SMU
SINGAPORE MANAGEMENT UNIVERSITY
School of Information Systems

IS483 Project Proposal

Team L^{2}ocky 🔒

Digitalisation & Cloud Solutions

Version 1
7 November 2021

Team Members:

1. Choo Jun Jie (junjie.choo.2019@scis.smu.edu.sg) – Team Lead / Front-End Developer / UXUI Designer
2. Ong Cheng Hong (ch.ong.2019@scis.smu.edu.sg) – Full-stack Developer / Cloud developer
3. Yao Jiawei (jiawei.yao.2019@scis.smu.edu.sg) – Backend Developer / UAT
4. Keith Tan Gim Fong (keithtan.2019@scis.smu.edu.sg) – Deputy PM/ full-stack Developer
5. Low Jun Yi (junyi.low.2019@scis.smu.edu.sg) – PM / Front-End Developer / UXUI Designer
6. Low Qi Long (qilong.low.2019@scis.smu.edu.sg) – Cloud Developer / Cloud Infrastructure Lead

Sponsor:
Organization & Department: Government Technology Agency (GovTech)

1. Frankie Chew (frankie_chew@tech.gov.sg) - Assistant Director

1. Project Description

To manage crowd control through building a microservice that allows walk-in customers or customers with prior-appointment made to get a queue for their turn to be “served”.

2. Business Problem(s)

As the current flow of existing service allows customers to make appointments through walk-in or online service, overcrowding issues are happening on physical premises due to a lack of a sophisticated queuing system to manage crowd control. Additionally, with Covid-19 Regulations in place to manage the number of people within a physical premise, the management of crowd is of the utmost importance to reduce overcrowding within a premise.

As such, this project aims to serve the overcrowding problem with a queuing system microservice.

3. Stakeholders

Project Sponsor(s): GovTech | Project Team: Locky
End-user(s) of your product: The public who needs governmental services
Team Supervisor: (not assigned yet) | Track Coordinator: Prof. Rafael J. BARROS

4. Client's Deliverables

1. Proof of concept deployed on Govtech’s Cloud Suite (AWS)
2. Documentation (ERD, Class Diagram, C4 model)
3. Source Code (with documentation)
4. Stack: ReactJS, NodeJS
5. User Acceptance Test Cases
6. Deployment Guide

5. Scope

Tasks:

1. Functionality (include efforts to create course and client deliverables)
2. Usability
3. Reliability
4. Performance
5. Supportability

The project requirements should be ready by week 0 of the term.

S/N	Task	Hours Required (hrs)
1.	Sponsor meetings (standups, retrospective etc)	105 (0.25 Hours *6 Man * 14 Weeks)
2.	Data cleaning, transformation, analysis	130
3.	Documentation	30
4.	Cloud infrastructure setup/configuration/deployment	120
5.	Backend queue management system (logic and algorithm)	224 (4 Hours * 4 Man * 14

		Weeks)
6.	Frontend programming	103
7.	UI / UX Design, implementation, testing, information processing	168
8.	Functionality testing (UAT)	128
	Total:	1008 (12 Hours * 6 Man * 14 Weeks)

6. Work Breakdown Structure

For the timeline of the work breakdown structure, our group has placed the file in our Google Drive. Kindly refer to the following link to view the timeline.
https://drive.google.com/file/d/1EvUVICWputgDOsdpF0Bo6IJzsu7UfWkb/view

7. Risks

S/N	Risk Statement	Consequence	Level (Derived)	Mitigation Strategy &/or Contingency Plan
1	Team is unfamiliar with Govtech's Cloud Infrastructure platform	(a) Project delays due to incorrect estimates (b) Lower quality as there will be more bugs in the system	Likelihood: H Impact: H A	1. Development team to be trained in a new platform by Feb 2022. 2. Procure additional support from the supplier of tools for the first 2 months of the development phase.
2	Cloud services cannot handle simulation workload	(a) System crashes	Likelihood: M Impact: H A	1. Relook into infrastructure design and adjust resource allocation (deploy stronger VM instances, adjust load balancer configuration etc)
3	Cloud resources cost overrun	(a) Might have to forgo some features (b) Mission critical features that are expensive might have to be downgraded	Likelihood: L Impact: H B	1. Looking into cloud resources that have room for downsizing 2. Consult sponsor for more budget allocation or feature adjustment
4	Team cannot reach sprint goals (obstacles, unforeseen delays)	(a) Timeline delays, team might not be able to complete some features	Likelihood: L Impact: M C	1. Readjust timeline 2. Seek guidance from sponsor POC/ school instructor