## **Project Abstract**

This application, **StudyScapes**, will allow users to **login** to their account and view the Simon Fraser University campus as a virtual map. Login **views** will differ for faculty and students (and admins). This uses the **Web API for Google Maps** for location and time updates. As a **real-time feature**, this application will use **Socket.io** to play real-time multiplayer games. This application enables quick meetups and easy navigation for users. The application is not just practical, but fun! The incorporated minigames help the user kill time while waiting between meetups or interact with other students (they can even battle their professors!).

## **Customers**

**Faculty:** Teachers and TAs at Simon Fraser University that would like to interact in a convenient way with students, plan meetings, coordinate meeting locations, schedule or find events on campus, and enjoy minigames.

**Students:** Students at Simon Fraser University that would like to communicate with all their professors or TAs in one convenient application. They would like to meet with other students or faculty at SFU, get assistance in finding their way around the school, find specific buildings or rooms, schedule or find events on campus, meet other students, or just have fun through minigames.

## **Competitive Analysis**

What makes StudyScapes so unique is that it applies specifically to the Simon Fraser University Burnaby Campus. It incorporates ideas from many other successful programs into one main application for ease of access. Although Google Maps is useful, it does not provide a detailed view of the Burnaby Campus. StudyScapes will elaborate on the map with this campus in mind, allowing for much more extensive interaction and location finding around the University. SFU Snap was an inspiration for this, as it helped students to search for and travel between rooms and buildings across campus. StudyScapes expands this to allow for scheduling events and meetings around campus with students and faculty alike. It also provides icebreakers for students in the form of minigames and different views for faculty and students, so that each user sees the information that directly applies to their own needs.

## **Main Features - Epics**

**Map:** Provide an interactive map that updates to user location so they can find other users and locations on the Simon Fraser University Campus.

**Meetings:** Enable faculty and students to easily interact and meet up for studying or course/career discussion. They can also chat with each other through the app.

**Events:** Have events held by clubs, faculty or student societies show on the map as icons in real-time, so users can quickly learn about the activity on campus.

**Minigames:** Allow students and faculty to interact in mini games with those nearby based on location. This would allow users to play small various games that can act as icebreakers between their fellow peers.

## **User Stories**

#### Actors:

**Faculty** (Professors and Teaching Assistants) that can view and cancel meetings. They can also interact with students, view the map, view and schedule events, and play minigames. Students can view, request, reschedule, and cancel meetings with Faculty and other students. They can view and schedule events, view the map for specific rooms and buildings, and play minigames.

A test login for faculty is username: QWERTY and password: pass2

**Students** can view, request, reschedule, and cancel meetings with Faculty and other students. They can view and schedule events, view the map for specific rooms and buildings, and play minigames.

A test login for student is username: ASDF and password: pass1

**Admin** can view all database content including usernames, roles, meetings, and much more. The admin account is used for verification and debugging purposes. For the sake of security and privacy of users, the admin can only view hashed passwords.

A test login for admin is username: ADMIN and password: ADMIN

## **Current Iteration Stories**

### Story #21

Name/Description: A student wants to meet with a professor

Actors: Student 'Maddie' and Professor 'Bud'

**Triggers/Preconditions:** Maddie accesses the meetup page and schedules a meeting with Bud

Actions/Postconditions: Displays a form for Maddie to specify the meeting users, date, location

and time, then sends a request to Bud

### **Acceptance Tests:**

• Meetup form is displayed properly

- Bud is an existing faculty member and a request can be sent to him
- Meeting location is valid and can be chosen
- Form can be submitted
- Meeting data is stored in the meetup table

**Iteration:** completed in iteration 3

#### Story #28

Name/Description: Viewing upcoming events on campus.

**Actors:** A user (student/faculty)

**Triggers/Preconditions:** User clicks the "View Upcoming Events" on a page.

**Actions/Postconditions:** Shows a page with a table where the rows are Events showing its name, host, website link, location, date, and time in chronological order.

#### **Acceptance Tests:**

- An Events table is displayed with information described in postconditions.
- Events are listed in chronological order (closest to farthest from current time).

**Iteration:** completed *in iteration 3* 

### Story #22

Name/Description: View error page when a user has no meetups.

**Actors:** A student named Huck

**Triggers/Preconditions:** Huck clicks the meetups page, but doesn't have any meetups

Actions/Postconditions: Redirects Huck to an error page, with links to request a meeting or

return to the home page.

#### **Acceptance Tests:**

• An error page is displayed

- The back button is shown
- The request meeting button is shown

**Iteration:** additions completed in iteration 3

### **Story #14**

Name/Description: A new student who is looking to make new friends at SFU, wants to play a game.

Actors: A student, Sophia, and another student, Justin

Triggers/Preconditions: Student Justin clicks Minigames tab on his page.

Actions/Postconditions: Sophia and Justin are able to join a game together and play

#### **Acceptance Tests:**

- Able to connect with other players
- Game logic is correct
- Game updates in real time
- Able to correctly interact with game buttons.

**Iteration:** to be implemented in *iteration 003* 

### Story #15

**Name/Description:** Showing a type of marker on the map.

**Actors:** A user (student/faculty)

**Triggers/Preconditions:** The user clicks on a button for showing the building markers on the

map page

**Actions/Postconditions:** The map is re-rendered with the desired markers visible

**Acceptance Tests:** 

- The map is re-rendered with the same position and zoom level as prior to triggering the event.
- The desired markers to be shown can be seen
- The hidden markers can be interacted with

**Iteration:** completed in *iteration 003* 

### Story #16

**Name/Description:** Hiding a type of marker on the map.

**Actors:** A user (student/faculty)

**Triggers/Preconditions:** The user clicks on a button for hiding the building markers on the map

page

**Actions/Postconditions:** The map is re-rendered with the desired markers hidden

#### **Acceptance Tests:**

- The map is re-rendered with the same position and zoom level as prior to triggering the event
- The desired markers to be hidden are not seen
- The hidden markers cannot be interacted with

**Iteration:** completed in *iteration 003* 

### Story #17

Name/Description: A student views the minigame page

Actors: Stacey, a fourth-year student

Triggers/Preconditions: Stacey logs in to StudyScapes and opens the mini games

Actions/Postconditions: Stacey is able to see the minigame home page where she can create or join a game

#### **Acceptance Tests:**

- Minigame page is found and displayed
- Buttons interact
- Stacey can be redirected to a new or current game on button press

**Iteration:** completed in *iteration 003* 

### Story #18

Name/Description: A new student wants to meet other students with similar interest on the

Burnaby campus

**Actors:** New student named 'Patrick'

**Triggers/Preconditions:** Patrick logs in to StudyScapes and opens the events page

Actions/Postconditions: After finding a suitable event he can now meet students who share

same interests as him

#### **Acceptance Tests:**

• Different events are displayed to the users

• Students can drop into their desirable event

**Iteration:** completed in iteration 3

### Story #20

**Name/Description:** A student is looking for their friend on campus but is unsure where they are.

**Actors:** New student named "Adam"

**Triggers/Preconditions:** Adam logs in to StudyScapes and opens the View My Location page

**Actions/Postconditions:** After opening the View My Location page, Adam is able to see buildings around campus and can easily locate his friend in order to meet up with him.

#### **Acceptance Tests:**

• Able to see important SFU buildings on the map.

- Able to view the building acronyms on each marker on the map.
- Location updates as the user moves.

**Iteration:** completed in *iteration 003* 

### Story #23

Name/Description: A faculty member wants to check for unconfirmed meetings

**Actors:** A professor names "Marshal"

**Triggers/Preconditions:** Marshal sees a pending meeting on his meetups page and clicks to confirm the meeting

**Actions/Postconditions:** The meeting is confirmed and this change is also updated for the other users in the meeting

### **Acceptance Tests:**

- The meetups table can be seen, with just meetings corresponding to Marshal
- Marshal is able to type a meeting ID into the input box
- The confirm button calls a query to update the corresponding row
- is\_pending is changed to false for the chosen meeting

**Iteration:** completed in *iteration 003* 

### Story #24

Name/Description: A faculty member wants to remove a cancelled meetup

Actors: A professor names "Anabelle"

**Triggers/Preconditions:** Anabelle views her meetups and enters the meetup ID for a cancelled meetup

**Actions/Postconditions:** The meeting is removed from her meetup page and this change is also updated for the other users in the meeting

#### **Acceptance Tests:**

- The meetups table can be seen, with just meetings corresponding to Anabelle
- Anabelle is able to type a meeting ID into the input box
- The remove button calls a query to remove the corresponding row
- the meetup is completely removed from the database

**Iteration:** completed in *iteration 003* 

## Story #25

**Name/Description:** A student incorrectly fills out a meetup request form

Actors: A student 'Audie'

**Triggers/Preconditions:** Audie accesses the meetup page and incorrectly fills out a form to meet with a professor, by forgetting to including any users

Actions/Postconditions: The form redirects to an error page and the entry is ignored

#### **Acceptance Tests:**

- Meetup form is displayed properly
- The program does not crash
- An error page is loaded
- The error page has a link to return to the meetup request page

**Iteration:** completed in iteration 3

### Story #26

Name/Description: A student wants to meet with his professor but doesn't know her ID

**Actors:** Student 'Wade' and faculty member 'Tammy'

**Triggers/Preconditions:** Wade logs in to view a meetup request page

**Actions/Postconditions:** Wade can view the list of users and find his professor's ID

### **Acceptance Tests:**

- Meetup form is displayed properly
- A database table is displayed, showing all users and their roles
- The table is ordered by user role

**Iteration:** completed in iteration 3

#### Story #27

Name/Description: A faculty member tries to remove a meetup, but choses a non-cancelled one

**Actors:** Faculty member 'Frita'

**Triggers/Preconditions:** Frita logs in to view her meetups and tries to remove one that hasn't been cancelled yet

**Actions/Postconditions:** The meetup is not removed and Frita is redirected to an error page

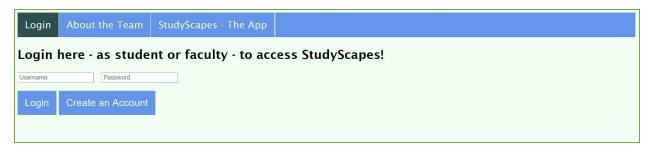
#### **Acceptance Tests:**

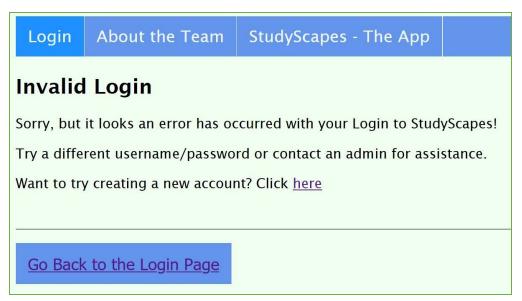
• Meetup table is displayed properly

- Frita is able to enter a meetup ID
- The meetup is correctly determined to be still active and not yet cancelled
- Frita is redirected to an error page
- The meetup is not removed from the database

**Iteration:** completed in iteration 3

## **User Interface Requirements**





ogin | About the Team

StudyScapes - The App

#### StudyScapes - The App!

#### What is the problem we are trying to solve?

Interaction among faculty and students is a very important part of the learning and growing process at university. This application not only makes the process easier but encourages it in a fun and interactive way. Previous applications, like SFU Snap, attempted to solve the navigation problem for new students lost on a large campus but our application strives to include that feature and many more! This serves as both an educational and entertaining application for students and faculty alike at Simon Fraser University.

This application, StudyScapes, will allow users to login to their account and view the Simon Fraser University campus as a virtual map. Login views will differ for faculty and students. This uses the Web API for Google Maps for location and time updates. As a real-time feature, this application will use Socket.io to update requests made to professors or students for meetings and study groups in real time. This application enables quick meetups and easy navigation for users. The application is not just practical, but fun! There are minigames incorporated to help the user kill time while waiting between meetups (they can even battle their professors!).

Login

About the Team

StudyScapes - The App

#### Meet the Team!

#### Celina Wright:

Celina has been programming for 6 years, much of it at Douglas College, and is now in her fourth year of studies at Simon Fraser University. Her strongest skill set is with Object Oriented Programming. She has plenty of experience with Java and C#, and a moderate amount of experience with web design. She also greatly enjoys working with databases and querying, has experience normalizing databases, and can work well with SQL, SQLite, MongoDB, and PostgreSQI.

#### Josh Guo

Josh is a third-year student at SFU and transferred from Mechatronics last semester.

He started programming 4 years ago, mostly with Python and C. Most of Josh's experience is with backend programming and design, focusing on performance optimization and resourceful memory usage.

#### Mandeepa Mashhura:

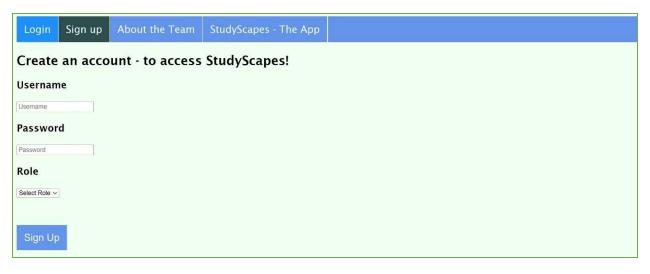
Mandeepa is a second-year engineering student at Simon Fraser University,

who is very passionate about the field. She has experience in programming languages like C++ and Python. She is very confident in her abilities to pick up and learn new technologies and languages if needed. She strives to be a great asset to our team.

#### Parth Vakil

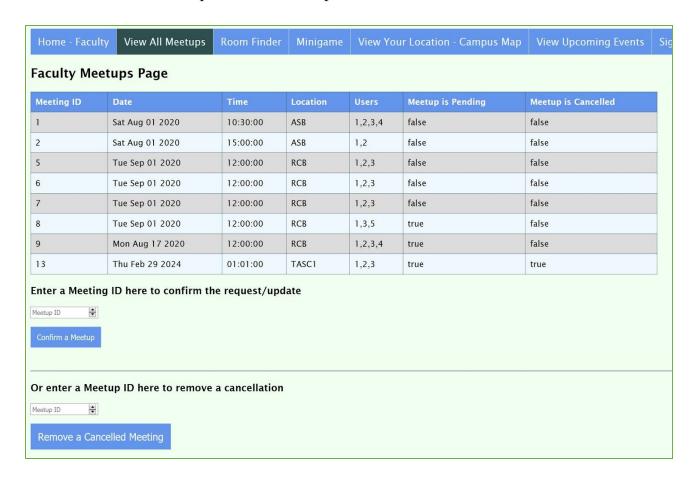
Parth is a third-year SFU student in Computing Science. He mainly has experience

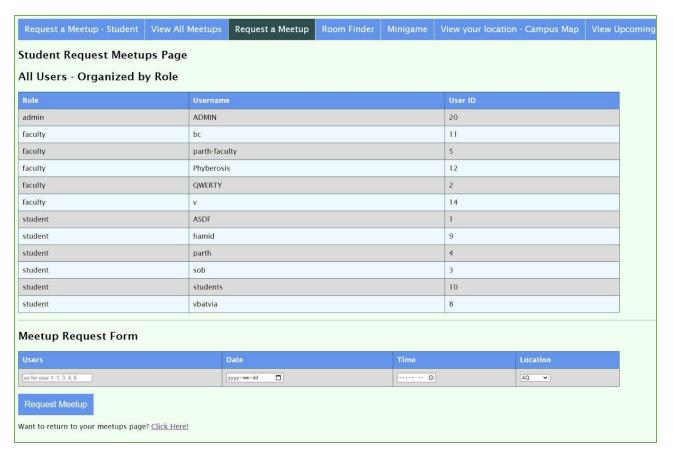
in Python and C++. He enjoys back-end programming and is known to dabble into front-end as well. He also has worked with location-based software in the past, which will be an asset in pushing this idea forward. Web development is also a passion of his, which will help overall throughout this project.

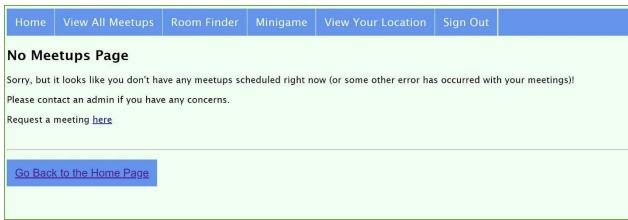




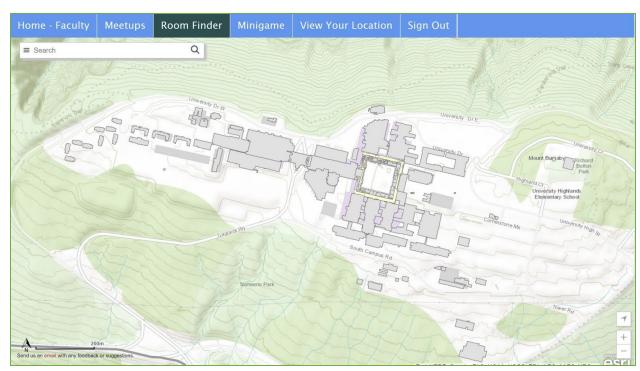


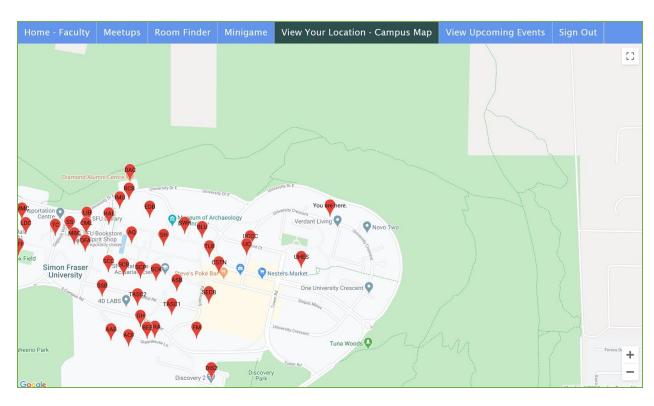














Request a Meetup - Student	View All Meetups	Request a Meetu
Request an Event		
What is the name of your Event?		
Event Name		
Who is hosting this Event?		
Host Name		
When does it start?		
yyyy-mm-dd: 🗂		
When does it end?		
yyyy-mm-dd: 🗂		
Where will the Event happen?		
AQ V		
If you chose "Other", Where would yo	our Event be?	
Do you have a website for the Event?	(Optional)	
Website	and the second control of	
Dogwoot Event		
Request Event		

Admin	Home Page	:					
User ID	Username	Password - Should l	be Hashed!		Role		
1	ASDF	\$2b\$05\$JWgDYqbwI	DxjAJTZIKOMXsu7L4HwHlrXQA	xpi6OI2hogvbavhZo.Me	student		
2	QWERTY	\$2b\$05\$B/UDY1YPC	.jqhVx7m.N9DyOCHZfri6XdNgt	:9B9wVmIPg1PlqfJFAaS	faculty		
3	sob	\$2b\$05\$lsT.57uJjxO	\$2b\$05\$lsT.57uJjxOzmUb.KLW7I.09Kcr.63xoiZTCG00b/QqHsveLj0Ngu				
4	parth	\$2b\$05\$cRL/pJUSeV	\$2b\$05\$cRL/pJUSeVeDZYwfTEEBA.9d0h7jk0hulp4cu26Fe3t1SB8KmALCq				
5	parth-faculty	\$2b\$05\$flJql0KUKFF	\$2b\$05\$flJql0KUKFF.P5G0TnvWzetT4ULZHjOfrLnfyHDolusVyaYNzLrSq				
8	vbatvia	\$2b\$05\$uqkpSt5OB	49WSJxCx3vAK.c.rtSlZHlVyuWd	xjZzpMD9HXz.wgMqm	student		
9	hamid	\$2b\$05\$ECOJ4ZRjXT	\$2b\$05\$ECOJ4ZRjXTOM6fJ2pkHprep/mWHatvstLZwY5dizPO2g97no.sJgG				
10	students	\$2b\$05\$W9gpW.kfl1	\$2b\$05\$W9gpW.kfl1xpFlQtAGvfGe.OOH0chf/Q2yeeUr0Hz1MfSn7kxogky				
11	bc	\$2b\$05\$iRTEJgzEAuPlQyMQrL53wuOsRbFTJ3pUBE5NLS4PT.P/hDg/z5TpC					
12	Phyberosis	\$2b\$05\$fsFth/VGrW	EgxNkuiT/jB.pT1cWZbq3TNyzo	dlqklldYDlClD1Wgte	faculty		
14	V	\$2b\$05\$xDS8XEFiiL	Yt6S4D5JCLseO8juALVpntj0m7	0kWdAZZ4VVS.SQvLq	faculty		
20	ADMIN	\$2b\$05\$BUjm.KDO8	f3lhYg0U2ng.O.RkeOWW3nl6b	3DtMAtZ4ZJALdcslLni	admin		

View All Us	er Logins	VIEW AII	Meetups	View Upcon	mig Event	s Sign Out	
Admin Meetup Page							
Meeting ID	Date		Time	Location	Users	Meetup is Pending	Meetup is Cancelled
1	Sat Aug 01	2020	10:30:00	ASB	1,2,3,4	false	false
2	Sat Aug 01	2020	15:00:00	ASB	1,2	false	false
3	Sun Aug 0	2 2020	09:30:00	ASB	3,4	false	true
4	Sun Aug 0	2 2020	10:30:00	AQ	15,14	false	false
5	Tue Sep 0	1 2020	12:00:00	RCB	1,2,3	false	false
6	Tue Sep 0	1 2020	12:00:00	RCB	1,2,3	false	false
7	Tue Sep 0	1 2020	12:00:00	RCB	1,2,3	false	false
8	Tue Sep 0	1 2020	12:00:00	RCB	1,3,5	true	false
9	Mon Aug 1	7 2020	12:00:00	RCB	1,2,3,4	true	false
13	Thu Feb 2	9 2024	01:01:00	TASC1	1,2,3	true	true

## **Velocity Measurement**

Story Points					
Story	Points	Iteration			
Number					
1	2	Iteration 1			
2	3	Iteration 1			
3	3	Iteration 1			
4	3	Iteration 2			
5	2	Iteration 2			
6	2	Iteration 2			
7	2	Iteration 2			
8	2	Iteration 2			
9	1	Iteration 2			
10	2	Iteration 2			
11	1	Iteration 2			
12	3	Iteration 2			
13	1	Iteration 2			
<del>14</del>	7	<del>Iteration 3</del>			
15	3	Iteration 3			
16	3	Iteration 3			
<del>17</del>	3	<del>Iteration 3</del>			
18	1	Iteration 3			
20	5	Iteration 3			
21	3	Iteration 3			
22	2	Iteration 3			
23	2	Iteration 3			
24	2	Iteration 3			
25	1	Iteration 3			
26	1	Iteration 3			
27	2	Iteration 3			
28	3	Iteration 3			
29					
30					
31					

## **Velocity**

## Iteration 1 points:

8 in 2 weeks

= 4 points on average

## Iteration 2 points:

19 in 2 weeks

= 9.5 point on average

## Iteration 3 points:

28 in 2 weeks

= 14 point average

### The Database

StudyScapes Database							
login		meetup		event			
uid	serial (PK)	mid serial (PK)		eid	serial (PK)		
username	char(20)	users	int[] name v		varchar		
password	char(60)	date	date	host_name	varchar		
role	char(20)	time	time	url	varchar		
		location	varchar	location	varchar		
		is_pending	boolean	start_datetime	timestamp		
		is_cancelled boolean		end_datetime	timestamp		

## **Disclaimers**

The Room Finder Tab was not created by our team. This was an application created by SFU that we have integrated into our project in order to make it more whole. We obtained permission from Professor Chan to include this in our application.

## **Resources**

These are works that were referenced in the creation of this project

#### 1. Login Session:

https://medium.com/@timtamimi/getting-started-with-authentication-in-nodejs-with-passport-and-postgresql-2219664b568c

#### 2. Map API Marker Manipulation

https://developers.google.com/maps/documentation/javascript/examples/marke r-remove#maps\_marker\_remove-javascript

### 3. Authentication with Passport

https://stackoverflow.com/questions/29111571/passports-req-isauthenticated
-always-returning-false-even-when-i-hardcode-done

#### 4. Socket.io Basics

https://robdodson.me/deploying-your-first-node-dot-js-and-socket-dot-io-ap
p-to-heroku/,

https://devcenter.heroku.com/articles/node-websockets#option-2-socket-io

5. TicTacToe with Socket.io <a href="https://ayushgp.github.io/Tic-Tac-Toe-Socket-I0/">https://ayushgp.github.io/Tic-Tac-Toe-Socket-I0/</a>

## <u>URLs</u>

**GitHub Repository:** https://github.com/Guojiaxi/sfu-cmpt276proj.git

**Heroku link:** https://cmpt276proj-jlguo.herokuapp.com/

Heroku Git Link: https://git.heroku.com/cmpt276proj-jlguo.gi

## **Features Board**

COMPLETED	IN PROGRESS	TO BE	DISCARDED	TO BE	BROKEN
		IMPLEMENTED		DESIGNED	/REDESIGN
map			Plotted meetings		Chat
			(schedule		
			timetable)		
Log in and			Plotted		minigames
sign up			participating		
system			events (schedule		
			timetable)		
Login			Dashboard		
database			schedule timetable		
Logged-in			Event markers		
tracking					
Sign-up			Meeting notifying		
system			system		
Room finder			Event notifying		
			system		
Server-side			Event submission		
storage for			approval system		
events			, ,		
(database)					
Server-side			User profile page		
storage for					
meetings					
(database)					
Place map					
markers					
User location					
tracking					
meeting					
invitation/res					
ponse					

Meeting			
creation UI			
Event posting			
UI			