

# SAF Lion Portal

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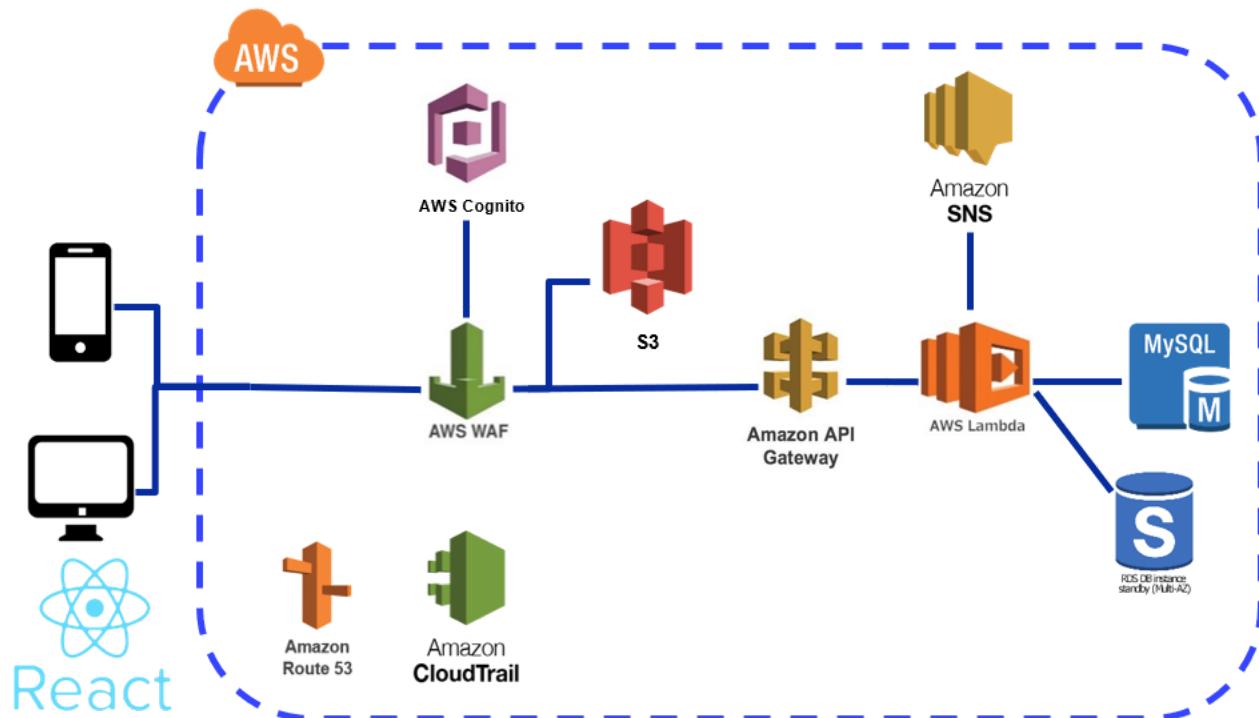
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## Introduction

SAF Lion Portal is a solution to the National Service's problem of enlisting recruits to Pulau Tekong. Currently, the booking of ferry service to Tekong is managed by the commanding officer of the Unit. Everything from booking for their unit and guest to food supply and vehicle transportation is done by them. This places a huge burden on one person so we would like to alleviate it by creating a web portal that allows individual saf members to book ferry for themselves.

## Project Objectives

The objectives of this project is to create digital services so that the booking and management of ferry services would be simpler and more convenient. Our FYPJ is focused on the web application side of the project. There is also another team working on the mobile application for it. We are using ReactJs as our front-end and Amazon Web service (AWS) for our backend to create a serverless framework. We aim to complete the project by the end of the semester.



# Project Specifications

The main AWS services used in this project are Amazon Cognito, AWS Lambda, Amazon API Gateway.

**Amazon Cognito** is a service that provides user identity and data synchronisation. This is so that we don't have to create our own backend authentication and authorization system from the ground up. User data is stored in the cloud.

**AWS Lambda** is a service that allows you to run your backend code online without using your own servers. We will be using this to interact with the data we have like in cognito.

**Amazon API Gateway** is a service that helps you create your own APIs. We use this to call our Lambda functions and receive a JSON response.

Even though our web application is focused on the administrative side, we also made it mobile friendly.

## PC View

The screenshot shows a web-based application titled "SAF Ferry Booking". On the left, there is a sidebar with navigation links: Follow Up, Booking, Schedule, Purpose, Users, Vehicle, Ferry Guideline, Announcement, Route, and Service Provider. The main content area displays a table of bookings for "Today's Bookings: 20th Aug 2020". The columns are Time, Route, Booking Code, Booked By, and Purpose. The table contains 8 entries. Below the table, there are two "Average Rating" sections. The first section, "Passenger Ferry Service Provider", shows a rating of 3.3. The second section, "RPL Service Provider", shows a rating of 3.55. At the bottom, there is a message: "Date 2020-08-22 Time 2020-08-22 From SFT-TFT Booking Code FXTGTH Passenger Bill Booking from bluefrog".

## Mobile View

The screenshot shows a mobile version of the "SAF Ferry Booking" application. The layout is similar to the PC view, with a sidebar and a main content area. The main content area displays a table of bookings for "Today's Bookings: 20th Aug 2020". The table has the same columns and 8 entries as the PC view. Below the table are two "Average Rating" sections: "Passenger Ferry Service" (rating 3.3) and "RPL Service Provider" (rating 3.55). The footer shows the same booking details as the PC view: "Date 2020-08-22 Time 2020-08-22 From SFT-TFT Booking Code FXTGTH Passenger Bill Booking from bluefrog".

Here are the main features we created using those services. Each lambda function created will be explained in [project implementation](#).

## User management system

The web app would have role based access control and only accounts with admin privileges would be able to access the management system. Administrators are able to view all users, create new users, update existing users and disable/enable existing users.

**AWS Lambda Functions Created:** ([Create User](#), [Update User](#), [Get User\(s\)](#), [Activate Account](#))

User
username
preferred_username
email
first_name
last_name
role
performance_rating
created_by
created_date
updated_by
updated_date
status

## Authentication and Authorization

Each user created will have a different role and privileges. Only accounts created by the administrators are allowed to login to SAF Lion Portal.

**AWS Lambda Functions Created:** ([Authenticate User](#), [Forget Password](#), [Verify Forget Password](#), [First Time Login](#))

## Booking Management

Allows users to create one time bookings and recurring bookings for both RPL and Passenger ferries. Users with admin privileges will have bookings they created automatically approved, users without admin privileges will have their bookings they created assigned to the pending status which will require a user with admin privileges to accept or reject. Users who decide to reject pending bookings or cancel bookings that are already approved will have to provide a reason for doing so. Users can also edit RPL and passenger bookings that are already approved.

**AWS Lambda Functions Created:** ([Cancel Booking](#), [Confirm Booking](#), [Update Booking](#), [Confirm Recurring Booking](#))

## Booking Issue management

The Web Application allows administrators to manage various booking issues. Administrators will be able to update their findings for each booking issue, monitor the performance ratings of the booking unit, and view the booking details.

**AWS Lambda Functions Created:** ([Update Booking Issue](#), [Get Booking Issue](#))

## Schedule management

The Schedule management feature allows administrators to monitor the booking schedules based on the departure date. It also allows them to modify and update any changes that are needed to be made for each schedule.

**AWS Lambda Functions Created:** ([Create Schedule](#), [Update Schedule](#), [Get Schedule](#), [Block Schedule](#), [Clear Schedule](#))

## Schedule Template management

The Schedule Template management feature allows administrators to view the Schedule template based on the route. It also allows them to modify and update any changes that are to be made for each schedule template.

**AWS Lambda Functions Created:** ([Create Schedule Template](#), [Update Schedule Template](#), [Get Schedule Template](#))

## Purpose management

The Booking Purpose is the reason for booking the ferry service. The administrators will be able to view the full list of purposes, make any necessary changes and create a new purpose in the purpose management page.

**AWS Lambda Functions Created:** ([Create Purpose](#), [Update Purpose](#), [Get Purpose](#))

## Vehicle management

The administrators will be able to view and manage the vehicles available in the vehicle management page. The vehicle page includes a list of all vehicles details and administrators are able to amend the vehicle details through this page.

**AWS Lambda Functions Created:** ([Create Vehicle](#), [Update Vehicle](#), [Get Vehicle](#))

## Route management

The route page shows a list of all routes based on the Service Provider Type. The administrator can modify the route details in this page as well as create a new route through this page.

**AWS Lambda Functions Created:** ([Create Route](#), [Update Route](#), [Get Route](#))

## Service Provider management

The service provider page shows a list of all service providers based on the Service Provider Type. The administrator can modify the service provider details in this page as well as create a new service provider through this page.

**AWS Lambda Functions Created:** ([Create Service Provider](#), [Update Service Provider](#), [Get Service Provider](#))

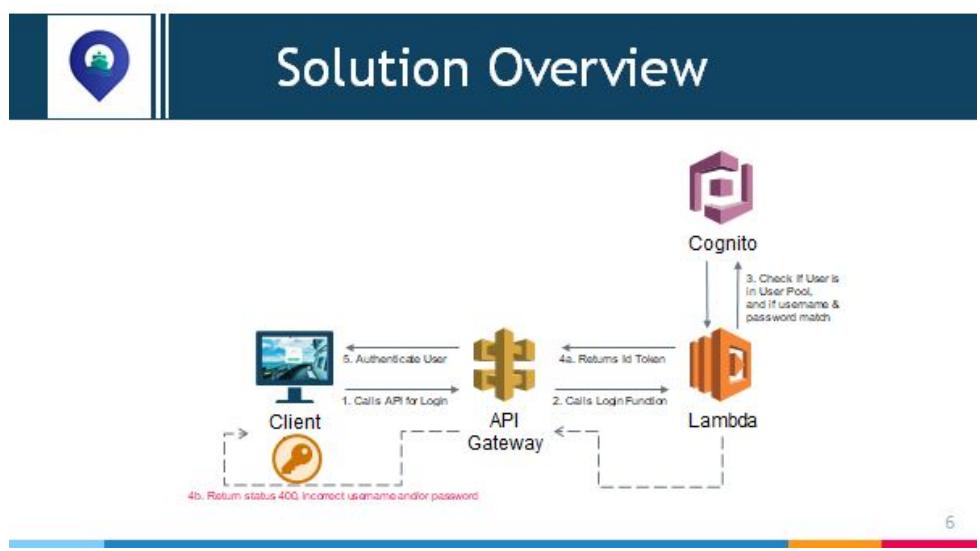
## Project Implementation

Most of the lambda functions that are called with a POST, PUT and PATCH request using our API requires data to be passed in. I use an ajax post request to pass in data and receive a response. The data that is passed in requires the stringified body object.

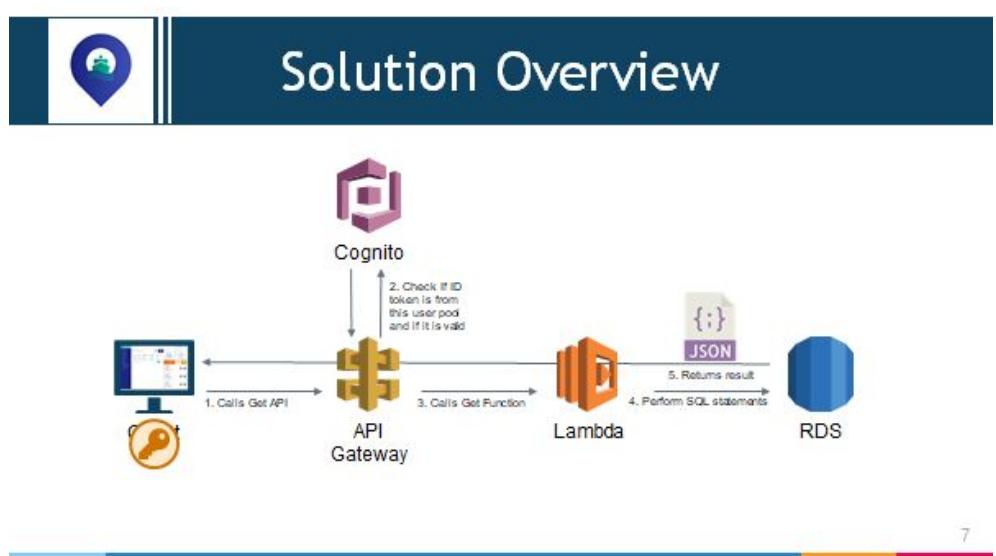
For example, var data = JSON.stringify({ "body" : <functionObj> }). Each <functionObj> must be stringified as well before being used as the value of the body.

For GET requests, I use query strings to pass in information because the information does not contain sensitive information.

User will login and get an ID token upon success



The Id token will then be used verify if the caller is from our user pool when calling other api functions.



## User Stories

User stories Title	User stories	Completed
Administrator - Login	<p>As an administrator, I want to login so that I can view the dashboard of pending requests, performance rating of SAF unit that falls below 50%.</p> <p>Note: Username and Password</p>	Yes
Administrator - Forget Password	<p>As an administrator, I want to reset my password so that I can receive an email on my reset password.</p> <p>Note: Email Address</p>	Yes
Administrator - Change Password	<p>As an administrator, I want to change my password using the email reset link so that I can login using the new password.</p> <p>Note: Email Address</p>	Yes
Administrator - Resend 2 factor authentication	As an administrator, I want to re-request my email verification code so that I can receive the phone verification code to login	Yes
Administrator - 2 factor authentication	As an administrator, I want to receive my email verification code so that I can login to the LionPortal to see my booking.	Yes
Administrator - Verify 2 factor authentication	As an administrator, I want to enter my email verification code so that I can login to the LionPortal to see my booking.	Yes
Administrator - View list of Users	<p>As an administrator, I want to view a list of users so that I can select the user to edit or deactivate</p> <p>Note: Temp admin accounts are only valid for 24 hours and can only approve ad-hoc RPL bookings.</p>	Yes

Administrator - Add User Account	As an administrator, I want to add new user so that the new user can access to LionPortal	Yes
Administrator - Update User Account	As an administrator, I want to view and update user account so that I can know the user info	Yes
Administrator - Deactivate User Account	As an administrator, I want to deactivate the user account so that the user will not able to access to LionPortal	Yes
Administrator - Resend Temporary Password	As an administrator, I want to send a new temporary password to my user for him to complete his registration, if my user did not receive the email or if his temporary password has already expired	Yes
Administrator - Add Recurring Ferry Schedule	As an administrator, I want to add ferry schedule for recurring so that the ferry is available for booking	Yes
Administrator - Add Ferry Schedule	As an administrator, I want to add ferry schedule for one time only so that the ferry is available for booking	Yes
Administrator - View Ferry Schedule by type of services and date range	As an administrator, I want to view the ferry services schedule based on the type of services and date range so that I select the schedule for amendments	Yes
Administrator - Amend Ferry Schedule for one time only	As an administrator, I want to amend the scheduled ferry services for a specific day/time for one time so that the SAF unit can book the ferry services accurately  Note: Amendments include Ferry Time, Set the status to blocked	Yes
Administrator - Amend Ferry	As an administrator, I want to amend the scheduled ferry services for a specific day/time for recurring so	Yes

Schedule for recurring	that the SAF unit can book the ferry services accurately	
Administrator - Block Schedule for booking	As an administrator, I want block schedule from time to time for one day for a specific purpose so that these schedule are not available for booking by SAF units.	Yes
Administrator - View Completed Bookings with non-compliance	As an administrator, I want to view a list of completed requests with non-compliance so that I can penalise the users.  Note: For non-compliance, 20% deducted.	Yes
Administrator - View ALL requests pending approval	As an administrator, I want to view all requests pending approval (Ad-Hoc, Out of Schedules) grouped by date so that I can approve/reject requests.  Note: For each of the booking, display the from-to destination, time, purpose, booking code, SAF unit	Yes
Administrator - View Ad-hoc requests pending approval	As an administrator, I want to view Ad-hoc requests pending approval grouped by date so that I can approve/reject requests.  Note: For each of the booking, display the from-to destination, time, purpose, booking code, SAF unit	Yes
Administrator - View Out-Of-Scheduled requests pending approval	As an administrator, I want to view Out-Of-Scheduled requests pending approval grouped by date so that I can approve/reject requests.  Note: For each of the booking, display the from-to destination, time, purpose, booking code, SAF unit	Yes
Administrator - Approve request	As an administrator, I want to approve requests so that a push notification can be sent to the unit notifying them of the approval.  Note: For each of the booking, display the from-to destination, time, purpose, booking code, SAF unit	Yes(push notification not done)

Administrator - Reject request	<p>As an administrator, I want to reject requests with reasons so that a push notification can be sent to the unit notifying them of the rejection with reason.</p> <p>Note: For each of the booking, display the from-to destination, time, purpose, booking code, SAF unit</p>	Yes(push notification not done)
Administrator - Bookings	<p>As an administrator, I want to view the list of bookings in calendar view so that I can know what are the bookings I have each day.</p> <p>Note: By default, today's date will be selected</p>	Yes
Administrator - Filter Bookings by Purpose	<p>As an administrator, I want to filter the list of bookings by purpose so that I can see only the bookings of the selected purpose</p> <p>Note: By default, display all bookings regardless of purpose</p>	Yes
Administrator - Filter Bookings by Status	<p>As an administrator, I want to filter the list of bookings by status so that I can see only the bookings of the selected status</p> <p>Note: Status: accepted, requested, rejected, cancelled, no-show, late, completed</p>	Yes
Administrator - Filter Bookings by bookingType	<p>As an administrator, I want to filter the list of bookings by bookingType so that I can see only the bookings of the selected bookingType</p> <p>Note: Status: Scheduled, Adhoc, OOS</p>	Yes
Administrator - Filter Bookings by Passenger or RPL	<p>As an administrator, I want to filter the list of bookings by service provider type so that I can see only the bookings of the selected service provider type</p> <p>Note: Service Provider Type: Passenger or RPL</p>	Yes
Administrator - Filter Bookings by booking code	<p>As an administrator, I want to view the booking status based on the booking code so that I quickly retrieve information about a booking.</p>	Yes

Administrator - Dashboard - View Avg Rating of the Service Provider	As an administrator, I want to view the average rating of Service Provider so that I can ensure a high service level.	Yes
Administrator - Dashboard - View daily completed bookings	As an administrator, I want to see all bookings for today so that I can see booking utilization and ensure a high service level.	Yes
Administrator - Dashboard - View ALL requests pending approval	As an administrator, I want to view all requests pending approval (Ad-Hoc, Out of Schedules) grouped by date so that I can approve/reject requests.  Note: For each of the booking, display the from-to destination, time, purpose, booking code, SAF unit	Yes
Administrator - View Followup Actions - Non-Compliance	As an administrator, I want to view those bookings that are marked as non-compliance so that I can act upon it	Yes
Administrator - View Followup Actions - Reported with Issue	As an administrator, I want to view those bookings that are reported with issue so that I can act upon it	Yes
Administrator - Followup - Non-Compliance - Submit their findings	As an administrator, I want to submit my findings of the selected booking and mark if deduct points from the unit's performance rating so that this follow-up action is closed.	Yes
Administrator - Followup - Reported with - Submit their findings	As an administrator, I want to submit my findings of the selected booking so that this follow-up action is closed.	Yes

Administrator - Generate Report	As an administrator, I want to generate a monthly confirmed booking report so that I can verify the completion of services for payment processing.	Yes
Administrator - Generate Report	As an administrator, I want to generate reports on Units based on performance ratings so that I can inform the unit on their performance rating.	No
Administrator - Generate Report	As an administrator, I want to generate report on Commercial Ferry Service Providers based on the number of passengers so that I can inform the service providers on the current number of passengers on each of the bookings	Yes
Administrator - View list of Purposes	As an administrator, I want to view a list of Purposes so that I can select the purpose to edit	Yes
Administrator - Add new purpose	As an administrator, I want to add a new purpose so that the SAF unit can select the new purpose when booking.	Yes
Administrator - Update Purpose	As an administrator, I want to update the purpose description so that it could be better represented in the LionPortal App.	Yes
Administrator - Remove Purpose	As an administrator, I want to delete the purpose so that the user will not be able to select this purpose when making a booking.  Note: Update the status: Deactivated	Yes
Administrator - View list of Vehicles	As an administrator, I want to view a list of Vehicles so that I can select the vehicle to edit	Yes
Administrator - Add new vehicle	As an administrator, I want to add a new vehicle so that the SAF unit can select the new vehicle when making a RPL booking.  E.g. Vehicle: Lorry (12 Ft), Load: 0.7	Yes
Administrator - Update Vehicle	As an administrator, I want to update the vehicle's details so that it could be better represented in the	Yes

	LionPortal App.	
Administrator - Remove Vehicle	<p>As an administrator, I want to delete the vehicle so that the user will not be able to select this vehicle when making a booking.</p> <p>Note: Update the status: Deactivated</p>	Yes
Administrator - View list of Ferry Guidelines	As an administrator, I want to view a list of ferry guidelines so that I can select the T&C to edit	Yes
Administrator - Add new Ferry Guidelines	<p>As an administrator, I want to add new booking agreements so that the T&amp;C could be displayed to the user when booking.</p> <p>Note: T&amp;C is tagged to ServiceProviderType</p>	Yes
Administrator - Update Ferry Guidelines	As an administrator, I want to update the booking agreement so that the users are informed with the updated booking agreement.	Yes
Administrator - Remove Ferry Guidelines	<p>As an administrator, I want to delete the booking agreement so that the booking agreement will not be used to be displayed in the LionPortal App.</p> <p>Note: Update the status: Deactivated</p>	Yes
Administrator - View list of announcements	As an administrator, I want to view a list of announcement so that I can select the announcement to view the details	Yes
Administrator - Add new announcement	As an administrator, I want to add new announcement so that the announcement can be sent to users as notifications	Yes
Administrator - Delete announcement	As an administrator, I want to delete an announcement so that the list of announcements is not too long to manage.	Yes

Administrator - Update Performance Rating for No Show - Batch Job	<p>As an administrator, I want to penalize the SAF unit for no show by deducting 30% of their performance rating so that the SAF unit will not abuse the system.</p> <p>Status of the request: No-show</p>	Yes
Administrator - Daily Performance Rating Batch Job	As an administrator, I want to reset the performance rating to 100% when the last booking with penalty is more than 1 year so that the SAF unit can book the service without approval	Yes
Administrator - Automatically Populate the schedule for Passenger Ferry	As an administrator, I want to populate the schedule for next 3 month based on today's date for Passenger Ferry so that it will be available for user to book	No
Administrator - Automatically Populate the schedule for RPL Ferry	As an administrator, I want to populate the schedule for next 3 month based on today's date for RPL Ferry so that it will be available for user to book	No
Administrator - View Schedule template	As an administrator, I want to view the list of schedule templates so that I can select the template to edit.	Yes
Administrator - Add new schedule template	As an administrator, I want to add a new schedule template.	Yes
Administrator - Update schedule template	As an administrator, I want to update the schedule template so that users are informed with the updated schedule template.	Yes
Administrator - View Service Provider	As an administrator, I want to view the list of service providers so that I can select the service provider to edit.	Yes

Administrator - Add new service provider	As an administrator, I want to add a new service provider so that I can select the new service provider when making a booking.	Yes
Administrator - Update Service provider	As an administrator, I want to update the service provider so that users are informed with the updated service provider.	Yes
Administrator - Remove service provider	As an administrator, I want to delete the service provider so that the user will not be able to select this service provider when making a booking.	Yes

## API Gateway

For API Gateway Documentation, please refer to LionPortal API Gateway Documentation.

## Functions in user management system

### Create User: (Post request)

#### Basic flow

- 1) Takes in creator's email, new email, role, saf unit, first name and last name
- 2) Generate a UUID for the username so that the administrator does not need to think of a new username for every user and that the username would not be repeated in the userpool.
- 3) The function also creates a temporary password that is 8 characters long and contains at least 1 uppercase, special character and number.
- 4) Afterwards, it will check if the email already exists in the user pool.
- 5) If the email does not exist in the user pool, a JSON Web Token containing the attributes of the user will be passed into [JWTDecode](#) to decode.
- 6) The function will then return a status code of 200 upon successful creation.

#### Alternate Flow

- 5a) If email exists in the user pool, the function will return a status code 400 and a body containing the error object.

## **Update User: (Post request)**

### Basic flow

- 1) Takes in the email of the target account, username, role, saf unit, first name and last name, performance rating, email of the updater. (Will only update data that is not Null, this is to increase the number of uses for this function.)
- 2) Returns a status code of 200 if the user is found.

### Alternate Flow

- 2a) Returns a status code of 400 if the user is not found.

## **Get User(s): (Get request)**

### Basic flow

- 1) Takes in a query string userinfo (email/username)
- 2) Returns a status code of 200 and a body containing a JSON object of the user attributes.

### Alternate Flow

- 1a) If userinfo is Null, returns a list of JSON objects for each user in the user pool.
- 2b) Returns a status code of 400 if the user is not found.

## **Activate Account: (Get request)**

### Basic flow

- 1) Takes in a query string userinfo (email/username) and request("Enable"/"Disable")
- 2) Returns a status code of 200 if a user status has been updated successfully.

### Alternate Flow

- 2b) Returns a status code of 400 if the user is not found.

## Functions in Authentication and Authorization

### Login: (Post request)

#### Basic flow:

- 1) Takes in UserInfo (email/username) and UserPass.
- 2) If UserInfo and UserPass match in Cognito, a JSON Web Token containing the User attributes will be sent to [JWTdecode](#).
- 3) Calls SendOTP Lambda function to send an OTP to the User's email.
- 4) The function will then return a status code of 200 and a JSON body object containing the attributes of the authenticated user.

#### Alternate flow:

- 2a) If UserInfo and UserPass do not match in Cognito, this function returns a status code of 400 and a body containing the error object.
- 2b) If it is the first time this user logs in, this function returns a sessionId and a challengeName of "NewPasswordRequired". The web app reads this data and changes the form to complete registration.

### Verify OTP: (Post request)

#### Basic flow:

- 1) Takes in Email and OTP.
- 2) If Email and OTP match in RDS, the ID Token and the Access Token of the User will be returned.
- 3) The function will then return a status code of 200 and the ID and Access Tokens.

#### Alternate flow:

- 2a) If Email and OTP do not match in RDS, this function returns a status code of 400 and a body containing the error object.

## **Forget Password:** (Post request)

### Basic flow:

- 1) Takes in an email
- 2) If email exists in our Cognito User Pool, this function returns a status code of 200, a sessionId and an email with the verification code will be sent.

### Alternate flow:

- 2a) If email does not exist, returns a status code of 400 and an error message.

## **Verify Forget Password:** (Post request)

### Basic flow:

- 1) Takes in an email, sessionId verification code and new password
- 2) Returns a status code of 200 upon success.

### Alternate flow:

- 2a) If password does not meet the requirement, returns a status code of 400 and an error message.
- 2b) If sessionId has expired,, returns a status code of 400 and an error message.

## **First Time Login:** (Post request)

### Basic flow:

- 1) Takes in an email, preferred username, sessionId, verification code and new password
- 2) The function then returns a status code of 200, authenticates the user and a JSON body object containing the user attributes upon success.

### Alternate flow:

- 2a) If password does not meet the requirement, returns a status code of 400 and an error message.
- 2b) If sessionId has expired, returns a status code of 400 and an error message.
- 2c) If the preferred username already exists, returns a status code of 400 and an error message.

## Utility Functions

### JWTDecode

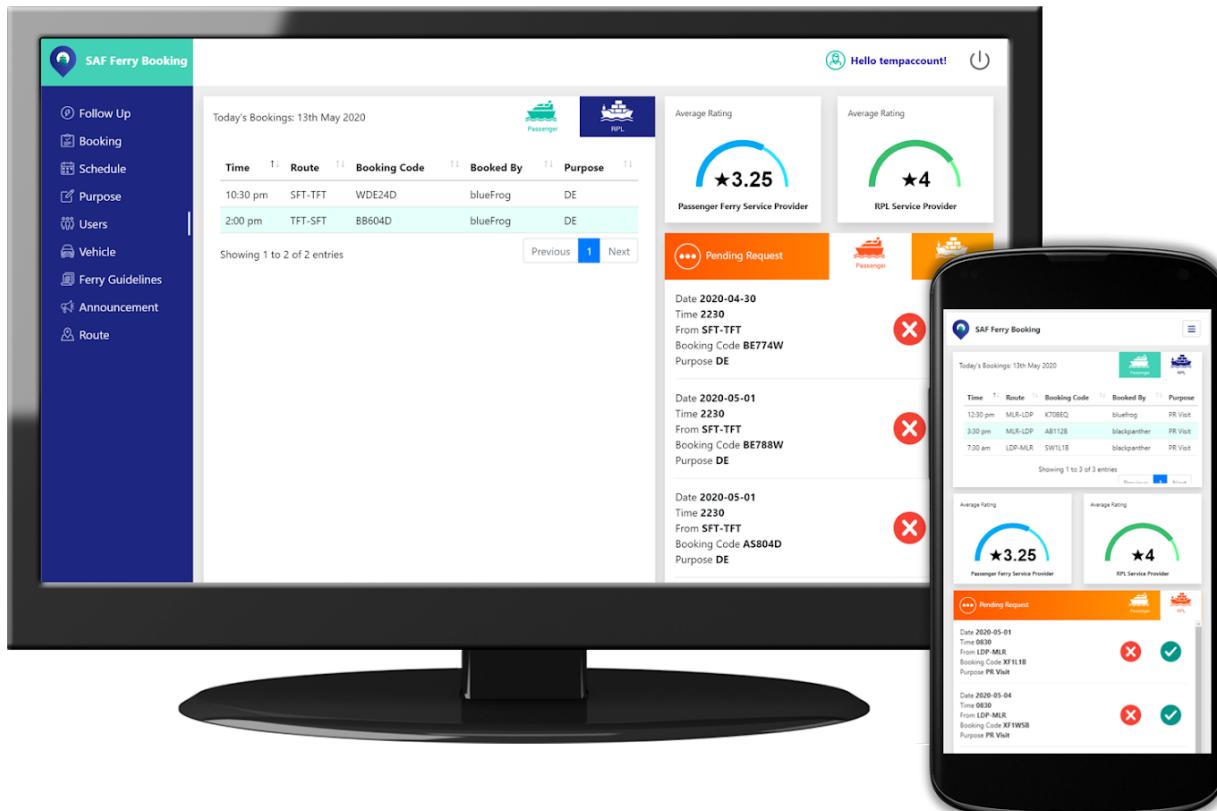
#### Basic flow:

- 1) Takes in an AccessToken, RefreshToken and IDToken
- 2) Verify if the Token comes from our Cognito User Pool and if it has expired

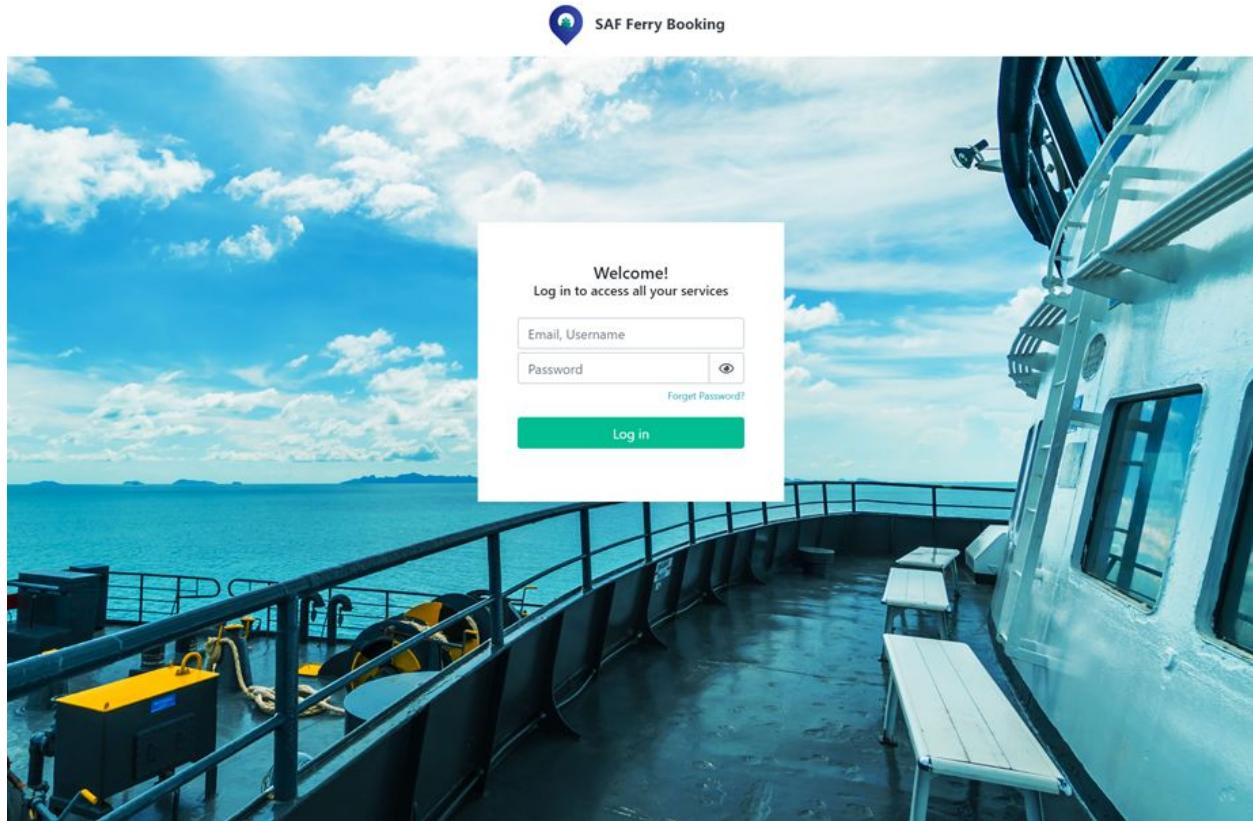
#### Alternate flow:

- 2a) If the token is invalid, returns a status code of 400.

## How it works

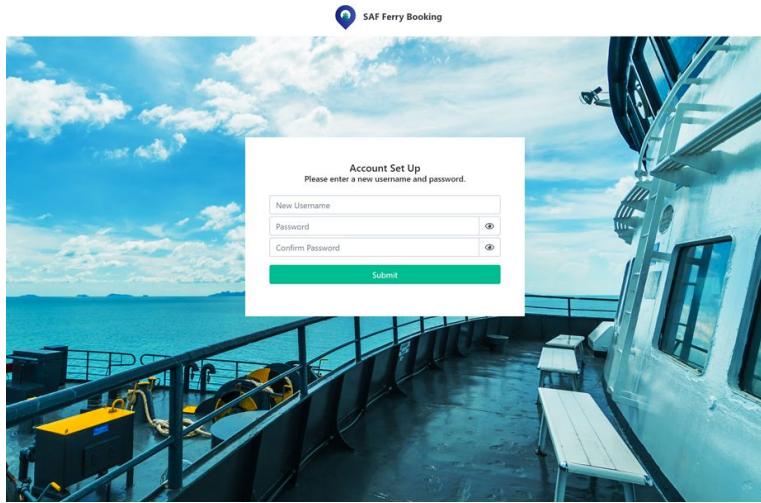


## Login Page



Username	Role	Password
lionadmin	A	P@ssw0rd
lionsp	SP	P@ssw0rd
liondp	DP	P@ssw0rd
lionpu	PU	P@ssw0rd
lionu	U	P@ssw0rd

## First time User



For a first time user that logged in with their temporary password from their email, they will need to enter a new username and password.

## Account Recovery



If a user has forgotten their password, they will be able to enter their email. Once they receive a verification code, they will be able to reset their password.

## Dashboard

The dashboard displays today's bookings for August 20, 2020. It includes sections for average ratings (Passenger Ferry Service Provider at 3.3 and RPL Service Provider at 3.55), pending requests (one pending approval), and a list of bookings.

Time	Route	Booking Code	Booked By	Purpose
11:48 am	SFT-TFT	UCNQDR	bluefrog	BIBO
1:00 pm	SFT-TFT	A9NZM1	pinkpanther	GP
2:06 pm	TFT-SFT	Y0NEVX	ADMIN - bluefrog	NRU
2:14 pm	TFT-SFT	S9JIS	ADMIN - bluefrog	NRU
2:30 pm	SFT-TFT	XPF09V	pinkpanther	NRU
2:53 pm	SFT-TFT	F03605	ADMIN - bluefrog	FV
4:10 pm	SFT-TFT	XO7OGR	ADMIN - blackpanther	Others
4:30 pm	SFT-TFT	TWF6PW	blackpanther	NRU

Showing 1 to 8 of 8 entries

Allow you to view average ratings, today's bookings and pending bookings.

The interface shows a 'Reject Booking' dialog box with a rejection reason input field and two radio buttons: 'This booking Only' and 'This and future bookings'. Below the dialog, there are two pending booking requests for approval or rejection, each with a red 'X' and a green checkmark icon.

Also reject or approve pending bookings

## Announcements



SAF Ferry Booking

Follow Up

Booking

Schedule

Purpose

Users

Vehicle

Ferry Guideline

Announcement

Route

Service Provider

Hello lionadmin!

Manage Announcement

Search Announcement

All

Users

Privileged User

Service Provider

Duty Personnel

Admin

Message

Target Audience

Created On

Created By

Monday will be running a public holiday schedule

User, Privileged User, Service Provider, Duty Personnel, Admin

20 Aug 2020, 4:56 pm

lionadmin

Gate 3 is open

User, Privileged User, Service Provider, Duty Personnel, Admin

20 Aug 2020, 4:55 pm

lionadmin

Website is now usable

Admin

19 Aug 2020, 12:40 am

lionadmin

Website under maintenance from 12 August to 13 August

Admin

12 Aug 2020, 3:43 pm

danielg

test

Privileged User

11 Aug 2020, 10:56 am

lionadmin

Testing

Admin

06 Aug 2020, 11:10 am

lionportal

testing announcement

User, Privileged User, Service Provider, Duty Personnel, Admin

05 Aug 2020, 8:10 pm

lionportal

Gate 3 is now open!

Admin

05 Aug 2020, 7:56 pm

lionportal

Gate 10 is now open

User

04 Aug 2020, 4:59 pm

lionadmin

Incoming huge load

Admin

04 Aug 2020, 4:43 pm

lionadmin

Showing 1 to 10 of 18 entries

Previous

1

2

Next

Able to view all announcements, delete and create new

The screenshot shows the SAF Ferry Booking application interface. On the left, there's a sidebar with various navigation links: Follow Up, Booking, Schedule, Purpose, Users, Vehicle, Ferry Guideline, Announcement (which is highlighted in orange), Route, and Service Provider. The main content area has a title "MANAGE ANNOUNCEMENT". It includes a search bar labeled "Search Announcement" and a button with a plus sign. Below the search bar is a table with two tabs: "All" (selected) and "Users". The "All" tab displays a list of announcements:

Message	Created On	Created By	Action
Monday will be running a public holiday schedule	20 Aug 2020, 4:56 pm	lionadmin	
Gate 3 is open	20 Aug 2020, 4:55 pm	lionadmin	
Website is now usable	19 Aug 2020, 12:40 am	lionadmin	
Website under maintenance from 12 August to 13 August	12 Aug 2020, 3:43 pm	danielg	
test	11 Aug 2020, 10:56 am	lionadmin	
Testing	06 Aug 2020, 11:10 am	lionportal	
testing announcement	05 Aug 2020, 8:10 pm	lionportal	
Gate 3 is now open!	05 Aug 2020, 7:56 pm	lionportal	
Gate 10 is now open	04 Aug 2020, 4:59 pm	lionadmin	
Incoming huge load	04 Aug 2020, 4:43 pm	lionadmin	

Below the table, it says "Showing 1 to 10 of 18 entries" and has navigation buttons for "Previous", page numbers "1" and "2", and "Next".

A modal window titled "Create A New Announcement" is open in the center. It has a "Message:" input field containing "Monday will be running a public holiday schedule". Below it is a "Characters Left: 250" counter. Under "Target Audience:", there are four checkboxes: "Select All" (unchecked), "User" (unchecked), "Privileged User" (unchecked), and "Admin" (unchecked). At the bottom of the modal are two buttons: a red "Clear" button and a green "Create" button.

Able to create announcements for groups of users based on the checkbox clicked

## Ferry Guidelines

The screenshot shows the 'MANAGE FERRY GUIDELINE' section of the application. On the left, there is a sidebar with various navigation links: Follow Up, Booking, Schedule, Purpose, Users, Vehicle, Ferry Guideline (which is highlighted in orange), Announcement, Route, and Service Provider.

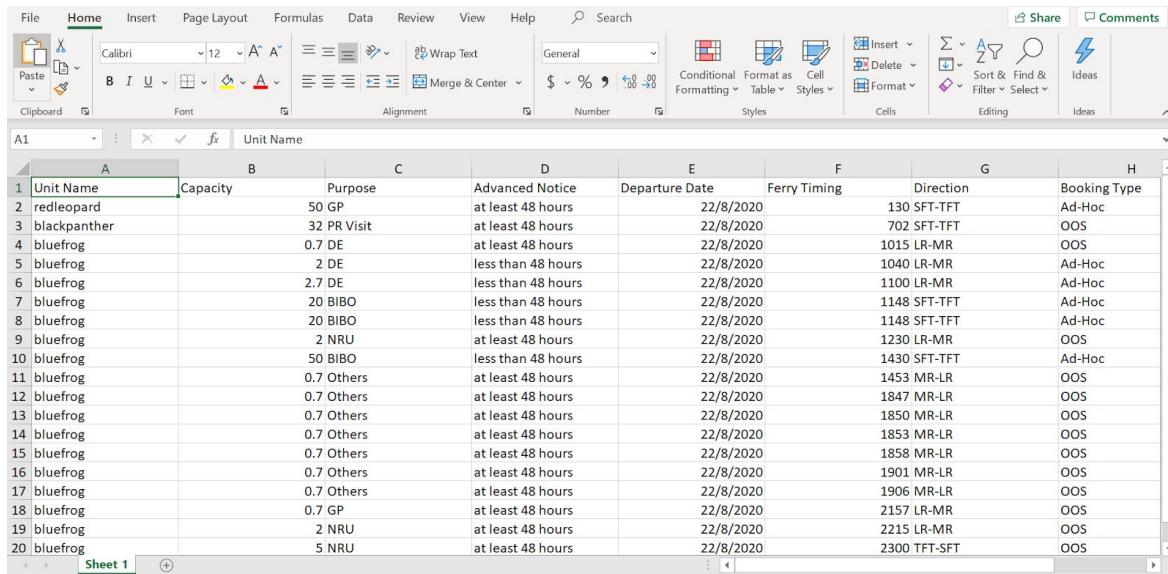
The main area has a search bar labeled 'Search Ferry Guideline'. Below it is a table header with columns: All, Passenger, RPL, Service Provider Type, Status, Updated By, and Updated Date. There are two entries in the table:

All	Passenger	RPL	Service Provider Type	Status	Updated By	Updated Date
1. All vehicles are to enter the RPL through Gate 3 at SFT. 2. Please note that RPL gate will only be opened 30 minutes prior to stated RPL timing. 3. Any vehicles attempting to enter SFT earlier than the stated timings will be rejected and asked to come back at their designated timings. 4. RPL will depart punctually at the given timing, please arrive 20-25 minutes before designated timings to allow sufficient time for boarding. 1. Indented strength should be as accurate as possible. Over indenting of strength to a large degree will be followed up on as a waste of funds. 2. Sea Transport Section is to be informed should the unit be unable to make it for their timing. Failure to do so could result in heavy penalty. 3. NRU who comes in with nominal roll must approach the Ferry Service Provider to identify their unit as well as to verify the booking code. 4. NRU without nominal roll will have to exchange their NRIC/11B with SFT Guardroom for a Falcon/camp pass which will be used for boarding of the ferry.			RPL	Active	lionadmin	28 Jul 2020, 3:33 pm
			Passenger	Active	system	29 Apr 2020, 11:27 pm

At the bottom, it says 'Showing 1 to 2 of 2 entries' with navigation buttons for Previous, Next, and a page number '1'.

Able to view ferry guidelines, edit and create new guidelines

## Generation of Report



The screenshot shows a Microsoft Excel spreadsheet titled "Sheet 1". The table has 8 columns with headers: A (Unit Name), B (Capacity), C (Purpose), D (Advanced Notice), E (Departure Date), F (Ferry Timing), G (Direction), and H (Booking Type). The data consists of 20 rows, each representing a booking. The bookings are categorized by Unit Name (e.g., redleopard, blackpanther, bluefrog) and have various capacities (e.g., 50 GP, 32 PR Visit, 0.7 DE, 2 DE, 2.7 DE, 20 BIBO, 20 BIBO, 2 NRU, 50 BIBO, 0.7 Others, 0.7 Others, 0.7 Others, 0.7 Others, 0.7 Others, 0.7 GP, 2 NRU, 5 NRU) and purposes (e.g., at least 48 hours, less than 48 hours). Departure dates are all 22/8/2020. Ferry timings range from 130 SFT-TFT to 2300 TFT-SFT. Directions include LR-MR, MR-LR, and SFT-TFT. Booking types are Ad-Hoc or OOS.

A	B	C	D	E	F	G	H	
1	Unit Name	Capacity	Purpose	Advanced Notice	Departure Date	Ferry Timing	Direction	Booking Type
2	redleopard	50 GP		at least 48 hours	22/8/2020	130 SFT-TFT		Ad-Hoc
3	blackpanther	32 PR Visit		at least 48 hours	22/8/2020	702 SFT-TFT		OOS
4	bluefrog	0.7 DE		at least 48 hours	22/8/2020	1015 LR-MR		OOS
5	bluefrog	2 DE		less than 48 hours	22/8/2020	1040 LR-MR	Ad-Hoc	
6	bluefrog	2.7 DE		less than 48 hours	22/8/2020	1100 LR-MR	Ad-Hoc	
7	bluefrog	20 BIBO		less than 48 hours	22/8/2020	1148 SFT-TFT		Ad-Hoc
8	bluefrog	20 BIBO		less than 48 hours	22/8/2020	1148 SFT-TFT	Ad-Hoc	
9	bluefrog	2 NRU		at least 48 hours	22/8/2020	1230 LR-MR		OOS
10	bluefrog	50 BIBO		less than 48 hours	22/8/2020	1430 SFT-TFT	Ad-Hoc	
11	bluefrog	0.7 Others		at least 48 hours	22/8/2020	1453 MR-LR		OOS
12	bluefrog	0.7 Others		at least 48 hours	22/8/2020	1847 MR-LR		OOS
13	bluefrog	0.7 Others		at least 48 hours	22/8/2020	1850 MR-LR		OOS
14	bluefrog	0.7 Others		at least 48 hours	22/8/2020	1853 MR-LR		OOS
15	bluefrog	0.7 Others		at least 48 hours	22/8/2020	1858 MR-LR		OOS
16	bluefrog	0.7 Others		at least 48 hours	22/8/2020	1901 MR-LR		OOS
17	bluefrog	0.7 Others		at least 48 hours	22/8/2020	1906 MR-LR		OOS
18	bluefrog	0.7 GP		at least 48 hours	22/8/2020	2157 LR-MR		OOS
19	bluefrog	2 NRU		at least 48 hours	22/8/2020	2215 LR-MR		OOS
20	bluefrog	5 NRU		at least 48 hours	22/8/2020	2300 TFT-SFT		OOS

Users are able to click on the Generate Report button on the top right hand corner of the booking page. An excel file will be automatically downloaded containing all the details of the current list of bookings that are shown ( including filtered bookings if filters are applied). Details include; Unit Name, Capacity/Total Load, Purpose, Advanced Notice, Departure Date, Ferry Timing, Direction and Booking Type of each booking.

## Manage Bookings

The screenshot shows the 'Manage Bookings' interface. On the left is a sidebar with navigation links: Follow Up, **Booking** (highlighted in orange), Schedule, Purpose, Users, Vehicle, Ferry Guideline, Announcement, Route, and Service Provider. The main area has a title 'MANAGE BOOKING' and a 'SELECTED DATE' dropdown set to '21 Aug 2020'. Below it is a calendar for August 2020, with the 21st highlighted. To the right of the calendar is a 'Hide Advanced Filters' button, followed by a detailed booking search form with fields for Booking Code, Booked by (Username), Service Provider Type (Passenger, RPL), Booking Type (Ad-Hoc, OOS), Routes (SFT-TFT, LR-MR, TFT-SFT, MR-LR), and Status (Approved, Cancelled). The main content area displays four booking entries for 21 Aug 2020:

- HV2U8E - 21 Aug 2020, 1:30 am**: Booked By ADMIN - redleopard, Booking Type Ad-Hoc, Route SFT-TFT, Status Approved, Purpose GP. Buttons for More Details, Approve, and Cancel.
- MF2A9U - 21 Aug 2020, 10:00 am**: Booked By bluetfrog, Booking Type Ad-Hoc, Route SFT-TFT, Status Cancelled, Purpose DF. Buttons for More Details, Approve, and Cancel.
- FXDG62 - 21 Aug 2020, 10:30 am**: Booked By blackpanther, Booking Type OOS, Route LR-MR, Status Approved, Purpose NRU. Buttons for More Details, Approve, and Cancel.
- OQRV4V - 21 Aug 2020, 10:40 am**: Booked By bluetfrog, Booking Type Ad-Hoc, Route LR-MR, Status Approved, Purpose DE. Buttons for More Details, Approve, and Cancel.

The Booking page will show bookings for today by default.

Extra details such as feedback and notices will be hidden in the more details.

This screenshot shows the 'Manage Bookings' interface with a selected date range from '22 Aug 2020 - 25 Aug 2020'. The calendar highlights the dates 21, 22, 23, 24, and 25. The booking search form is identical to the previous screenshot. The main content area displays five booking entries for the selected range:

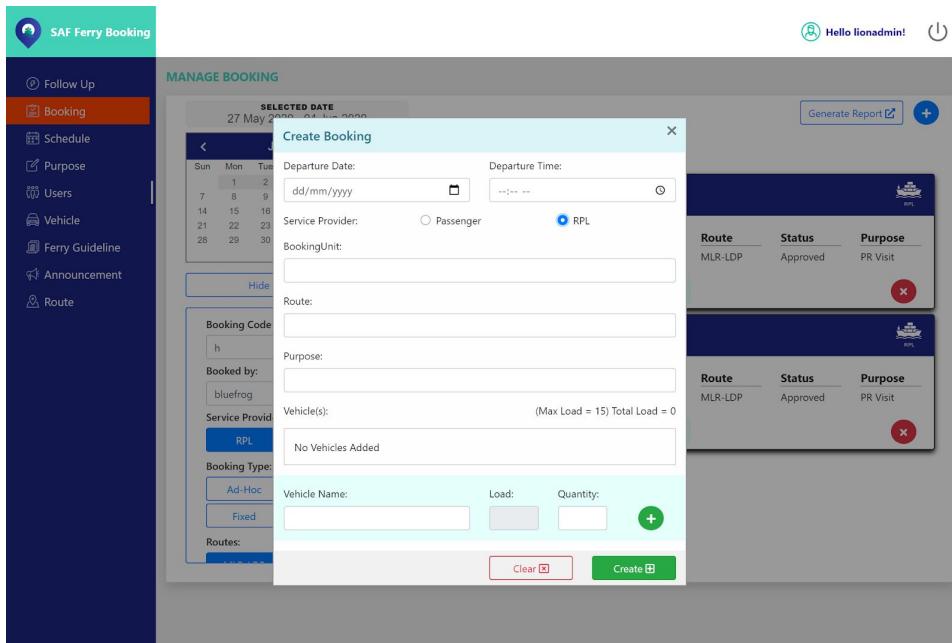
- BIUQDP - 25 Aug 2020, 1:58 am**: Booked By ADMIN - bluetfrog, Booking Type Ad-Hoc, Route TFT-SFT, Status Approved, Purpose Others. Buttons for More Details, Approve, and Cancel.
- Z93RWY - 25 Aug 2020, 8:00 am**: Booked By blackpanther, Booking Type Ad-Hoc, Route LR-MR, Status Approved, Purpose NRU. Buttons for More Details, Approve, and Cancel.
- N85UJS - 25 Aug 2020, 8:59 am**: Booked By ADMIN - bluetfrog, Booking Type OOS, Route TFT-SFT, Status Approved, Purpose Others. Buttons for More Details, Approve, and Cancel.
- XW25BN - 25 Aug 2020, 9:06 am**: Booked By ADMIN - bluetfrog, Booking Type OOS, Route TFT-SFT, Status Approved, Purpose GP. Buttons for More Details, Approve, and Cancel.

Users will be able to use the calendar to select a range of dates by clicking two dates on the calendar. Approving/Canceling/Editing bookings are available for bookings that are 1 day in advance.

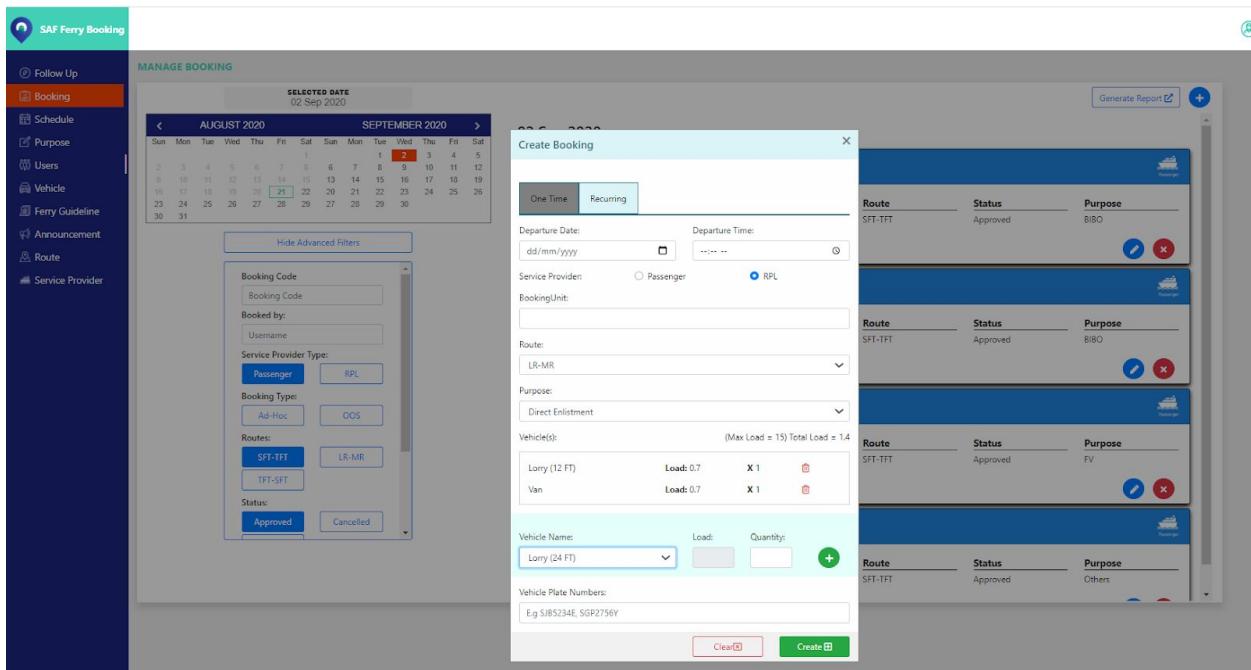
Users are able to filter their bookings based on service type, booking type, routes, purpose and status. They can also search the booking code and username of the booker.

## Create Booking

Booking Unit, Route and purpose is a dropdown list that is retrieved from the database. Departure Date and Time is validated on both the frontend (*in case someone deletes the min/max from the input through developers tools*) and backend to check if time is in between 6AM and 11PM and if date is 2 days in advance.



If RPL booking is created, they will be able to add vehicles.



The vehicle name is also a dropdownlist and it will be added to the list of vehicles if the load does not exceed 15 tons. Users can remove the vehicles from the list.

The screenshot shows the 'Create Booking' dialog box overlaid on the main 'Manage Booking' screen. The dialog box has tabs for 'One Time' and 'Recurring'. The 'Recurring' tab is selected. Fields include 'Start Date' (dd/mm/yyyy), 'End Date' (dd/mm/yyyy), 'Departure Time' (dropdown menu), 'Service Provider' (radio buttons for Passenger or RPL), 'Booking Unit' (text input), 'Route' (dropdown menu set to SFT-TFT), 'Purpose' (dropdown menu set to Recruits Book in/out), 'Number of Passengers' (text input), and a 'Repeat' section with days of the week checkboxes. A 'Create' button is at the bottom right.

Admins can also book recurring bookings, these bookings can apply to both RPL and Passenger bookings. Admins have to select the start date and end date for the recurring booking and select which days the bookings should be repeated within the start and end date. Once created, a unique booking group will be assigned to this specific group of bookings.

## Edit Booking

The screenshot shows the 'Edit Booking' dialog box overlaid on the main 'Manage Booking' screen. The dialog box displays booking details: Booking Code (D9UQWF), Departure Date (2020-09-02), Departure Time (12:30 am), Service Provider Type (P), Service Provider Name (ENG-HUP SHIPPING), Route (SFT-TFT), Booking Type (Ad-Hoc), Status (Approved), Purpose (BIBO), and Number of Passengers (50). It also includes an 'Apply these changes to:' section with radio buttons for 'This booking Only' and 'This and future bookings'. A 'Clear' button and an 'Update' button are at the bottom. Below the dialog box is a summary table for booking R80GY4 on 02 Sep 2020 at 4:10 pm, showing Booked By (ADMIN - blackpanther), Booking Type (OOS), Route (SFT-TFT), Status (Approved), and Purpose (Others).

When admins edit passenger bookings, they are only allowed to edit the purpose and number of passengers. Being a drop down list, you can only select a few fixed options for the purpose field. Number of passengers is a number only field. However, you cannot enter numbers above 200 and below 1.

The screenshot shows the SAF Ferry Booking application. On the left is a sidebar with navigation links: Follow Up, Booking (highlighted in orange), Schedule, Purpose, Users, Vehicle, Ferry Guideline, Announcement, Route, and Service Provider. The main area is titled "MANAGE BOOKING" and shows a calendar for August and September 2020. A "SELECTED DATE" dropdown is set to "02 Sep 2020". To the right of the calendar is a "Edit Booking" modal window. The modal contains the following fields:

- Booking Code:** MSX020
- Departure Date:** 2020-09-02
- Departure Time:** 10:40 am
- Service Provider Type:** RPL
- Service Provider Name:** TIAN-SAN SHIPPING
- Route:** LR-MR
- Booking Type:** Ad-Hoc
- Status:** Approved
- Purpose:** Direct Enlistment
- Vehicle(s):** (Max Load = 15) Total Load = 2  
Bus (40 seater) Load: 2 X 1
- Vehicle Name:** (dropdown menu)
- Vehicle Plate Numbers:** Eg S1B5234E, SGP2756Y
- Apply these changes to:**
  - This booking Only
  - This and future bookings

At the bottom of the modal are "Clear" and "Update" buttons. In the background, there are four rows of booking status cards. Each card has columns for Route (LR-MR), Status (Approved), and Purpose (NRU, DE). There are edit and delete icons next to each card.

Likewise for RPL bookings, admins can edit the purpose field which is also a drop down list. There are no passengers in a RPL booking, this is replaced by vehicles. Admins can edit the vehicles chosen for the RPL bookings as well as the vehicle number plates which is a text box.

Apply these changes to:

- This booking Only
- This and future bookings

If a booking group is present, edited changes can be applied to either this booking or this and future bookings. If the admin selects this and future bookings, the edited changes will be applied to both this booking and all other bookings in the booking group that occur after this booking.

## Edit Booking

X

You have exceeded the capacity limit. The available capacity is 50

<b>Booking Code :</b>	W0E34D
<b>Departure Date :</b>	2020-08-29
<b>Departure Time :</b>	10:30 am
<b>Service Provider Type :</b>	P
<b>Service Provider Name :</b>	ENG-HUP SHIPPING
<b>Route :</b>	SFT-TFT
<b>Booking Type :</b>	Fixed
<b>Status :</b>	Approved
<b>Purpose:</b>	<input type="text" value="Direct Enlistment"/>
<b>Number of Passengers:</b>	<input type="text" value="199"/>

[Clear](#)

[Update](#)

If the booking being edited is a fixed booking, the admin will have to meet a capacity constraint and can only enter a range of numbers in the number of passengers field.

## Approve Bookings

The screenshot shows the 'Manage Booking' interface with a selected date of 22 Aug 2020. A modal dialog titled 'Approve Booking' is open, containing two radio button options: 'This booking Only' (selected) and 'This and future bookings'. Below the dialog are two booking entries:

- FBTIGH - 22 Aug 2020, 2:30 pm**: Booked By bluefrog, Booking Type Ad-Hoc, Route SFT-TFT, Status Pending, Purpose BIBO.
- GBRZMY - 22 Aug 2020, 7:06 pm**: Booked By bluefrog, Booking Type OOS, Route MR-LR, Status Pending, Purpose Others.

If a booking group is present, the admin will be able to choose if he wants to approve this booking only, or approve this and future bookings. This means the admin will be able to approve this booking and all the other future pending bookings that have the same booking group. If there is no booking group, once the admin clicks on the approve button, the booking will automatically be approved without showing the above pop up.

## Rejecting and Cancelling Bookings

The screenshot shows the 'Manage Booking' interface with a selected date of 22 Aug 2020. A modal dialog titled 'Reject Booking' is open, with a text input field for 'Rejection Reason' and a character count indicator 'Characters Left 250'. Below the dialog are two booking entries:

- FBTIGH - 22 Aug 2020, 2:30 pm**: Booked By bluefrog, Booking Type OOS, Route SFT-TFT, Status Pending, Purpose BIBO.
- GBRZMY - 22 Aug 2020, 7:06 pm**: Booked By bluefrog, Booking Type OOS, Route MR-LR, Status Pending, Purpose Others.

Likewise for rejection and cancellation of bookings, if a booking group is present, the admin is able to choose if he/she wants to reject/cancel this booking only or this and future bookings. However, the admin has to provide the reason for rejection/cancellation before submitting.

## Follow-up Page

This feature is to display the list of items to be follow-up which includes Booking with issues as well as booking marked as non-compliance.

Non Compliance		Reported with Issues														
Booking Code	T1	Booking Date	T1	Booking Time	T1	Booked By	T1	Direction	T1	Purpose	T1	Comments	T1	Status	T1	T1
DAPTYB		04 Aug 2020		4:50 pm		bluefrog		LR-MR		GP		Rowdy behaviour		Pending Review		
VUR4OP		03 Aug 2020		10:30 am		blackpanther		LR-MR		DE		keeps complaining about sky		Investigating		
RRRTS3		24 Jul 2020		4:10 pm		ADMIN - blackpanther		LR-MR		NRU		Worst unit ever		Investigating		
PU3VOQ		17 Jul 2020		9:00 am		blackpanther		LR-MR		NRU		bad		Investigating		
MZ0HUZ		07 Jul 2020		5:53 am		ADMIN - redleopard		SFT-TFT		GP		Not needed anymoreee		Investigating		
YZBQ2K		06 Jul 2020		7:52 am		ADMIN - bluefrog		LR-MR		NRU		test		Investigating		
AV42SE		19 Jun 2020		7:44 pm		ADMIN - blackpanther		LR-MR		PR Visit		Rowdy behaviour		Pending Review		

Showing 1 to 7 of 7 entries

Previous 1 Next

<https://master.d1kgeck25vhogn.amplifyapp.com/schedule>

In this page, the administrator can search and toggle between the Booking with non-compliance or Booking Issues.

## Update Follow-Up actions on the booking issue page

1. The user would need to click on the magnifying glass on the right side of the table. A modal pop-up with the details of the booking will be displayed.
2. The user will key in the Findings in text, select status dropdown list or check the "Deduct Booking Unit Performance Rating" if they want to deduct the performance rating.
3. Lastly, Click on update to update the data.

## Schedule Page

This feature is to display the list of schedule details which is sorted by date and time.

The screenshot shows the 'SAF Ferry Booking' application interface. On the left, a sidebar menu includes 'Follow Up', 'Booking', 'Schedule' (selected), 'Purpose', 'Users', 'Vehicle', 'Ferry Guideline', 'Announcement', 'Route', and 'Service Provider'. The main content area is titled 'MANAGE SCHEDULE' with a 'SELECTED DATE' of '2020-08-20'. A calendar for 'AUGUST 2020' and 'SEPTEMBER 2020' is displayed, showing the 20th of August selected. Below the calendar are buttons for 'Clear Schedule', 'Block Schedule', and 'View Schedule Template'. The interface is divided into sections for 'SFT-TFT' and 'TFT-SFT' schedules, each listing specific times in boxes. At the top right, there is a greeting 'Hello lionadmin!' and a power button icon.

In this page, the administrator can toggle between the Passenger or RPL Schedules.

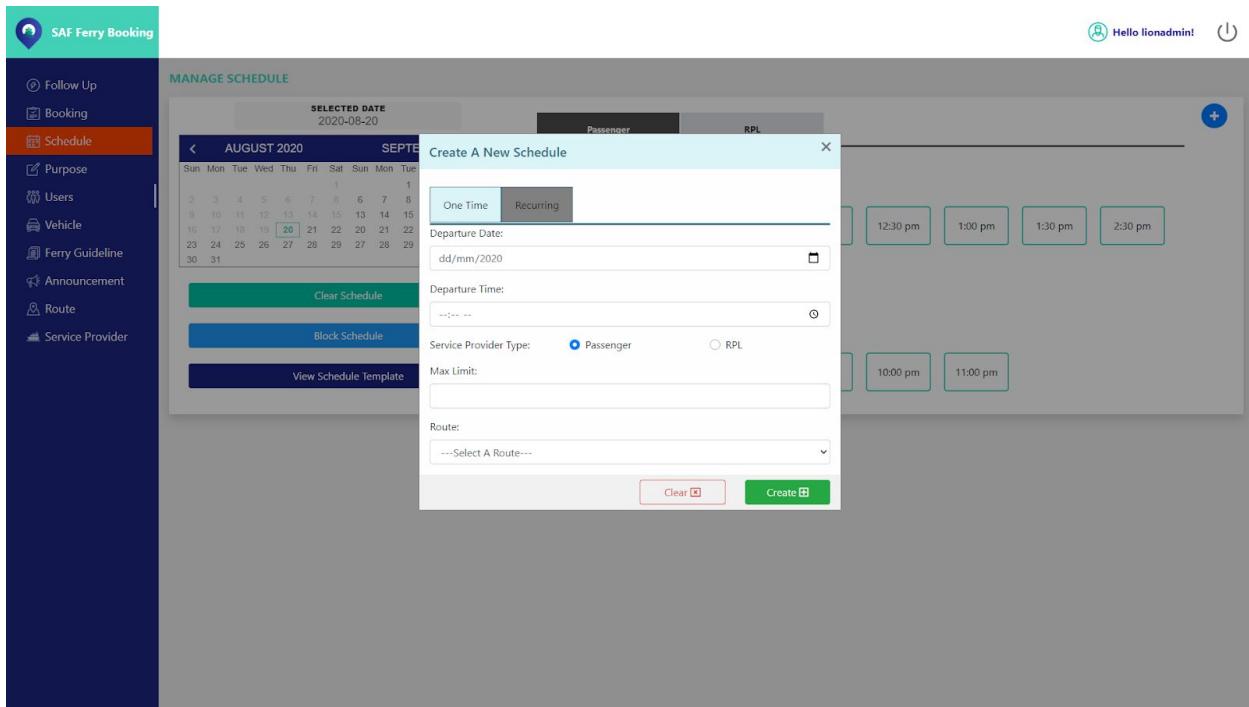
## Viewing Schedule details

1. The user would have to choose the departure date by clicking on a date on the calendar, then click on the time of the schedule that they wish to view.
2. If the Schedule is prior to the current date, the schedule details will be shown.
3. If the schedule is after the current date, an edit modal will be shown instead and users will be able to edit the data if needed.

## Editing Schedule Details

1. The user would have to click on the time of the schedule that they want to edit.
2. The user also has to ensure that the schedule that they want to edit is after the current date.
3. The user will modify the data as needed.
4. Lastly, click on update to update the data.

## Adding a new Schedule (One-Time)



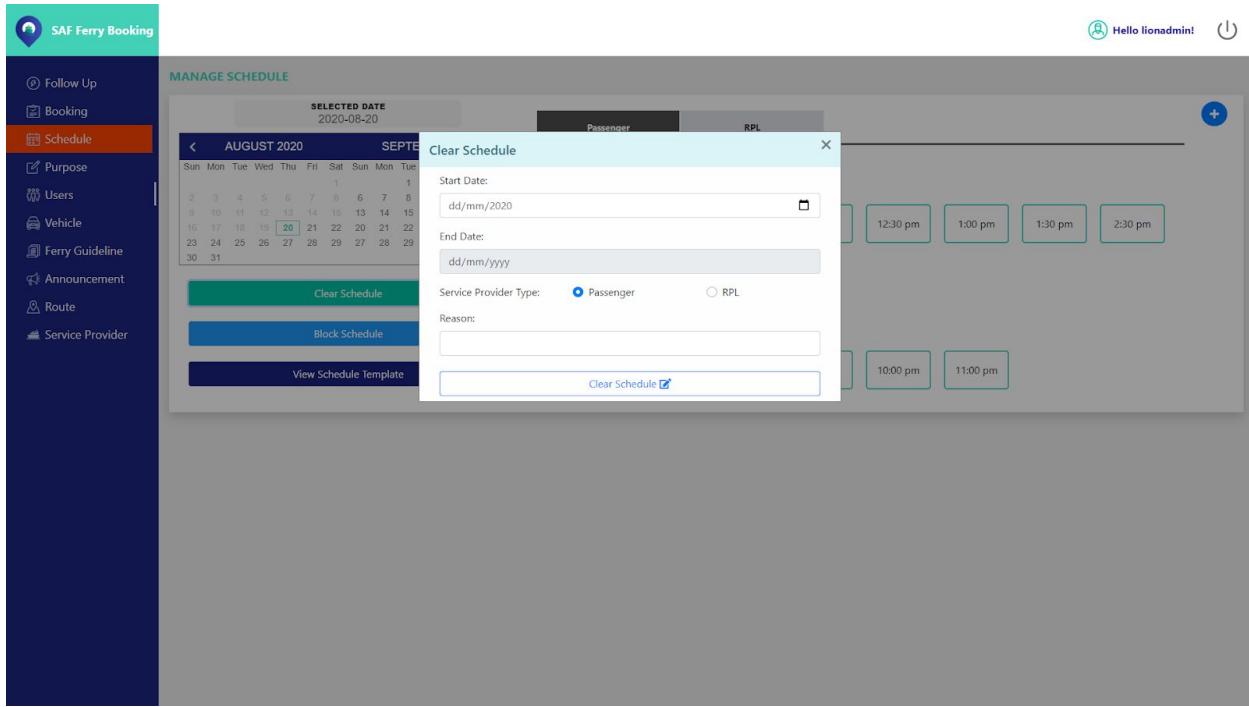
1. Click on the add button on the top right corner.
2. Fill in the schedule details
3. Click on create to create a new Schedule.

## Adding a new Schedule (Recurring)

The screenshot shows the 'SAF Ferry Booking' application. On the left, there's a sidebar with various menu items: Follow Up, Booking, Schedule (which is selected), Purpose, User, Vehicle, Ferry Guideline, Announcement, Route, and Service Provider. The main area is titled 'MANAGE SCHEDULE' with a 'SELECTED DATE' of '2020-08-20'. It displays a calendar for August 2020, with the 20th highlighted. Below the calendar, there are tabs for 'Passenger' and 'RPL'. A modal window titled 'Create A New Schedule' is open. Inside the modal, there are two tabs: 'One Time' (selected) and 'Recurring'. The 'Start Date' field contains 'dd/mm/yyyy'. The 'End Date' field is empty. The 'Departure Time' field has a dropdown menu showing options like 12:00 pm, 1:00 pm, 1:30 pm, and 2:30 pm. Under 'Service Provider Type', 'Passenger' is selected. There's a 'Max Limit' input field, a 'Route' dropdown set to '--Select A Route--', and a 'Repeat' section with checkboxes for days of the week. At the bottom of the modal are 'Clear' and 'Create' buttons.

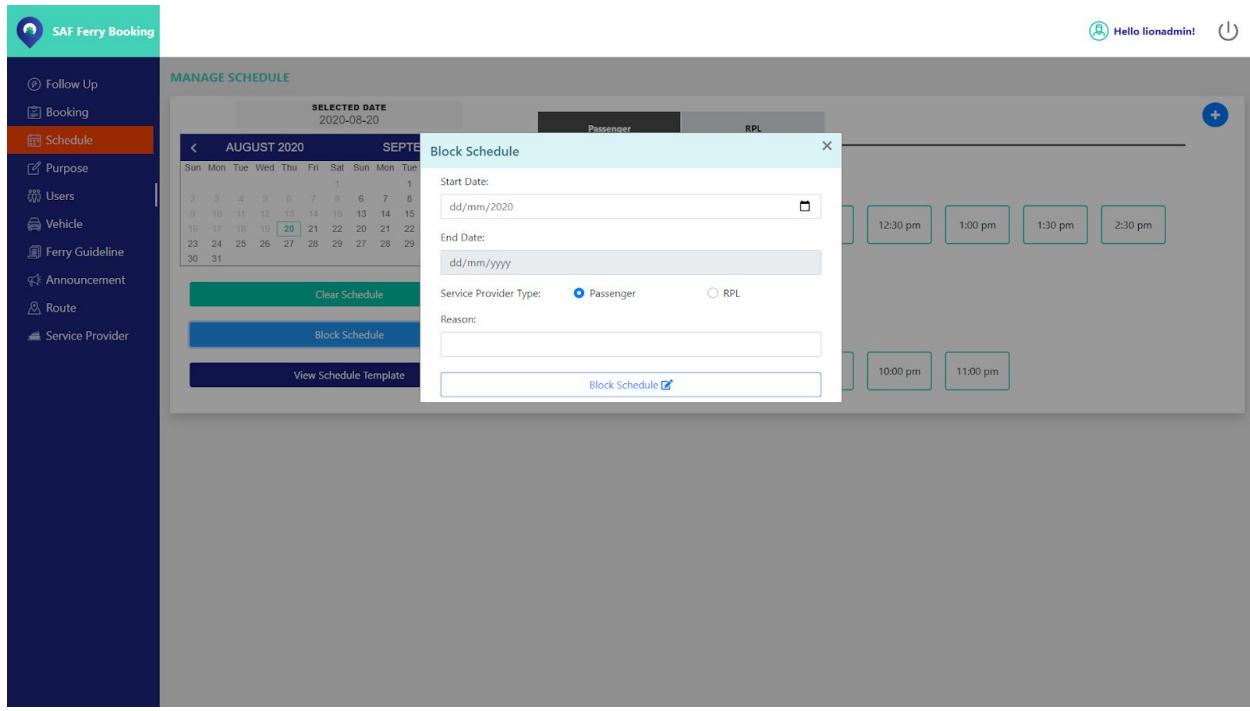
1. Click on the add button on the top right corner
2. Click on the recurring tab
3. Fill in the schedule details
4. Click create to create a new schedule.

## Clear Schedule



1. Click on the clear schedule button on the left.
2. Fill in the Start Date, End date, Reason and select a service provider type.
3. Click on Clear and a confirmation prompt will pop up.
4. Type "clear" in the textbox and click Clear schedule.
5. Schedule within the selected dates and service provider type will be deleted.

## Block Schedule



1. Click on the block schedule button on the left.
2. Fill in the Start Date, End date, Reason and select a service provider type.
3. Click block schedule.
4. Schedule within the selected dates and service provider type will be set to inactive.

## Schedule Template Page

This feature is to display the list of schedule templates which are sorted by route.

The screenshot shows the 'Manage Schedule Template' interface. On the left is a sidebar with various navigation links: Follow Up, Booking, Schedule, Purpose, Users, Vehicle, Ferry Guideline, Announcement, Route, and Service Provider. The main content area is titled 'MANAGE SCHEDULE TEMPLATE' and contains two tabs: 'Passenger' (selected) and 'RPL'. Below the tabs is a section titled 'SFT-TFT' with a pencil icon. The main content area displays a grid of time slots for each day of the week. The days listed are Mon, Tue, Wed, Thu, Fri, Sat, and Sun. Each day has a corresponding grid of time slots. The time slots are: 8:30 am, 9:30 am, 10:30 am, 11:30 am, 12:30 pm, 1:00 pm, 1:30 pm, 2:30 pm, 3:30 pm, 4:30 pm, 7:30 pm, 8:30 pm, 9:30 pm, 10:30 pm, 11:30 pm. The 'Passenger' tab has a blue background, while the 'RPL' tab is white. A blue '+' button is located in the top right corner of the main content area.

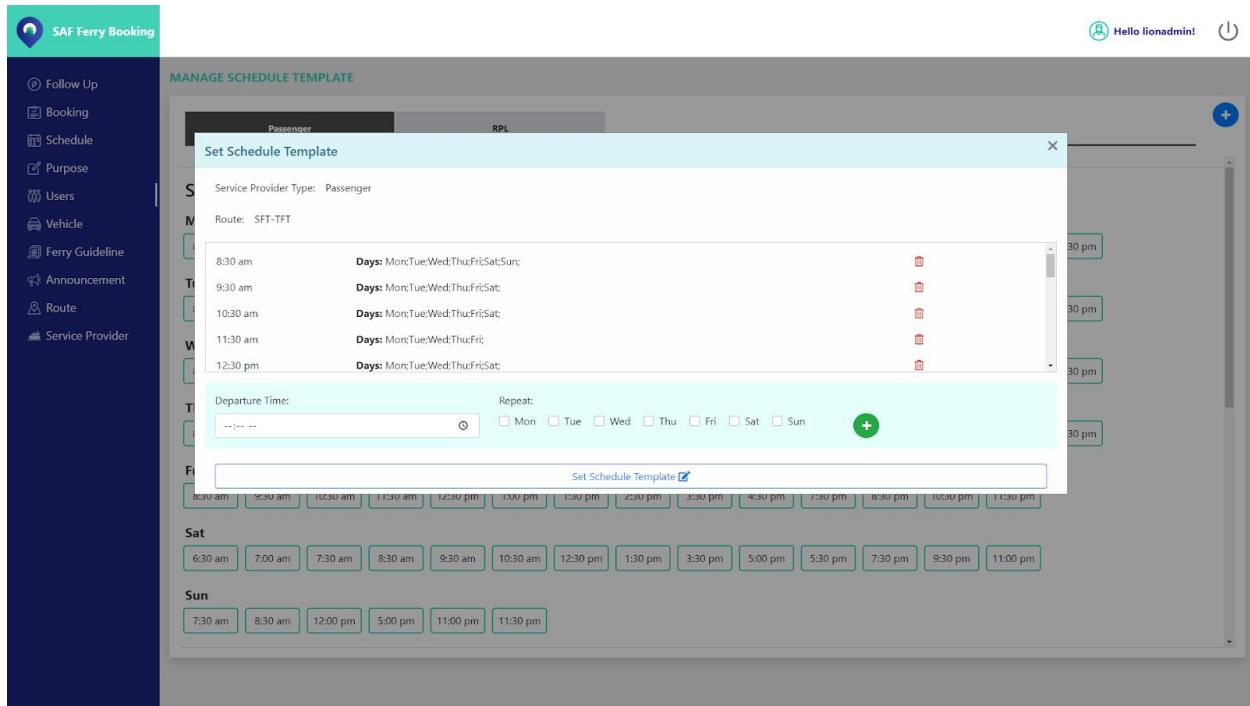
In this page, the administrator can toggle between the Passenger or RPL Schedule templates.

## Adding a new Schedule Template

The screenshot shows the 'SAF Ferry Booking' application interface. On the left is a sidebar with various menu items: Follow Up, Booking, Schedule, Purpose, Users, Vehicle, Ferry Guideline, Announcement, Route, and Service Provider. The 'Schedule' item is selected. At the top right, there is a user greeting 'Hello lionadmin!' and a power button icon. The main area is titled 'MANAGE SCHEDULE TEMPLATE'. A modal window titled 'Set Schedule Template' is open. It has tabs for 'Passenger' and 'RPL', with 'Passenger' selected. Under 'Service Provider Type:', there are radio buttons for 'Passenger' (selected) and 'RPL'. A dropdown menu labeled 'Route:' contains the placeholder '---Select A Route---'. Below this is a section 'No Schedule Added'. The 'Departure Time:' field shows '8:30 am' and a 'Repeat:' section with checkboxes for Monday through Sunday. A green '+' button is located next to the repeat checkboxes. A 'Set Schedule Template' button is at the bottom of the modal. The background shows a grid of time slots from 8:30 am to 11:30 pm for each day of the week.

1. Click on the + button on the top right corner.
2. Select Service Provider Type and route.
3. Enter departure time and repeat days and click on the + button.
4. Add more departure time if necessary
5. Click Set Schedule Template to create a new schedule template.

## Update Schedule Template



1. Click on the pencil icon beside the route name.
2. Click to the red bin button to delete a departure time.
3. Enter departure time and repeat days and click on the + button to add departure time.
4. Click Set schedule template to update schedule template.

## Purpose Page

This feature is to display the list of reasons for booking.

All	Passenger	RPL						
Purpose (Short)	Description	Service Provider Type	Status	Updated By	Updated Date			
DF	Daily Ferry Service	Passenger	Active	lionadmin	21 Jul 2020, 4:42 pm			
FV	Family Visit	Passenger	Active	tempaccount	27 May 2020, 12:26 pm			
GP	Graduation Parade	RPL	Active	system	02 Apr 2020, 4:08 pm			
NRU	MINDEF/SAF Units residing on mainland Singapore	RPL	Active	system	02 Apr 2020, 4:08 pm			
Others	Others	RPL	Active	system	02 Apr 2020, 4:08 pm			
PR Visit	Singapore Permanent Resident Visit	RPL	Active	system	02 Apr 2020, 4:08 pm			
DE	Direct Enlistment	RPL	Active	system	02 Apr 2020, 4:06 pm			
Others	Others	Passenger	Active	system	27 Mar 2020, 1:49 pm			
GP	Graduation Parade	Passenger	Active	system	17 Mar 2020, 4:12 pm			
NRU	MINDEF/SAF Units residing on mainland Singapore	Passenger	Active	system	17 Mar 2020, 4:12 pm			

In this page, the administrator can search and toggle between all, passenger and RPL purposes.

## Updating Purpose

1. The user will click on the edit icon on the right of the table.
2. The user will modify the purpose details as needed
3. Lastly, click on update to update data.

## Adding a new Purpose

1. The user will click on the add icon on the top right corner.
2. The user will key in the purpose details.
3. Lastly, click create to add a new purpose.

## Vehicle Page

This feature shows a list of all vehicles.

Name	Load	Status	Updated By	Updated Date
Bus (40 seater)	2	Active	tempaccount	27 May 2020, 11:31 am
Van	0.7	Active	system	05 May 2020, 10:15 am
Lorry (12 FT)	0.7	Active	system	30 Apr 2020, 9:56 am
Lorry (24 FT)	1.3	Active	system	30 Apr 2020, 9:56 am
Lorry (30 FT)	2	Active	system	30 Apr 2020, 9:56 am

In this page, the administrator is able to search for vehicles within the list.

## Updating Vehicle

1. The user will click on the edit icon on the right side of the table.
2. The user will modify the vehicle details as needed.
3. Lastly, Click update to update vehicle data.

## Adding a new Vehicle

1. The user will click on the add button on the top right corner.
2. The user will key in the vehicle details on the modal pop-up.
3. Lastly, Click Create to add a new vehicle.

## Route Page

This features shows a list of all the routes which includes Passenger Routes and RPL Routes.

The screenshot shows the 'MANAGE ROUTE' section of the SAF Ferry Booking application. On the left, there is a sidebar with various navigation links: Follow Up, Booking, Schedule, Purpose, Users, Vehicle, Ferry Guideline, Announcement, **Route** (which is highlighted in orange), and Service Provider. At the top right, there is a 'Hello lionadmin!' message and a power button icon. The main area has a search bar labeled 'Search Route' and a blue '+' button. Below the search bar is a table header with three tabs: 'All', 'Passenger', and 'RPL'. The 'All' tab is selected. The table body contains four rows of route data:

Route Name	From	Destination	Service Provider Type	Status	Updated By	Updated Date	Action
SFT-TFT	SAF Ferry Terminal	Tekong Ferry Terminal	Passenger	Active	lionadmin	06 Aug 2020, 11:46 am	
LR-MR	Ladang Ramp	Mainland Ramp	RPL	Active	tempaccount	12 Jun 2020, 11:15 am	
MR-LR	Mainland Ramp	Ladeng Ramp	RPL	Active	tempaccount	12 Jun 2020, 11:15 am	
TFT-SFT	Tekong Ferry Terminal	SAF Ferry Terminal	Passenger	Active	system	30 Apr 2020, 10:39 am	

At the bottom of the table, it says 'Showing 1 to 4 of 4 entries'. There are 'Previous' and 'Next' buttons at the bottom right.

In this page, the administrator can search and toggle between all routes, Passenger routes and RPL routes.

## Updating Route

1. The user will click on the edit icon on the right side of the table
2. The user will modify the Route details as needed.
3. Lastly, click update to update Route Data.

## Adding a new Route

1. The user will click on the add icon on the top right corner.
2. The user will key in the route details.
3. Lastly, click Create to add a new route.

## Service Provider Page

This features shows a list of all the service provider which includes Passenger and RPL.

The screenshot shows a web-based application interface titled "SAF Ferry Booking". The main content area is titled "MANAGE SERVICE PROVIDER" and contains a table with three entries. The table has columns: Name, Start Date, End Date, Service Provider Type, Updated By, and Updated Date. The first entry is "ABC SHIPPING" (RPL), the second is "ENG-HUP SHIPPING" (Passenger), and the third is "TIAN-SAN SHIPPING" (RPL). The sidebar on the left lists various navigation items, and the "Service Provider" item is highlighted with an orange background.

All	Passenger	RPL			
Name	Start Date	End Date	Service Provider Type	Updated By	Updated Date
ABC SHIPPING	01 Jan 2021	01 Dec 2021	RPL	lionadmin	11 Aug 2020, 4:17 pm
ENG-HUP SHIPPING	01 Jan 2020	31 Dec 2025	Passenger	system	01 Jan 2020, 12:00 pm
TIAN-SAN SHIPPING	01 Jan 2020	31 Dec 2025	RPL	system	01 Jan 2020, 12:00 pm

In this page, the administrator can search and toggle between all service providers, Passenger service providers and RPL service providers.

## Updating Service Provider

4. The user will click on the edit icon on the right side of the table
5. The user will modify the Service Provider details as needed.
6. Lastly, click update to update Service Provider Data.

## Adding a new Service Provider

4. The user will click on the add icon on the top right corner.
5. The user will key in the Service Provider details.
6. Lastly, click Create to add a new Service Provider.



# Tacit Knowledge

## GET Started with React

- Install Visual Studio Code from <https://code.visualstudio.com/>
- Download Node Js from <https://nodejs.org>
- Open command prompt and type npm -v
- If version number is shown, node JS is installed
- Download Git from <https://git-scm.com/downloads>

## How to run the project after downloading from Github

- npm install
- npm run start

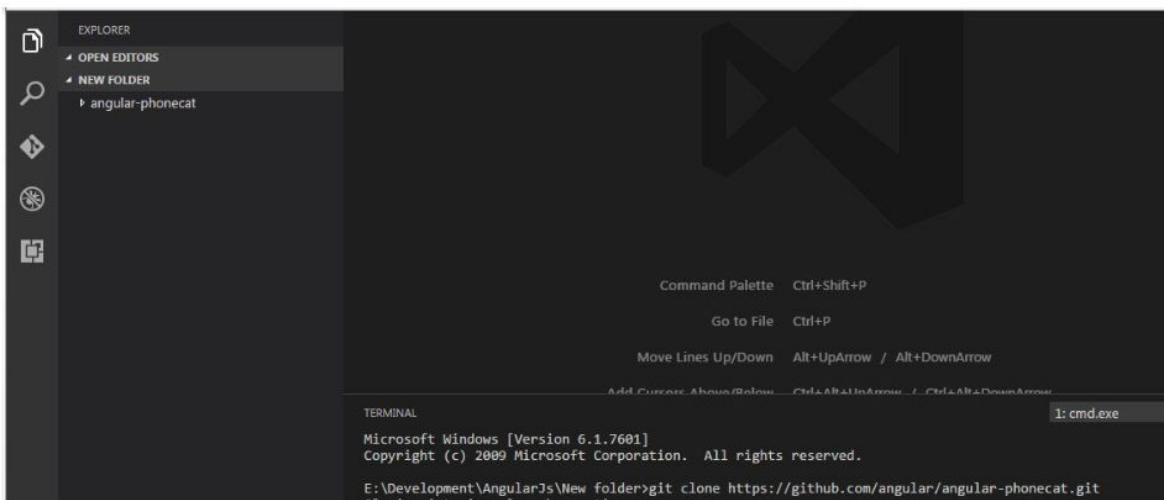
## How to use github in visual studio code

1. Open Visual Studio Code *terminal* ( + )

2. Write the Git clone command. For example,

```
git clone https://github.com/angular/angular-phonecat.git
```

3. Open the folder you have just cloned (menu *File* → *Open Folder*)



[https://drive.google.com/file/d/1bHF8RqYzrfE44\\_jrClr0-bPut\\_5KIMD3/view?usp=sharing](https://drive.google.com/file/d/1bHF8RqYzrfE44_jrClr0-bPut_5KIMD3/view?usp=sharing)



In the above vid, if you have made any changes to a file, you will be able to see it in the tab. You can stage all the changes by clicking the plus or stages just the files that you want to send to github. Once you are done staging, you can commit it by clicking the tick and type a message. After committing, you need to click the refresh icon (near the bottom left) to sync. Then you can check your edited files in github

## Cognito User Pools

Log in to <https://console.aws.amazon.com/console> with the account given by Ms Ng

Search for Cognito and click manage user pools. Then click on lionUserPool

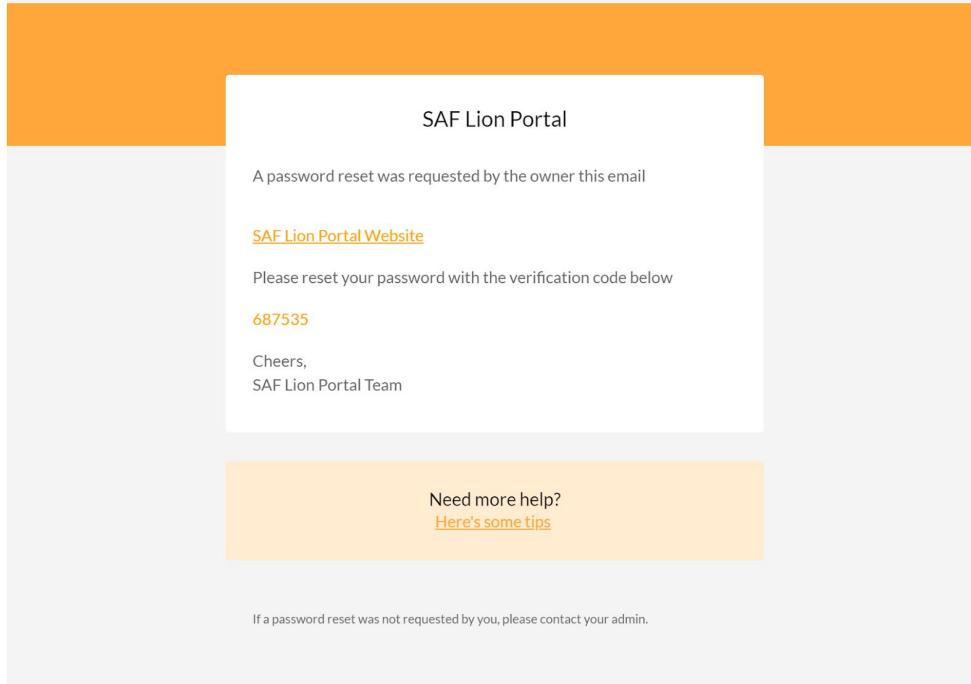
*Users and groups* will allow you to view all users

*Attributes* will allow you to add new attributes

*Policies* would allow you to set password strength, and temp password expiry.



## Email Customization



Use <https://stroipo.email/> to create email template

Export it as AMPHTML and put it in *Cognito > Manage User Pool > LionUserPool > Message Customization*

### Do you want to customize your email verification messages?

You can choose to send a code or a clickable link and customize the message to verify email addresses. [Learn more about email verification](#).

Verification type  
 Code    Link

Email subject

SAF Lion Portal verification code

Email message

```
<tr>
<td class="es-p20t es-p30r es-p30l es-m-txt-l" align="left"><p>Please reset your password with the verification code below</p></td>
</tr>
<tr>
<td class="es-p20t es-p30r es-p30l es-m-txt-l" align="left"><p style="color: orange;">(####)</p></td>
</tr>
<tr>
<td class="es-p20t es-p40b es-p30r es-p30l es-m-txt-l" align="left"><p>Cheers,</p><p>SAF Lion Portal Team</p></td>
</tr>
</table></td>
```

You can customize the message above and include HTML tags, but it must include the "(####)" placeholder, which will be replaced with the code.

### Do you want to customize your user invitation messages?

SMS message

Your username is {username} and temporary password is (####).

You can customize the message above and include HTML tags, but it must include the "{username}" and "(####)" placeholder, which will be replaced with the username and temporary password respectively.

Email subject

SAF Lion Portal temporary password

Email message

```
<tr>
<td class="es-p20t es-p30r es-p30l es-m-txt-l" align="left"><p>Please login with your email and the temporary password below</p></td>
</tr>
<tr>
<td class="es-p20t es-p30r es-p30l es-m-txt-l" align="left"><p style="color: orange;">(####)</p></td>
</tr>
<tr>
<td class="es-p20t es-p30r es-p30l es-m-txt-l" align="left"><p>The temporary password only lasts for 7 days</p></td>
</tr>
</table></td>
```

You can customize the message above and include HTML tags, but it must include the "{username}" and "(####)" placeholder, which will be replaced with the username and temporary password respectively.

## How to use Postman

The screenshot shows the Postman application interface. On the left, there's a sidebar with a 'History' section showing several API requests made on May 22, 19, and 15. The main panel shows a 'DELETE' request to the URL `https://9szv1s3oz6.execute-api.ap-southeast-1.amazonaws.com/LionDev/announcement/delete`. The 'Body' tab is selected, and the request body is set to `JSON (application/json)` with the following content:

```
1: {
2:   "body": "{\"announcementId\": 7}"
3: }
```

A blue oval highlights the request body content, and a red oval highlights the URL field.

Follow API gateway documentation and put the request boy body in the blue section and the url in the red section. Once you send, you will be able to see a response.

## **How to use Cypress**

Refer to document "Instructions to set up Amplify with Cypress"

## **Unfinished Features**

### **User Management**

- Encrypting the user data that is stored in session storage / storing data using HttpOnly chocolate Cookies

## Reflection

### Bryan

Now that I have reached the end of my final year project, I feel a sense of relief and joy as I was able to fully complete my task despite having doubts. This is because when I was given the opportunity to take part in the Cloud Computing World Skills Singapore Qualifying round, I was not able to qualify for the national round due to my lack of knowledge and experience.

In the first few weeks of my FYP. I have learned a tremendous amount through research. For example Cognito User Pool, Lambda, and API gateway. With this, research went relatively smooth for me. However, I've started facing challenges when I started executing the technical side of the project. Some challenges like creating lambda functions in node js to meet client requirements because I only create them in python so far. After putting in an extensive amount of time into experimenting the various services, I was able to get the majority of my features to be working. After completing my main features, I realized that the doubts I had at the start of the project were minor setbacks. This allowed me to push further for the last few weeks of my project.

Other than the cloud computing technologies, I was tasked to do front-end web development in react js. Unlike cloud computing, I am confident in my web development abilities. This is largely due two 2 years of experience in web development in NYP. This allowed me to finish up my web development to give suggestions and get feedback from our designer to improve our UI.

All in all FYP has been a fruitful learning journey that helped me learn some soft skills such as the daily SCRUM and formal skype calls.

### **Cherlin - First 12 weeks**

Throughout this FYPJ Journey, I have had a valuable experience and I have learned a lot of things. Firstly, I have learnt to manage my time and plan the things to do for the day. At the start of FYP, I could not focus on my work, I was unable to focus on one task as I would be distracted by another task that I had on hand and it would result in both tasks being left incomplete. However, ever since the daily update was required from me, I find myself able to focus on the task that is required for the day and it has helped me improve my productivity and I was able to complete my work faster.

I have also learnt to break down the tasks into sections. Breaking down my task into small sections makes the task look less daunting and more manageable to complete, which gives me more motivation and allows me to complete the task faster as the task looks easier compared to viewing the task as a whole.

Lastly, I have learnt a lot of technical skills as React JS was new to me. I was nervous when I learnt that Javascript was heavily involved in React JS as Javascript was one of my weakest languages. However, thanks to the guidance of both my teammate and supervisor, I was able to understand the language more easily and I feel that it has helped me improve a lot in my Javascript coding skills.

Overall, This project has helped me improve myself and given me valuable experience. I realised that after the project, my work productivity has increased and I was able to keep myself from getting distracted when I am working on my project. Not only that, I was also able to learn new technical skills, such as debugging and troubleshooting as well as a new language.

## **Cherlin - Second 12 weeks**

In this FYP Journey, I have learnt and experienced many new things. As I am in this project from the very start, it was fascinating to see how the web portal is being developed from scratch. This project has given me a strong sense of achievement as I was able to design the website along with my teammates from a blank canvas. We had a shorter working time during the second half of this project due to the pandemic and this also shortened the time we have to complete each task which caused us to have to rush our tasks a little.

However, since we had to come to school more often during the 12 weeks, it gave me more opportunities to bond with my teammates since we have more chances to talk to each other, whether it be about the project or just casual talk, as compared to the first 12 weeks where I mostly worked from home. I was able to communicate better with my teammates and it also makes it easier for us to discuss the project when we need to. Even though working from home was convenient for me and it gave me more time to finish my tasks, it also messed with my work-life balance as I don't follow the FYP work timing when I'm at home and I tend to stop my work at a later time.

Overall, Throughout this 24 weeks of FYPJ, I was able to learn alot from both Ms Cally and my teammates. I've picked up many new skills and I feel more confident of my own ability now compared to the start of the project. I am very glad that I was able to work and be part of this team as it is really one of the best teams I've worked with.

## Khevind

In this FYP, I have learnt many things from soft skills to hard skills. Working on this project required a lot of perseverance and mental grit to get through debugging and self research. The first thing I learnt was the importance of communication with my teammates. Being able to communicate to my teammates efficiently allowed us to move things along fast and get things done at a very fast rate. It helped that we automatically became friends during the course of this FYPJ. If there were any errors or issues that we had to solve, we would immediately alert one another and get it solved on the spot. Hence, I felt this was something that we did very well. The second thing I learnt was time management. Previously, when I was doing my semestral projects I would not put much importance on time management. However, after this FYPJ, I realised how much more productive I can get if I worked on my time management.

Over the course of the 12 weeks, we were constantly accommodating user requested changes and bug fixes. It was very important that we could prioritize our tasks accordingly to the overall outcome of the project, this allowed us to get the major parts of the project done as fast as possible. I also gave myself a timeline to finish each task so I would not procrastinate and waste time on each task, this spurred me to be efficient with my tasks. The last thing I learnt was the importance of thorough testing. Because of thorough testing, I managed to find and fix multiple bugs. I realised 1 iteration of testing is not enough and getting help from another tester would do things differently which will promote the uprooting of new bugs. All in all, I feel this FYPJ was a very eye-opening and fruitful experience, it basically gave me a taste of being a software developer for 3 months and for that I am grateful. I learnt a tremendous amount of things which I hope I will be able to apply in the future.

## Daniel

Actually I'm really thankful to have this opportunity to be part of this FYP. This FYP isn't just a normal FYP where even if we didn't manage to do it, only our grades are at stake. This FYP was a client project for SAF, and I could really see the pressure put on our supervisors that this project has to succeed at all costs. So not only did I push myself just to get a good grade, I also did it because I knew my efforts weren't just for the sake of research, but it will actually be used in real life to solve the problems, and improve the lives of people.

Of course, like all my other friends, the start is always the hardest, where I wouldn't understand anything but I'm already expected to do my first function in my first official week in this project. But as soon as I got the hang of it, things got better and I managed to solve many errors and do up many new functions. There are times where I was stuck on an error for weeks, which was the implementation of HTTP only cookies, which eventually I still didn't manage to do. It was really demoralising because in such a fast paced project, you can't just be stuck at one function for a long time, there are many more bugs to fix ASAP, and the function also was expected to be finished in a week. But I really couldn't and eventually my teacher let me give up due to time constraints and many more features I had to implement. I was really frustrated because I hated giving up, I hated projects where I couldn't pull off a function due to my lack of knowledge, and HTTP only cookies are also widely used outside so I know somewhere in the future I will have to face it again. But nevertheless, I had to move on.

I feel that web development projects are very taxing on our morales, and our morales play a huge part in the progress of the project. I have seen myself start slacking for days when I really couldn't solve an error, I have seen my groupmates start slacking when they were stuck too. Being the "smartest" in the group, I often took the initiative to help them solve their errors and get them back on track as well. I was also glad to have a really nice team to work with. Especially Felix and Cherlin. Felix even though we didn't know each other, he really helped me a lot when I had to do functions that were dealing with the mobile side. When I requested something, he would gladly do it or get his teammates to do it. In this project, I actually see Ms Cally as my group leader instead of "teacher" because she is also part of the project. Usually for projects, I am always the group leader and I always had a hard time managing my group. But this time, being under the leadership of someone really experienced really helped me to learn a lot on how to become an efficient group leader. I also gained the perspective of how it feels to be a group member, and I now have a better understanding of how I should have led my team back then. I used to give them huge chunks of workload at once, then tell them to get it done in 2 weeks. But I realised they would be so confused on what to do, so maybe I should have broken it down, done my own personal planning of what needs to be done in the project, then release small functions for them to do bit by bit. Also, now that I know how to use Github, I'm confident next time I get to do a project on web development, I would be able to lead my team well.