

## 1 Team Members

Student ID	Name	GitHub Account
1155192671	Wong Cheuk Yin	<a href="#">TobiaKW</a>
1155212047	Li Yun Sum	<a href="#">Samuellis</a>
1155212592	Wong Sheung Chit	<a href="#">jw1101</a>
1155213925	Hsieh Chong Ho	<a href="#">Qwerty-Pi</a>
1155214379	Ng Shing Hin	<a href="#">Eason2123</a>

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