G12 Project Proposal for Treeckle 2.0

Background

The NUS Residential Colleges (RCs) serve as an integrated space for its residents to interact with one another and to enjoy an enriching communal living experience. Every semester, each of the colleges have close to a 1000 facilities bookings being made and around 100+ house/college events being held. Yet, all of the colleges face a common issue and that is the lack of an efficient system to effectively manage the facilities bookings and event signups. For instance, in Tembusu, one must contact the Enrichment Director of the College Students Committee (CSC) directly through private messaging in order to book a facility. On the other hand, in CAPT, one has to repeatedly fill up the same signup forms with the same fields for every single event they want to attend.

With these pressing problems affecting thousands of residents across all RCs every semester, project Treeckle, was started in 2019 to help resolve these inconveniences.

Purpose of Treeckle

Treeckle aims to be a one-stop platform for all our residential needs. With Treeckle, residents will be able to book facilities and sign up for events with ease. For the admins, they will be able to manage the bookings, event signups and many more... All these on one centralized platform.

Existing Solution

Currently, Treeckle is a desktop web app and the following features have been implemented and are functional:

- Individual user creation/deletion
- Facilities bookings for residents
- Booking request management for admins

The frontend of Treeckle is built with **React** and the backend is built with **Express**.

See Appendix for screenshots of Treeckle.

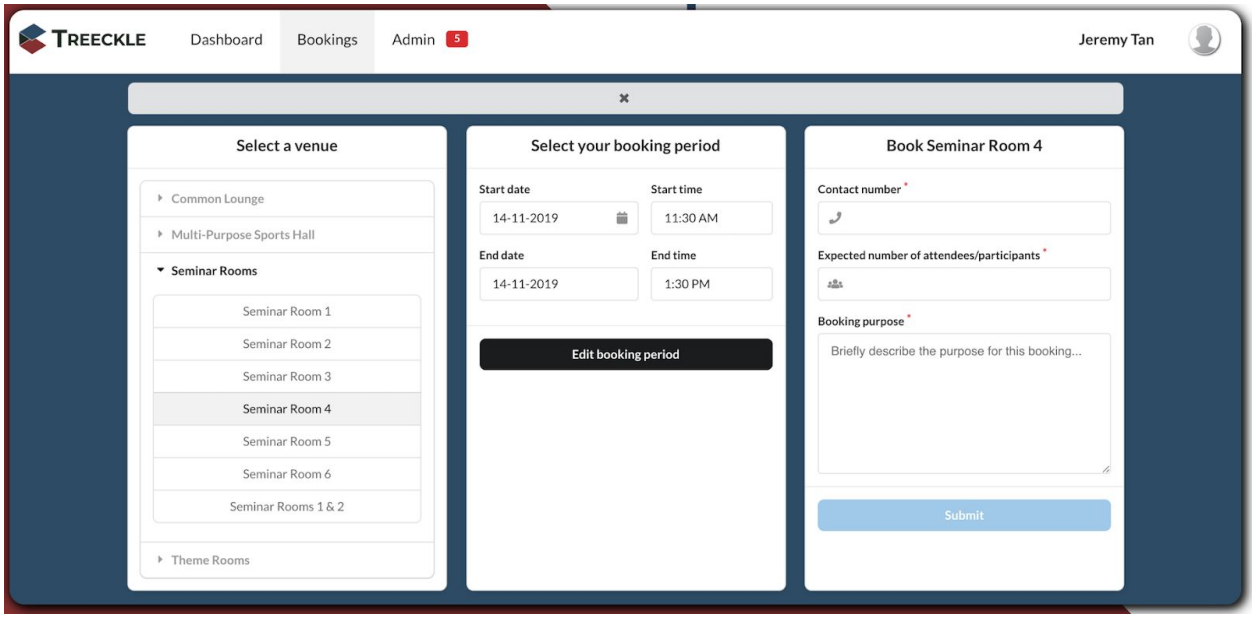
Aim of Treeckle 2.0

Our group sees the potential of Treeckle and believes that a lot more can be done to improve on this project. As such, below outlines some of the possible enhancements our group has considered:

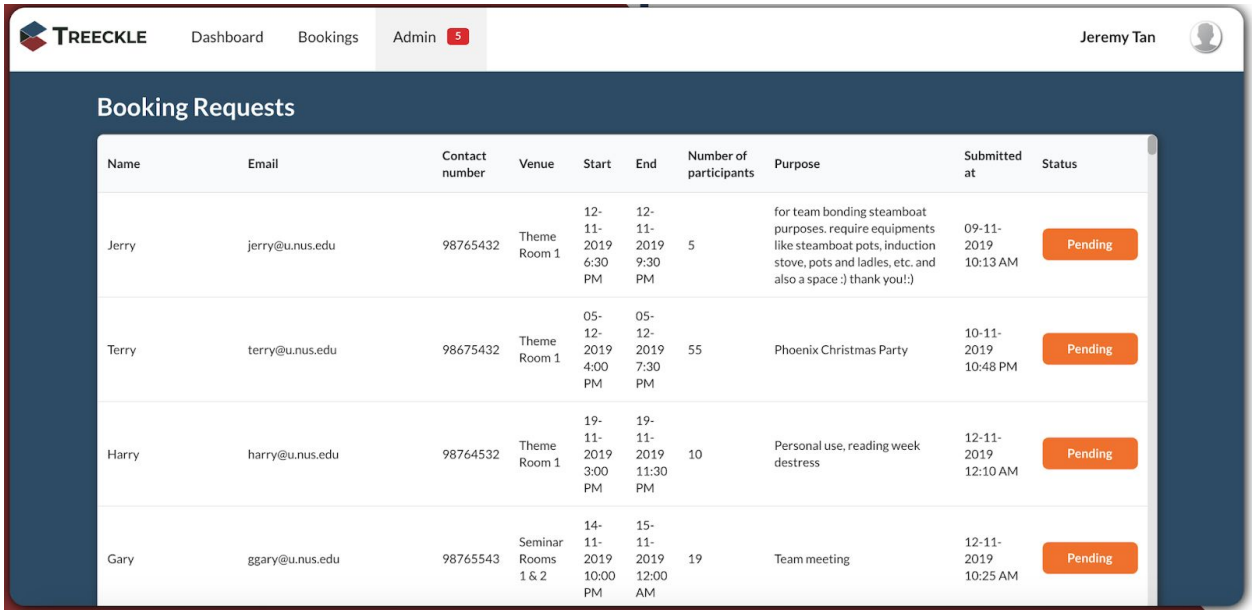
Treeckle (existing)	Treeckle 2.0 (proposed)
Poor/no architecture (it was a rapidly prototyped app as a proof of concept).	Refined architecture (possibly MVC), keeping scalability at utmost importance. Potentially deployed to the various RCs.
Express is used for backend.	Change to using Django for a more structured and organised codebase. Leverage on Django Admin feature for internal management of site content and database.
MongoDB is used for database.	Change to using PostgreSQL for database since our group realised that the app content is mostly relational.
Available facilities for booking are fixed (Cannot add or remove facilities).	Implement CRUD for available facilities.
Facilities booking forms have fixed format/fields.	Design and implement a form builder to allow admins to customise different booking forms for different facilities. E.g. some facilities booking need additional information such as the sports equipment required or if any halal utensil is required.
Single user registration by custom email.	Implement mass registration by uploading csv file. Allow registration through NUS OpenID.
NIL	Event management system. Residents can sign up for events. Admin can create events and publish them, and also track event attendance.

NIL	Attendance taking by scanning auto-generated event QR code when attending an event.
NIL	Mobile responsive. Users can use the web app on their mobile.
NIL	Recurring bookings. Book the same facility with the same day and time every week for the next N weeks.
NIL	Implement calendar view of the unavailable booking slots for each facility.
NIL	Implement email notifications for upcoming bookings and events.
NIL	Implement chat/comment features.

Appendix



Booking facilities



Name	Email	Contact number	Venue	Start	End	Number of participants	Purpose	Submitted at	Status
Jerry	jerry@u.nus.edu	98765432	Theme Room 1	12-11-2019 6:30 PM	12-11-2019 9:30 PM	5	for team bonding steamboat purposes. require equipments like steamboat pots, induction stove, pots and ladles, etc. and also a space :) thank you!:)	09-11-2019 10:13 AM	Pending
Terry	terry@u.nus.edu	98675432	Theme Room 1	05-12-2019 4:00 PM	05-12-2019 7:30 PM	55	Phoenix Christmas Party	10-11-2019 10:48 PM	Pending
Harry	harry@u.nus.edu	98764532	Theme Room 1	19-11-2019 3:00 PM	19-11-2019 11:30 PM	10	Personal use, reading week destress	12-11-2019 12:10 AM	Pending
Gary	ggary@u.nus.edu	98765543	Seminar Rooms 1 & 2	14-11-2019 10:00 PM	15-11-2019 12:00 AM	19	Team meeting	12-11-2019 10:25 AM	Pending

Managing booking requests