

----- START OF SCENARIO -----

## Scenario: COVID Booking & Testing System

We are using the same scenario discussed in Assignment 1 with the main focus on the following **subsystems** that we expect you to work on for this assignment.

### 1. Login subsystem

You will be building a simple login system for the COVID Testing Registration System for individuals. The application you will be building will act as an intermediary between the web service, and the actual users of your app. To simplify the login process, the web service has been pre-populated with a list of the dummy user accounts. However, you can add your own users as well. Each user is associated with a username (string) and password (string) and if you want to add your accounts, you must use the string data type.

The web service has a login endpoint that you can use to verify if the provided credentials for a user are correct or not. The login endpoint is; `POST /user/login` and the expected request body (in JSON format) is:

```
{
  "userName": "string",
  "password": "string"
}
```

The default password for each pre-populated user account is the same as the username for that account. You can get a list of all user accounts which includes each account's username by calling the `GET /user` endpoint.

The web service's login endpoint can also optionally return an authentication token called a JSON Web Token (JWT). You might find this useful in implementing authentication (and authorisation) in your application, as the token stores/is encoded with details of the user it is issued for, as well as avoiding users of your system from needing to constantly use their password to verify themselves for each request (if the system temporarily stores the user's password to make it more convenient for the user, this would then be a potential security risk). To get an authentication token when logging a user in, call the same login endpoint, but with an additional query parameter `jwt` that has been set to `true`, like this: `POST /user/login?jwt=true`

When working with the token in your application, you will need to decode the token to obtain details about the user it was issued for. However, the process of decoding the token does not verify the integrity of the said token. Another web service endpoint is available to enable you to verify that a token is valid: `POST /user/verify-token`

More information about JWTs can be found here: <https://jwt.io/introduction>.

**NOTE\*\* There are four main roles of users accessing the system:**

1.) Customers who book for the test (Customers would not necessarily be the same person who eventually takes the test - the booking can be done on behalf of the patients);

2.) Administrators/receptionist who handles on-site booking;

3.) Administerer who conducts the actual test on the patient, this could be the same person as the patient themselves if they choose to do home testing;

4.) Patients who will be taking the test.

#### 1. Search for testing sites (the main user will be users/residents)

Before visiting a facility a user can view the list of testing sites in the vicinity. This can be done by searching for the testing facility by providing a suburb name, or the type of facility (such as Drive Through, Walk-in, Clinics, GPs or Hospitals) The user can also see what facilities provide on site booking and testing and what facilities are open or closed, as well as the waiting times.

#### 1. On-site Booking (the main user will be administrators/receptionists)

**NOTE\*\* - assuming that users/residents have reached the testing site**

Some testing facilities (not all) allow booking for tests on site. For on-site booking, it will be assisted/performed by the Administrators/receptionist. The user/resident will provide all the necessary information to start the booking process. Once the booking is done, a PIN code will be generated for each unique booking. Users/residents can then use this PIN to check the status of their booking, and for verification when they go for the actual COVID19 testing.

As a user/resident, the PIN that they received can be passed to the on-site facility staff to check the status of their booking (assuming that the resident does not have direct access to the online system).

#### 1. On-site Testing (the main user will be healthcare workers/administerer)

The healthcare workers/administerer will conduct a brief interview of the user and based on the answer, fill a form on the system and suggest the appropriate tests. For example, if the user has severe symptoms, they will be advised to have a PCR test (the type of covid test can be placed under the covid-test field of the "Booking" object [updated 23/4/2022]). In the case where the user has no symptoms or just wants to confirm if they are infected (in case of close contact), a RAT test will be advised.

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You can refer to the Appendix for more information about the JSON object returned by the endpoint (**HINT - Look at the "Booking" object**).

### 5. Home Booking Subsystem

As mentioned in Assignment 1, users can book home testing. A user has to register for the testing through the system first and indicate that they are registering for home testing. Once the booking is confirmed, the user will be given a QR code and a URL to connect for testing (The endpoint will not generate the URL or QR code for you. You can come out with reasonable ways to implement this feature. The QR code and URL can be placed under the additionalInfo field of "Booking" object). This QR code must be carried by a user to the testing centre for receiving the RAT kit, if the user chooses to receive kits from the site. If the user has already bought a kit from the market or already possesses it then they don't need to go to a testing facility to receive the kit - this must be indicated while registering for the test and the user doesn't have to carry or use the QR code. If the user receives a kit from the testing facility, then the facility will update the information about the system that user has been issued with the RAT kit after scanning the QR code and verifying the user identity (which means an interface for the facility staff can be developed to scan the QR code and update the system that the users have received the RAT kit from the facility). The system automatically emails and texts the URL to the user.

----- Second Iteration -----

## **Scenario: COVID Booking & Testing System V2**

You are applying the following extensions to the application designed and developed in assignment 2.

### **1. Booking Modifications (Residents and Admin staff)**

The residents can modify bookings made by them either through the system or by calling a Covid Hotline (of the respective testing facility). The resident can change their covid test booking through the system you are developing as well as through the phone. The admin staff at the onsite facility can also modify the residents' bookings - in this case, residents need to call the Covid Hotline and talk to the admin of the facility site where the resident has booked the test.

#### **1.1- On-site Booking (the main user will be residents)**

Using the covid booking system, the residents can log in and modify their bookings. Resident can choose to cancel their booking as well [updated 9/5/2022]. Residents can either check their current booking status through the 'profile', under current active bookings or search through the system by providing the booking ID. They can only make changes to bookings where they haven't performed the tests yet. They are allowed to change their booking venue and timing. The system will automatically capture the timestamp of the changes. If the residents would like to change their booking to a previous booking, they will be allowed to do so as long as the previous booking is dated at a future date [to simplify your implementation, you only need to store the past 3 changes]. Users can choose to modify the test venue (testing site) and/or the time/date.

#### **1.2 - Booking modification through phone calls (assisted by operator/receptionist)**

The residents will first provide the booking ID or the PIN code (for A3, you need to provide the function to check by PIN and bookingID) to the receptionist to verify the status of the booking (confirm that it is a valid booking where users haven't gotten tested yet). If the booking has lapsed and the users didn't get tested, it will be a lapsed booking and cannot be modified anymore. After verifying the resident's identity, the receptionist will assist the resident to modify their booking. Receptionist can choose to modify the test venue (testing site) and/or the time. Similarly, the timestamp of the changes will be recorded on the system by the receptionist and reflected on the Resident's profile. Request to revert back to the residents' previous booking can also be handled by the receptionist [to simplify your implementation, you only need to store the past 3 changes].

## 2. Admin Booking Interface

An admin (in this case, all the receptionist [added on 9/5/2022 for clarity purposes]) can view, delete, modify [updated on 16/5/2022, if you already implement the interface for healthcareworker prior to this, you can just remain as it is], all bookings made by residents. The admin panel (interface) shows all bookings that are cancelled and modified along with new bookings at the run time. The system will automatically notify all the admins working at the testing facilities of the updated booking (including cancellations) in real-time, as well as the other testing facilities if the change is relevant to that facility (e.g. resident call the Clayton testing site to change their test location to Caufield. Hence, receptionists at both testing facilities will receive the update).

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For example, John and Mary are receptionists working at the Clayton testing site. A new booking was handled by John through Covid Hotline and entered through the system. Being an admin working at the same facility, Mary will be notified about this new booking. The same happens for any modification, delete, of any booking.

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[Added on 12/5/2022 for clarity purposes]

Cancel = Cancel is for resident/receptionist to cancel a booking - where the patient decided to call it off. COVID tests which have already been performed (not pending) should not be deleted from the server, and a completed booking with a date that has passed should not be delete-able/cancellable.

Delete is that the record will be removed from the system. Bookings that are cancelled will still stay in the system, while those deleted will not. To DELETE a booking, you can just call the DELETE /booking/{id} endpoint from the server.

To demonstrate this feature in your demo, you can pre-populate some data (deleted, modified, etc.) beforehand.