



Google Summer of Code

sugarlabs | Proposal

Create a new set of activities

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What is your motivation to take part in Google Summer of Code?

I have been an ardent creator since by childhood days. I would build things like paper - mache pen stand, wall decors and a mini-house out of the thermocol cup. The constant urge to create 'something new' fueled my passion. In high school, I was introduced to the world of coding with computer science as a primary subject. It was then that the creating something new desire got another language to express- coding language.

During my freshman year, I came to know about the Google Summer of Code program. It is a global program that provided student opportunities in open source software development. In a period of three months, the students will be working on an actual organization project and can share it with the world. Therefore, I found it to be the place where I create actual projects by utilizing my coding potential. The fact that 'your creation matters' became my motivation for Google Summer of Code.

Why did you choose SugarLabs?

In early school days, I have struggled in understanding certain concepts of mathematics and social science. It can be very difficult to study certain topics in these subjects without visualizing them. As a child, I would do reciprocal teaching or draw shapes to visualize and memorize topics. I have been through this struggle so I can relate to the problems faced by other 10-12 year olds.

I could easily associate with the need to develop softwares that help the students in the learning process. Moreover, I choose SugarLabs as my organization for GSOC because working on a project here has the potential to create an impact on the lives of 3,000,000+ students, speaking over 170 different languages and living in 120+ countries.

Why do you want to work on this project?

I would be working on 'Creating a set of new Activities' for SugarLabs. I would be designing an activity called "Mission: Space". It would be based on the concepts of astronomy. Sugarizer already has several activities based on different fields like – mathematics, science, aptitude, communication etc. that are helping students all across the globe. I wanted these students to explore another dimension of learning and knowledge by combining the space science facts with an interactive game. I want to work on this project to help several 10-12 year old students see the unseen side of their worlds and inspire them to seek for opportunities in outer space.

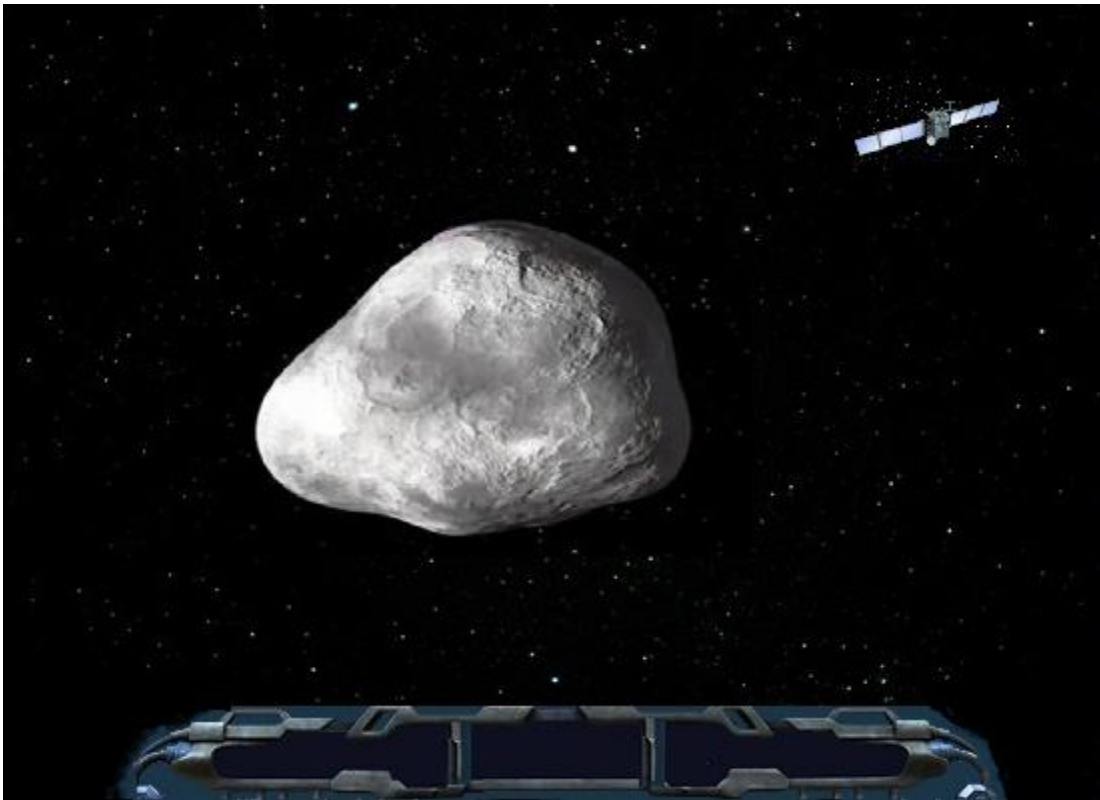
PROJECT DETAILS

What are you making?

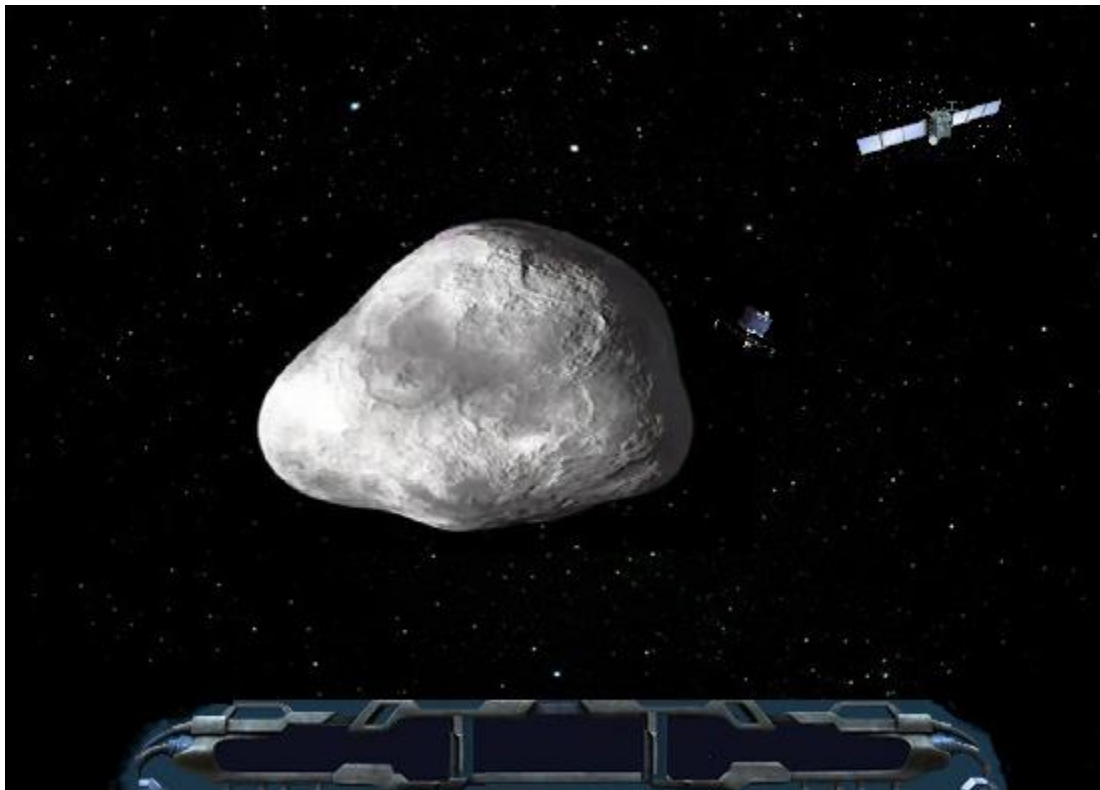
I will be making an activity for the Sugarizer named 'Mission: Space'. It will be a game designed to help students understand and learn about the various space missions based on the different levels of difficulty. The activity aims at cultivating an interest for astronomy in the students. Each level of the activity is based on different space mission like- Comet mission, Moon mission, Mars mission etc.

The level 1 of the activity is based on the Rosetta Comet mission. In this level, there are five tasks to be completed in order to have a successful mission.

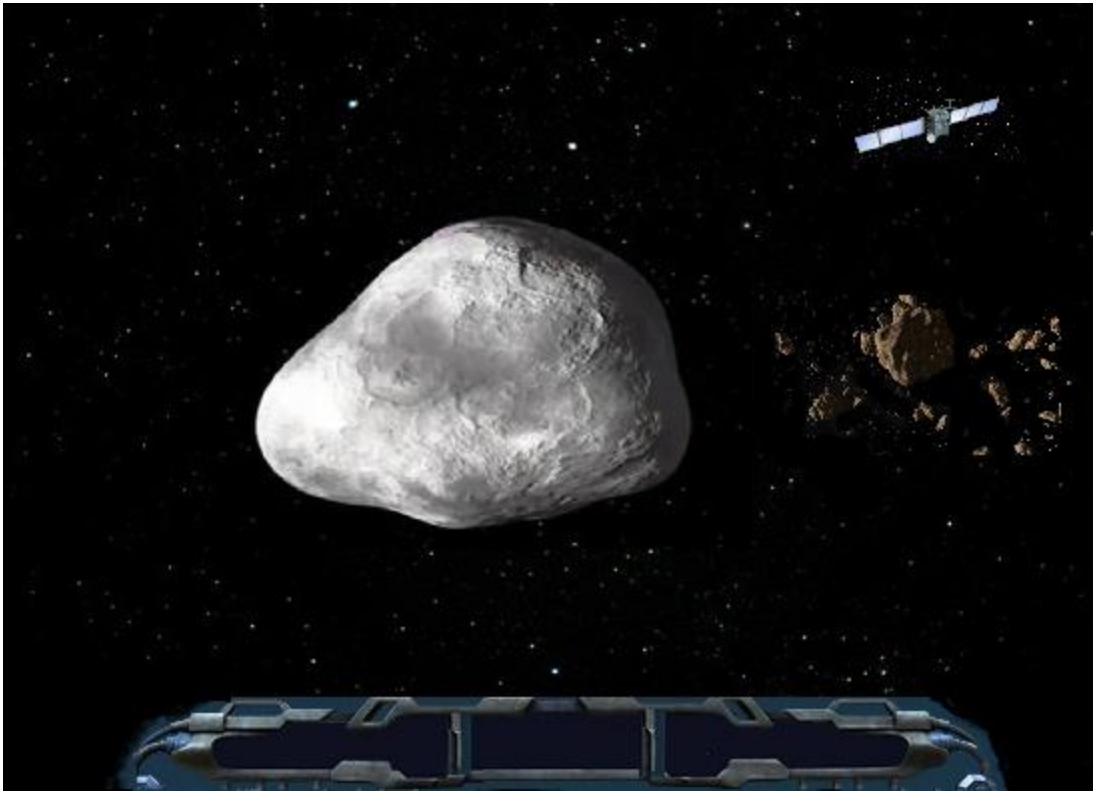
1. The spacecraft orbits around the comet. When the spacecraft approaches the nucleus of the comet, the user will drop a lander in a scientifically interesting area.
2. Observe scientifically interesting things from the lander and the spacecraft.
3. The user will receive data from the lander.
4. The received orbiter and lander data will be transmitted to Earth.
5. The user should prevent Rosetta from crashing into large chunks of comet material that spew from the surface.



The Rosette spacecraft is orbiting around the comet.



The Philae lander is dropped by the spacecraft.



Rosetta must be prevented from crashing into large chunks of comet material that spews from the surface.

The other levels of the game will be designed in a similar manner. The users can use simple arrow keys to control the spacecraft. The up and down keys can change the speed of spacecraft. This speed determines the landing position of the lander. The lander should land only in the areas marked green. The speed should be changed in a way to dodge the obstacles. The user will use mouse clicks to collect samples from the comet. The spacecraft has to be moved to favorable areas for receiving and transmission of signals.

The mission has to be completed in a fixed time frame. The user will be scored accordingly. The spacecraft condition, its speed and user score will be displayed in the panel on the screen.

How it will impact SugarLabs?

The 'Mission: Space' activity will act as an essential medium to introduce the Sugarizer users to astronomy. The students would be able to learn, experience and apply their knowledge related to space science. This will help SugarLabs achieve the holistic education goals while adding a new dimension of the learning experience of its users.

The community would become familiar with not just another subject but to the idea of exploration. The students, mentors and developers would face new challenges, learn new technologies and produce a new activity for its users. We all will grow together and achieve community goals.

The development of this game would require intensive work and learning new softwares and tools. The technical knowledge will be tested and enhanced in the process. The thrive for building this activity would also achieve technical goals. This will lead to the creation of a FOSS product.

What technologies will you be using ?

Html

It will be used to place elements of the activity in the browser window to provide frame.

Git

Distributed Version Control System to maintain project

Atom

Text Editor to edit my code in an efficient manner

CSS

This will help styling the activity according to the Sugarizer's theme for a better user experience.

Bootstrap

It is a well-known CSS library used to provide efficient responsive designs as well as pre-defined frequently used elements in the page.

JavaScript

It will be used to create all the animations and functioning logics.

jQuery

It is a library of JavaScript which make its implementation shortened and easier considering all the modern practices to prevent from any kind of malfunctioning of code.

PyGame

It is a cross-platform set of Python modules designed for writing video games. It includes computer graphics and sound libraries designed to be used with the Python programming language.

Timeline

Time span	Start Date– End Date	Task
Phase 0: Community Bonding	May 6 – May 15	<ul style="list-style-type: none"> -Interact and know about mentors of project - Explore in depth with general coding practices - Explore approaches possible in the technologies
	May 15 –May 20	<ul style="list-style-type: none"> - Make certain amendments in my to-do list - Discuss about more features possibly be integrated for its good -Research about services provided by similar utilities
	May 20 - May 26	<ul style="list-style-type: none"> - Discuss about initial algorithm approach to basic features - Finalize the wireframe of activity
Phase 1: Implementing the basic wireframe of activity	May 27 – June 8	<ul style="list-style-type: none"> -Creating a basic activity template. -Designing the game UI in detail. -Dashboard at the bottom to display scores.
	June 8 – June 15	<ul style="list-style-type: none"> -Adding a timer to evaluate mission's

		<p>success.</p> <ul style="list-style-type: none"> -Intergrating with svgs and graphics. -Creating a 'HOME' menu for the game.
	June 15 – June 27	<ul style="list-style-type: none"> -Working on the movement of the spacecraft and the lander. -Adding obstacles. -Finalize everything for the first evaluation.
<p>Phase 2: The goal will be to add some more tasks and difficulty levels in the game.</p>	June 27 – July 6	<ul style="list-style-type: none"> -Adding the transmitting signals task. -Connecting score board to the task.
	July 6 – July 20	<ul style="list-style-type: none"> -Adding the collection of samples task. -Integrating all the tasks together.
	July 20 – July 26	<ul style="list-style-type: none"> -Designing the second difficulty level in the game. -Testing the obstacles task and finding bugs in the same. -Finalize everything for the second evaluation.
<p>Phase 3: This will be the final stage where focus will on integrating all the tasks of the activity.</p>	July 27 – July 31	<ul style="list-style-type: none"> -Designing the third level of difficulty in the game. -Testing the movement of spacecraft and the lander.
	August 1 – August 10	<ul style="list-style-type: none"> -Adding movement controls to the spacecraft.

	August 10 – August 20	<ul style="list-style-type: none">- Testing the working of all tasks simultaneously.-Add 'How to Play' demonstration to the game.
	August 20 – August 27	<ul style="list-style-type: none">-Finding bugs in the final activity and solving them.-Concluding the project with a blog dedicated to the same.-Final Evaluation