

### USE CASE: MEDICAL REPORTING

#### Description:

The user of this app has taken a medical test which is positive. The positive medical confirmation must be submitted to the system with no action from any medical professional or app user.

#### Actors

The medical professionals (and testing system), health statistic dashboard, and the general public user of the system.

#### Pre-conditions

The user of the app has preregistered with the app, generating a unique ID. This individual has taken a test in any venue available: hospital, drive-through, mail-order testing services or doctor's surgeries. These venues must have valid login credentials for the national NHS user authentication system. Internet connection is available.

#### Post-conditions

The system would update this user from any level to red level. The system also flags the unique ID to notify other users' statuses based on their interactions with this user if they were around him for a prolonged period of time. All users within five hops of the infected user will receive a notification and get a new red status. They will be advised to take a test. The health statistic dashboard will be updated at longest within a day with this new infection data.

#### Main Scenario

1. The user has taken a test in any venue because they have symptoms of the COVID-19.
2. This venue, which is registered with NHS has performed this test and gets a positive result.
3. The medical system updates the track and trace system by changing the user's status to red. This is done automatically. A user can be identified by the medical professionals using their unique ID number.
4. This information is sent to the users' phone as well as the dashboard. It is recorded by the system. The user ID is mapped to the red status.
5. All users who have had proximity in the past three days with this user, based on their interactions, will receive a notification. The conditions for this notification are proximity, length of time of interaction, time since contact and hops from the initial infected user.
6. The notification is sent to these users' phones. This notifies them that they have been in contact and may be infected. They are advised to take a medical test and their status is changed to red.
7. This information is recorded by the system and communicated to the dashboard which updates the number of confirmed, as well as possible, COVID-19 cases.
8. Once the dashboard has been updated, all users in the area of the infection may be alerted that someone near them has contracted COVID-19. Since the system uses Bluetooth, any individual in the perimeter of this user could be notified that they are in presence of someone who is infected.
9. A map may be updated based on the density of population and the number of users in red or amber level. This allows people to plan their trips when going out for groceries and may discourage them to go outside if they live in a dangerous area.

#### Alternative Scenarios

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**1. The test is negative:** In this scenario, the user receives a negative confirmation. Since he is not infected, the system will acknowledge that he has taken a test by changing his level to green. If the user's status was amber, the dashboard updates the number of possible cases (decreases by one).

**2. There is no answer from the medical venue:** The medical staff is not able to change the users' status due to a prolonged absence of internet connection or issue in their internal system. In this case, there will be a timeout of 'waiting time' once the user has taken a test. When this time is reached, they will be notified and advised to contact the venue where they have taken the test.

**3. The user's status is inconsistent:** If there is an inconsistency between the status of the user in the system's memory storage and locally, on the user's phone, the most recent status will override the other one. For example, if the medical staff changes the user's status but this change does not go through, this most recent update will be detected by the track and trace system; eventually, the user will be updated. On the other hand, the user might change his own status by self-reporting. In this case, the main storage will be updated.