

Project Proposal

1 Team Members

Student ID	Name	GitHub Account
1155192671	Wong Cheuk Yin	TobiaKW
1155212047	Li Yun Sum	Samuelliys
1155212592	Wong Sheung Chit	jw1101
1155213925	Hsieh Chong Ho	Qwerty-Pi
1155214379	Ng Shing Hin	Eason2123

2 Topic

CUHK Venue and Equipment Booking SaaS

3 Pain Points

- Double-booking
Conflicts occur when multiple student societies attempt to book the same room or equipment
- Mobile Display
Users may use mobile phone to view the page, the UI may not display optimally

4 Topic: CUHK Venue and Equipment Booking SaaS

4.1 Planned N-1 Features

1. ActionMailer to send email notification to the user when the booking is confirmed.
2. Sidekiq+Redis to implement Daily digest to each Department admin: “Today’s bookings in your department”, “Tomorrow’s schedule”, “Pending approvals”.
3. ActionCable to implement real-time booking status updates.
4. Chartkick dashboard to show the usage statistics of the venues or equipments.

4.2 Overview

Multi-Tenant SaaS Application built with **Rails 7.2.3** :

Data Models:

- **Department** (tenant isolation: Engineering, Arts, Medicine)
- **Resources** (2 types: Room or Equipment)
- **Booking** (status: pending → approved/rejected/expired)
- **User** (student submits, admin approves)

Major Pain Points and Solutions:

Pain Points	Solutions
Fragmented booking Double booking may happen since every dept have separate database	Conflict detection Single Rails database check availability in real-time
No approval workflow Direct booking without approval may cause conflicts (e.g. proposed exam)	Multi-stage approval Pending approval → admin dashboard → approved/rejected/expired
Poor visibility No room/equipment utilization stats	Chartkick Dashboard Room usage charts + peak times + email notifications
Manual communication Need email chains to get approval without a centralized system	ActionCable + ActionMailer Admin approve → instant browser notification + confirmation email