About Me

Name: Prabhu Pant

Location: Lucknow, Uttar Pradesh, India, IST (UTC+5:30 hours)

Education: I'm currently pursuing Bachelor of Technology in Information Technology from College of Technology, Pantnagar. I'm in the eighth semester of the eight semester program.

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I'm an Open Source Software Developer with a keen interest in JavaScript and Python web development. I've worked on various open source projects. Some of my own projects are:

- casino-royale: An online dice betting game built using Flask.
- facedraw: Facial-Landmarks Detection based animating application built using OpenCV, Dlib and PyOpenGL.
- sauron: A BitTorrent client written in Python using asyncio.

I've mainly contributed to FOSSASIA and worked on their Python and JavaScript (Angular) projects Open Event Server and Susper respectively. My contributions can be seen here :

- Open Event Server
- Susper
- Badgeyay
- Meilix Generator
- SUSI API Wrapper

I was also an OpenTechNight winner and served as a volunteer in FOSSASIA Summit 2019 held in Singapore.

Motivation

My motivation to take part in Google Summer of Code

I have been programming since I started my bachelors degree and have been contributing to Open Source from the past year. I thoroughly enjoy it and the whole concept of being a part of a big community that works to promote freedom and privacy in the current society is amazing. Although contributing to open source doesn't reward in monetary terms but the feeling of seeing your code become a part of a large project that is being used by thousands around the globe, the learning curve associated with open source contributions and getting to know many great coders and contributors is what keeps me interested. Google Summer of Code will provide me a prestigious platform to hone my skills and will also help me in my career.

Why did I choose Sugar Labs?

My reasons for choosing Sugar Labs can be summed up in the following points:

● My familiarity with Python and JavaScript
● I'm a staunch believer in improving education quality across the globe and Sugar Labs' association with One Laptop Per Child resonates with my believes
● The project Sugarizer can be used to teach kids easily and addition of new Activities in it can help improve the experience. Also it can be easily accessed via a web browser as unlike Sugar it doesn't need local installation, hence it is easy to teach kids how to use it.

Expectations

As far as my expectations are concerned, I'd like the mentors to be active during the programme. I will happily provide daily email scrums about what I have worked on and what I aim to achieve. I will share my experiences and work on a weekly blog post on my blog.

After the successful completion of the program, I'd like to become an integral part of the Sugar Labs community and serve as a mentor. I will look for Sugar Labs' community outreach programs and will volunteer to spread the objectives of the organization.

Regarding mentorship for GCI students, I'll be more than happy to provide it.

GSoC Project Details

Create a new set of activities for Sugarizer

Abstract

Currently, Sugarizer doesn't have any activity that can help users with pronunciation. I'll like to propose an idea for making a **Scrabble Activity** that can help users with both developing vocabulary and learning pronunciation. Users can also see the meanings of the words they are forming. There will be scoreboard to keep track of the performance so as to prompt the users to improve further more. We can provide a hint functionality to help the users form words with the available set of letters in the pallette. We can use internationalization to make this activity available in various languages.

Need for this activity

To make Sugarizer a one stop resource and make it par with the other teaching softwares, this Scrabble Activity is a need as it serves to teach children of primary classes words and pronunciation in the language of their choice and it can be a fun way to learn.

Implementation

To implement the Scrabble Activity, I'll be following the Creating Activity Guide. The Scrabble Activity can we divided into the following components
● **Game :** This will be the main component that will contain other sub-components - board, players, current_player, letterBag and specialTileBank.

- **Board :** This is the component where the main board of the scrabble game will be implemented. It will have a attribute of spaces that will define the number of spaces left on the board for the user to make words in.
- **Player :** The player component will keep track of the score, letterTiles and specialTiles.

The complete class diagram is represented below.
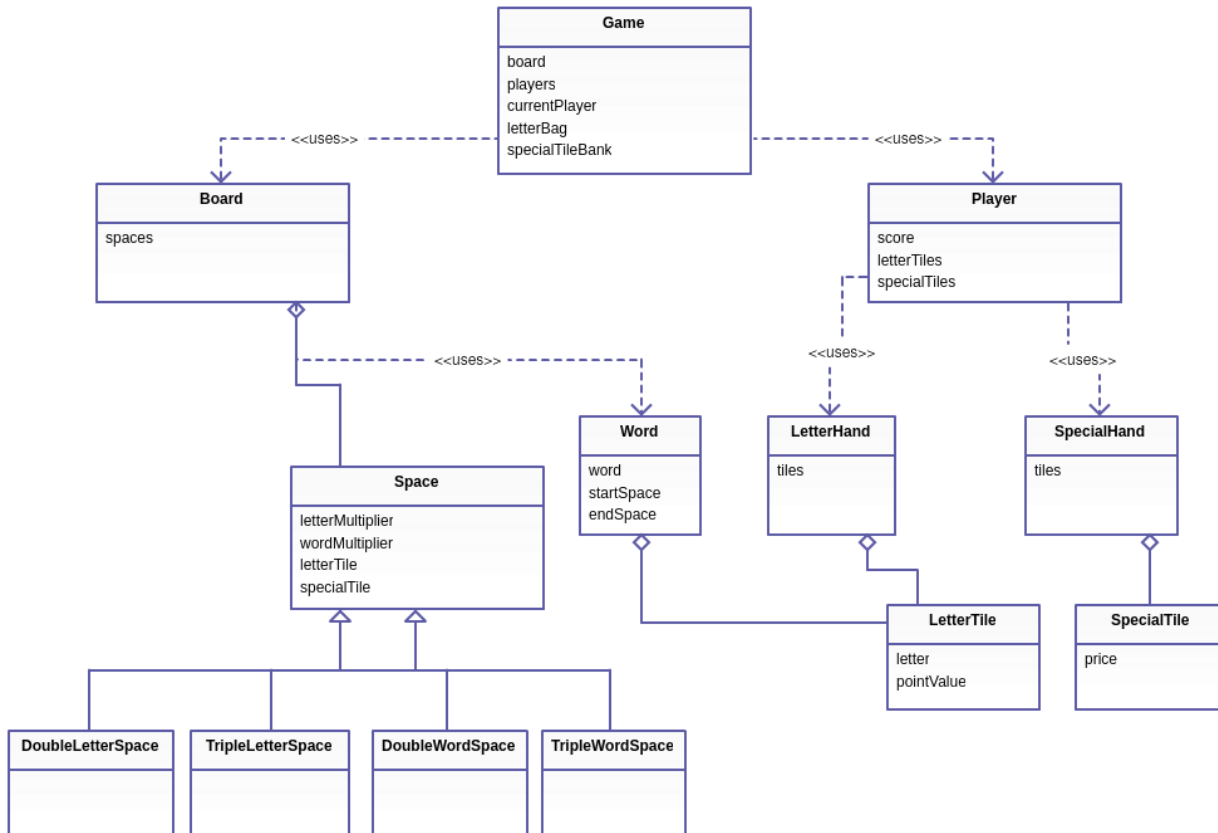
The frontend design of the interface of the Scrabble game will look like this

This is the only sample design. It can be modified according to the requirements of the mentor(s). The UI features 2 players playing on the same device. However, there will be also be a single player feature that will allow the user to play against the computer. To create words for the computer, we can use JavaScript's Spell library or make use of the file robots.txt

Separate JavaScript module/functions can be created for the following functionalities:

● **Scoreboard** : a module to keep track of the scoreboard

● **WordChecker** : a function to check whether the user is forming correct words or not.

● **Hint** : a separate button will be provided for hint generation to help user with forming words from the LetterBag

● **Meaning** : a module to display meanings of the words to help increase the vocabulary of the user

● **Pronunciation** : a module to demonstrate the correct pronunciation of words.

For **Toolbar** functionalities, we can add the Meaning, Pronunciation and Hint button there which in turn will trigger the respective modules/functions.

For storing the progress and the current state of the game, we can use **Journal** by using **datastore.** The **context** for the Scrabble Activity is the arrangement of the words in the boards. The board can be considered as a *N x N empty matrix* with the letters occupying the space of the empty values. We can either use the method *setDataAsText* to store the matrix in the form of string and later convert it back to utilize it.

First we will convert the *board* into JSON, the code will look something like this :

```
var jsonData = JSON.stringify(board);
activity.getDatastoreObject().setDataAsText(jsonData);
```

Then to save the updated data :

```
activity.getDatastoreObject().save(function (error) {
    if (error === null) {
        console.log("write done.");
    } else {
        console.log("write failed.");
    }
});
```

This whole code will be called at the end of the activity. To do that we have to catch the click on the Stop button of the Scrabble Activity.

To load the context, the environment contains an *objectId* property with the identifier for the datastore object. When an activity is launch with a new instance, this property is null. So we can check for the

need to load the context and if the need arise, then we can use the *loadAsText* method to retrieve the string stored in an object.

For localization, the [webL10n](#) JavaScript library can be used and its implementation can be easily followed by referring to the [guide](#).

For sharing of the Scrabble Activity to facilitate playing the scrabble game with many users over a shared network, we can use the Sugarizer Presence Framework. We can then share the activity and as for message passing, we can pass the new word along with its indexes in the boards to notify the user that another user has played its turn.

Besides working on the Scrabble Activity, I'll be fixing more opened issues and work to find more bugs in the application.

How will it impact Sugar Labs?

The addition of Scrabble Activity will help to make Sugarizer a one stop resource for learning for children of primary classes. This will also help the users to learn pronunciation and expand their vocabulary.

Technologies I will be using?

I will be using HTML, CSS and JavaScript to implement this feature.

Timeline

Community Bonding (May 6 - May 27, 2019)

● **May 6 - May 14 :** Solving existing bugs in the application. Getting up to speed with working of the project.

● **May 14 - May 27 :** Discussions with mentors regarding enhancements and creation of design and other details for the project

First Evaluation (May 27 - June 28, 2019)

● **May 27 - June 6 :** Development of frontend of the Scrabble Activity.

● **June 7 - June 13 :** Making the frontend stable and start integrating JavaScript with it.

● **June 14 - June 21 :** Implement the LetterBag and Board feature for the activity.

● **June 21 - June 28 :** Discussions with mentors and successful creation of the frontend and the basic functionality of the activity (frontend, Board and LetterBag)

Second Evaluation (June 29 - July 26, 2019)

● **June 29 - July 7 :** Implementing drag and drop or click feature to make new words on the word and writing functions to check the genuiness of the words.

● **July 8 - July 18 :** Implementing dictionary and pronunciation functions to the words.

● **July 18 - July 26 :** Adding single and two-players feature to the activity and scoreboard to keep track of the learning progress of the user.

Final Evaluation (July 27 - August 19, 2019)

● **July 27 - August 2 :** Implementing internationalization and fixing bugs (if existing) to make sure the activity works perfectly. Addition of Sugarizer Server feature to the activity.

● **August 3 - August 10 :** Finalizing the whole work and making sure that all the features integrate well.

● **August 11 - August 19 :** Making documentations and video tutorials for guide and writing blogs for the community. Fixing more bugs and improving the Scrabble Activity more.

Deliverables

Besides working on the project, I'll provide each of the following as a proof of my active participation during the programme:

1. Daily Email Scrum about what I have worked on and what I have achieved

2.   A weekly post on my blog discussing what part of the application I had been working on, describing how and what part of my stack helped me. This will probably be on Sunday evenings as I don't get Saturday off at my college.

3.   And in the end a presentation about my work - how it affects Sugar Labs and the Open Source community.

Sugar Labs' Motivation

I have a good understanding of the Sugarizer code base. My knowledge of JavaScript and my experience with web development makes me a good fit for the project.

The issues I have opened in Sugarizer are [here](). The pull requests I have made can be found [here]().

Availability

As far availability is concerned, I'll not be working on any other projects this summer. So during the summer vacations I'll be completely free.

Regarding Mentorship for GCI students, I'll be more than happy to provide it. I'll keep looking for any Sugar Labs community programs and will try my best to attend them.

Looking forward to working with you.

Prabhu Pant