project

As given in Idealist. I already have experience in HTML5, Javascript, and React.js framework development. Other than this I am already familiar with the Sugarizer codebase and have merged commits to the repository.

I'm a full stack javascript developer with a 3 year commitment to the Javascript framework. A couple of them can be found on my github profile and others which are Non-Disclosable

I completed both the Sugarizer Vanilla Javascript activity development tutorial and the Implementation of exerciser activity. This helps me understand how the Sugarizer core works

and how the activity is implemented. Following is the link to my repository of the implemented tutorials.

- <https://github.com/Ahamisi/ExerciserReact>
- <https://github.com/Ahamisi/sugarizer>

All of these make me familiar with the Sugarizer codebase and comfortable working with Sugar Labs. It also helps me to understand how things actually work internally and how various components are connected.

Project Details

What are you Making?

Sugarizer is a great tool for education. It can work on the web as a webapp and also be used as a mobile app, thus giving Sugar Users a wide range of options. However, most of Sugarizers activities are static and can't be modified by educators as per their needs. This makes it difficult for teachers and educators who use sugarizer and mold it into their curriculum.

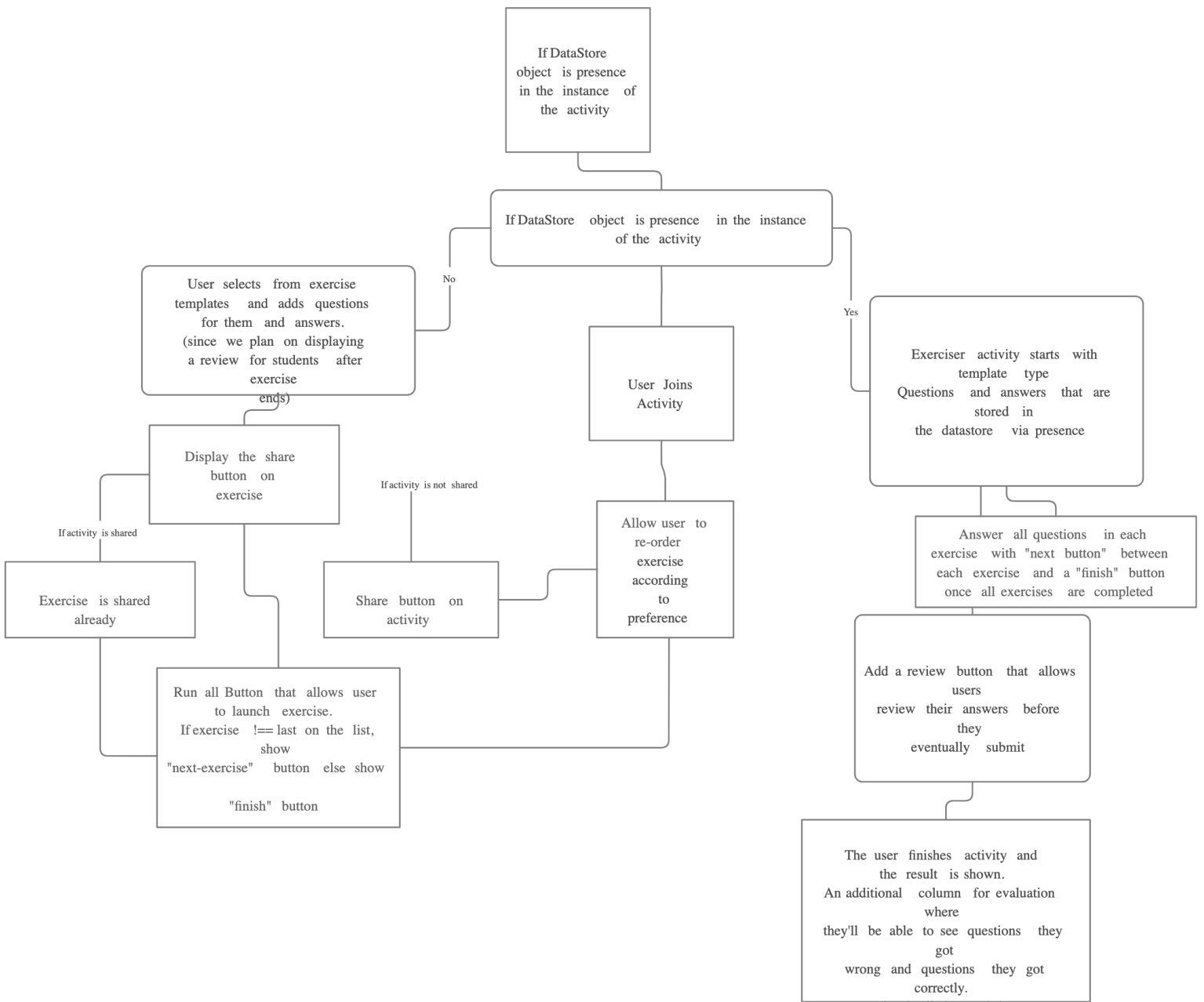
This activity would allow educators who use the Sugarizer platform, to build custom assignments for their students and share them via a server, getting live feedback of their students' performance.

Project Goals

- Upgrade ReactJS version of the project

Current version of the project is React 18.0.0

- Improve activity UI
- Run multiple exercises at the same time
- Evaluation mode



Features implementation

Explanation

As the user opens a new instance of the Exerciser activity (being a new activity there will be no datastore object present in its instance). The user will be able to choose a template for the exercise.

After choosing the template, the user fills in the questions and its answers one by one. After adding a question and its answers the user will have the option to finish the exercise or add more questions.

Introducing multiple exercises that allows users to add more than one exercise at the same time.

After adding all the exercises, the user will click on Share completed. The last question is stored on the datastore. After this point the user can share the activity (the activity cannot be shared unless the exercise questions are more than 1 and the user clicks on Exercise completed

Once that is triggered, an exercise is ready for evaluation. **Evaluation Mode**

Teachers can now see results of all students that partook in the exercise as well as a review button for students that allows them see their results with detailed results (right and wrong answers) but won't be able to change answers since its submitted already.

For Shared Activities:

Once the user shares the exercise, The questions object array is sent from the host to every new user using Presence. Once the new user gets the questions array, the exercise will automatically start.

For Local Activities without Network:

Once the user builds the exercise, the questions and answers array is stored in the datastore. If the instance of the activity is copied locally through the journal. Then, when a user opens the activity the datastore object will contain the questions array and hence the exercise will start.

Current Templates:

Currently there are 3 types of templates for an exercise (i) An MCQ template with up to four to pick from options (ii) The Cloze Test Template, more like a fill in the blank type of template.

(iii) Reordering of list template.

Additional Templates

Gap Filling Template

True or False Question types

Data Store Object:

For sharing multiple exercises at the same time, with each exercise nested inside the exercises object.

```

{
  "exercises": [
    {
      "template": "template_name",
      "host": "host_name",
      "questions": "[{}, {}]",
      "status": "1 or 0"
    },
    {
      "template": "template_name",
      "host": "host_name",
      "questions": "[{}, {}]",
      "status": "1 or 0"
    },
    {
      "template": "template_name",
      "host": "host_name",
      "questions": "[{}, {}]",
      "status": "1 or 0"
    },
    {
      "template": "template_name",
      "host": "host_name",
      "questions": "[{}, {}]",
      "status": "1 or 0"
    }
  ],
  "participants": [
    {}
  ]
}
//status - 1 means exercise has been shared while 0 means exercise is unshared
//exercise types can be 1 of the already 6 exercise types i.e MCQ OR CLOZE OR
LIST OR FILL IN GAP, MATCHING PAIRS e.t.c

```

How will it impact Sugar Labs?

Sugarizer is a great tool with many features. It can be widely adopted especially with the advent of smartphones and internet access all around the world. However, sugarizer doesn't give educators the ability to customize its usage based on the curriculum. For instance, an english teacher might want questions regarding english, while a science teacher regarding science. The Sugarizer Exerciser activity will help eliminate these deficiencies and make sugarizer a better tool for educators around the world.

Teachers would now be able to evaluate each student's response in real time, providing a means for students and teachers to interact more effectively. It'll also be a yardstick for measuring students competence and teachers overall effectiveness, as students would now be able to see where mistakes were made with the display of both wrong and right answers during evaluation mode

What technologies (programming languages, etc.) will you be using?

The Major part of the project will involve coding in the React.js with this I will also work on some styling changes in CSS to match the new component template with the current Sugar UI.

The project currently uses dependencies like **Bootstrap 3** for the whole responsiveness, **Interact Js** for drag and drop features reordering features as well as **D3 JS** for data visualization.

Also, to improve the current UI. I'll be making use of a library called [MUJ](#) that offers a wide variety of high quality components that will allow us to ship features faster.

Timeline

Break down the entire project into chunks and tell us what will you work on each week.

Days	Task
Pre GSoC Mar 7, 2022 to May 20, 2022	<ul style="list-style-type: none"> Learn the working of the previous commit to the project and understand the whole React architecture Familiarize myself with the current implementation Stay connected with the community and contribute to Sugar Labs
Community Bonding Period May 20, 2022 to Jun 12, 2022	<ul style="list-style-type: none"> Go through the merged and in-progress PR's to have a better understanding and discuss doubts related to it with mentors. Explore the tech stack required for the project. Checkout all the previous contributions to selected activities. Especially those which have incomplete PRs and collaborations Thorough discussion with mentors
Week 1 Jun 13, 2022 to Jun 19, 2022	<ul style="list-style-type: none"> Upgrade react version of the project to a more recent one Apply changes suggested by the mentor.
Week 2 20th June 2022 to 26th June 2022	<ul style="list-style-type: none"> Show shared button on individual exercises Implement all of the conditionals as regards an activity
Week 3 27th June 2022 to 3rd July 2022	<ul style="list-style-type: none"> Fix the bugs of PRs and complete the work of the first 2 activities(if any). Start working on general UI for the project Implement the MUI react library Test and Implement changes and apply changes.
Week 4 4 th July 2022 to 10th July 2022	<ul style="list-style-type: none"> Start work on the 3rd task Implement reorder exercises for users (so users can choose which activity comes first or not) Test and Implement changes and apply changes.
Week 5	<ul style="list-style-type: none"> Implement reorder drag and drop functionality for

11 th July 2022 to 17 th July 2022	ordering exercises
Week 6 18th July 2022 to 24th 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	2.5 ready to release activities
Week 7 25th July 2022 to 31st July 2022	<ul style="list-style-type: none"> • Begin work on “run button” that launches all of the exercise • As well as a finish button for the last exercise on the order
Week 8 1st August 2022 to 7th August 2022	<ul style="list-style-type: none"> • Implement share button functionality that prompts all users participating in the activity to complete their exercises • Add Score widget to the screen to gamify the whole exercise submission • Apply changes suggested by the mentor.
Week 9 8 th August 2022 to 14th August	<ul style="list-style-type: none"> • Begin work on Evaluation mode • Come up with a workflow for showing all questions, both correct and wrong answers instead of just the total score •
Week 10 15th August 2022 to 21st August 2022	<ul style="list-style-type: none"> • Add review for activities with multiple exercises • Implement read-only to answers once exercise is completed
Week 11 22nd August 2022 to 28th August 2022	<ul style="list-style-type: none"> • Add new toolbar palette with buttons that will run real time evaluations and another that exports activities as an evaluation • Test and complete work of activity 4
Week 12 29th August 2022 to 5 th September 2022	<ul style="list-style-type: none"> • Test, fix issues and apply changes to all activities • Discuss with mentor and do final review
Deliverables for final evaluation	6 release ready activities.
6 th September 2022 to 12th September 2022	<ul style="list-style-type: none"> • 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.

Project Type

Medium (350 hours)

Working Schedule

I am comfortable working for 7 to 8 Hrs. per day

I have no other commitments for the summer vacation, so I can devote most of my time to GSoC.

How will you report progress between evaluations?

I am planning on maintaining a blog regarding the project where I will post updates of the progress, obstacles being faced and their solutions. As far as weekly progress is concerned, I will make regular pull requests to sugarizer, so anyone in the org can view my progress. For problems or questions I will be using the IRC as I have been using during the proposal period and keep in touch with my mentors through email also.

Post GSoC Plan

I plan to work on issues for this project POST GSoC, introduce a number of institutions to the sugarizer platform here in Africa. Once that is accomplished, I'll be able to run a survey on the effectiveness of the platform and how it's able to meet their needs. Noting areas that need improvements and functionalities they'll like to see.

I aim to develop mentorship skills and the ability to guide others and try to give back to the community by mentoring and guiding others. I hope to mentor future GSoC and GCI students.

