Requirements and Specification Document

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.

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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

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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.

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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:

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- 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*

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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"

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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

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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

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- 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

Login	About the Team	StudyScapes - The App	

Login here - as student or faculty - to access StudyScapes!

Username   Password

Login	Create an Account

Login	About the Team	StudyScapes - The App	

Invalid Login

Sorry, but it looks an error has occurred with your Login to StudyScapes!

Try a different username/password or contact an admin for assistance.

Want to try creating a new account? Click here

Go Back to the Login Page

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| Login | 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 PostgreSQl.

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.

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Login	Sign up	About the Team	StudyScapes - The App

Create an account - to access StudyScapes!

Username

[Username]

Password

[Password]

Role

[Select Role ▾]

[Sign Up]

Home - Student	Request/View Meetups	Room Finder	Minigame	View Your Location - Campus Map	View Upcoming Events	Sign Out

This is the StudyScapes - Student - Home Page! Welcome!

User ID	Username	Role
1	ASDF	student

Home - Student	View All Meetups	Room Finder	Minigame	View your location - Campus Map	View Upcoming Events	Sign Out

Student Meetups 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	true	false
5	Mon Aug 03 2020	11:11:00	DAC	1,3,4	true	false

Enter a Meeting ID here to edit it

[Meetup ID]

[Edit a Meetup]

Or enter a Meetup ID here to cancel it

[Meetup ID]

[Cancel a Meeting]

Want to request a new meeting? Click Here!

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| Home - Faculty | View All Meetups | Room Finder | Minigame | View Your Location - Campus Map | View Upcoming Events | Sig |

Faculty Meetups 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
5	Tue Sep 01 2020	12:00:00	RCB	1,2,3	false	false
6	Tue Sep 01 2020	12:00:00	RCB	1,2,3	false	false
7	Tue Sep 01 2020	12:00:00	RCB	1,2,3	false	false
8	Tue Sep 01 2020	12:00:00	RCB	1,3,5	true	false
9	Mon Aug 17 2020	12:00:00	RCB	1,2,3,4	true	false
13	Thu Feb 29 2024	01:01:00	TASC1	1,2,3	true	true

Enter a Meeting ID here to confirm the request/update

| Meetup ID |

Confirm a Meetup

Or enter a Meetup ID here to remove a cancellation

| Meetup ID |

Remove a Cancelled Meeting

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Student Request Meetups Page

All Users - Organized by Role

Role	Username	User ID
admin	ADMIN	20
faculty	bc	11
faculty	parth-faculty	5
faculty	Phyberosis	12
faculty	QWERTY	2
faculty	v	14
student	ASDF	1
student	hamid	9
student	parth	4
student	sob	3
student	students	10
student	vbatvia	8

Meetup Request Form

Users	Date	Time	Location
ex for user 1: 1, 3, 4, 6	yyyy-mm-dd	--:-- --	AQ

Request Meetup

Want to return to your meetups page? Click Here!

Navigation bar: Home | View All Meetups | Room Finder | Minigame | View Your Location | Sign Out

No Meetups Page

Sorry, but it looks like you don't have any meetups scheduled right now (or some other error has occurred with your meetings)!

Please contact an admin if you have any concerns.

Request a meeting here

Go Back to the Home Page

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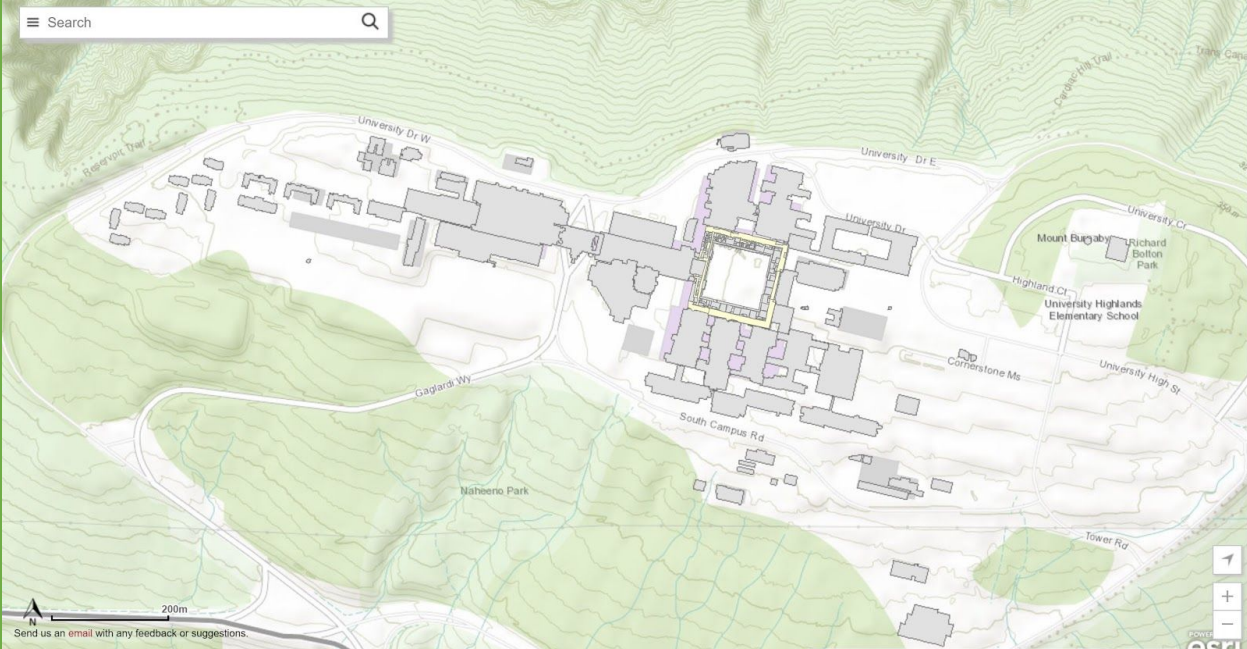
Home - Faculty	View Meetups	Room Finder	Minigame	View Your Location - Campus Map	View Upcoming Events	Sign Out

This is the StudyScapes - Faculty - Home Page! Welcome!

User ID	Username	Role
2	QWERTY	faculty

Home - Faculty	Meetups	Room Finder	Minigame	View Your Location	Sign Out
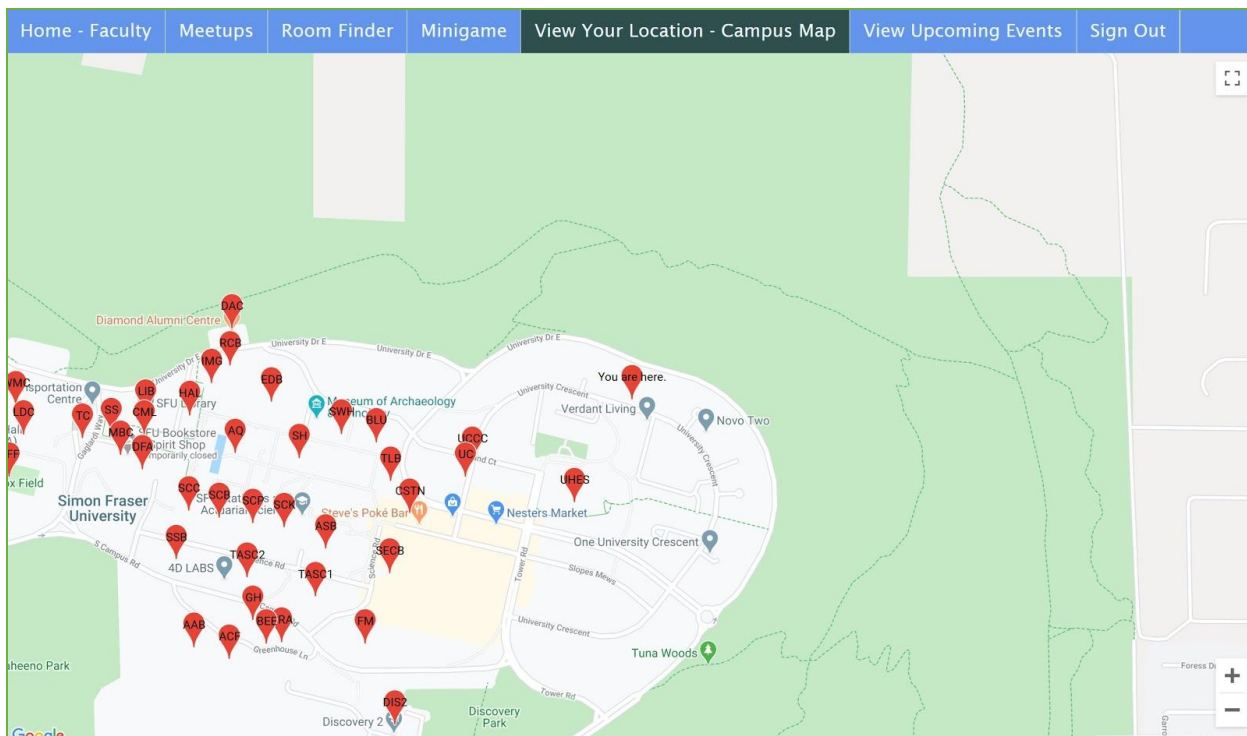
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Burnaby Campus Events

	Name	Host	Website	Location	Date	Time
1	Project Iteration 3	CMPT 276	https://www2.cs.sfu.ca/CourseCentral/276/bobbyc/	In our homes	Aug 06 - Aug 06	20:01 - 23:59

Request an Event

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| View All User Logins | View All Meetups | View Upcoming Events | Sign Out | |

Admin Home Page

User ID	Username	Password - Should be Hashed!	Role
1	ASDF	$2b$05$JWgDYqbwDxjAJTZIKOMXsu7L4HwHIrXQAxpi6Ol2hogvbavhZo.Me	student
2	QWERTY	$2b$05$B/UDY1YPGJqhVx7m.N9DyOCHZfri6XdNgt9B9wVmIPg1PIqfJFAaS	faculty
3	sob	$2b$05$IsT.57uJjxOzmUb.KLW7I.09Kcr.63xoiZTCG00b/QqHsveLj0Ngu	student
4	parth	$2b$05$cRL/pJUSeVeDZYwfTEEBA.9d0h7jk0hulp4cu26Fe3t1SB8KmALCq	student
5	parth-faculty	$2b$05$flJqI0KUKFF.P5G0TnvWzetT4ULZHjOfrLnfyHDolusVyaYNzLrSq	faculty
8	vbatvia	$2b$05$uqkpSt5OB49WSJxCx3vAK.c.rtSlZHlVyuWdxjZzpMD9HXz.wgMqm	student
9	hamid	$2b$05$ECOJ4ZRjXTOM6fJ2pkHprep/mWHatvstLZwY5dizPO2g97no.sJgG	student
10	students	$2b$05$W9gpW.kfI1xpFlQtAGvfGe.OOH0chf/Q2yeeUr0Hz1MfSn7kxogky	student
11	bc	$2b$05$iRTEJgzEAuPlQyMQrL53wuOsRbFTJ3pUBE5NLS4PT.P/hDg/z5TpC	faculty
12	Phyberosis	$2b$05$fsFth/VGrWEgxNkuiT/jB.pT1cWZbq3TNyzdIqklIdYDlClD1Wgte	faculty
14	v	$2b$05$xDS8XEFiiLYt6S4D5JCLseO8juALVpntj0m70kWdAZZ4VVS.SQvLq	faculty
20	ADMIN	$2b$05$BUjm.KDO8f3lhYg0U2ng.O.RkeOWW3nI6b3DtMAtZ4ZJALdcsILni	admin

| View All User Logins | View All Meetups | View Upcoming Events | 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 02 2020	09:30:00	ASB	3,4	false	true
4	Sun Aug 02 2020	10:30:00	AQ	15,14	false	false
5	Tue Sep 01 2020	12:00:00	RCB	1,2,3	false	false
6	Tue Sep 01 2020	12:00:00	RCB	1,2,3	false	false
7	Tue Sep 01 2020	12:00:00	RCB	1,2,3	false	false
8	Tue Sep 01 2020	12:00:00	RCB	1,3,5	true	false
9	Mon Aug 17 2020	12:00:00	RCB	1,2,3,4	true	false
13	Thu Feb 29 2024	01:01:00	TASC1	1,2,3	true	true

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Velocity Measurement

Story Points		
Story Number	**Points**	**Iteration**
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
14	2	Iteration 3
15	3	Iteration 3
16	3	Iteration 3
17	3	Iteration 3
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:

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The Database

StudyScapes Database					
login		**meetup**		**event**	
uid	serial (PK)	mid	serial (PK)	eid	serial (PK)
username	char(20)	users	int[]	name	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-node-js-with-passport-and-postgresql-2219664b568c
2. **Map API Marker Manipulation**
   https://developers.google.com/maps/documentation/javascript/examples/marker-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-app-to-heroku/ ,
   https://devcenter.heroku.com/articles/node-websockets#option-2-socket-io
5. **TicTacToe with Socket.io** https://ayushgp.github.io/Tic-Tac-Toe-Socket-IO/

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URLs

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 IMPLEMENTED	PREREQUSITE(S) NEEDED	TO BE DESIGNED	BROKEN /REDESIGN
map	Place map markers	Event markers	Plotted meetings (schedule timetable)	Meeting notifying system	Chat
Log in and sign up system	User location tracking	Dashboard schedule timetable	Plotted participating events (schedule timetable)	Event notifying system	
Login database		meeting invitation/response		Meeting creation UI	
Logged-in tracking		minigames		Event posting UI	
Sign-up system				Event submission approval system	
Room finder				User profile page	
Server-side storage for events (database)					
Server-side storage for meetings (database)					