Our application is based on the key parameter which includes major symptoms, daily habits, medical history, age, location (indicating risk zone based on the number of co-vid19 cases) and travel. The region to include these factors are:

* Symptoms are first way to find-out whether someone is infected or not. But there are some cases too in which patients didn’t showed the symptoms. So, to track those cases we are tracking possible areas that a patient had travelled with 5 days before showing major symptoms.
* This virus primarily impact to those people whose immunity have already been compromised, so to track this possibility we will look after the patient’s medical history of major illness or any possible chronic diseases.
* Activities like smoking, drinking can possibly cause to weaken the immune system or lungs. Thus, these patients could be one of the targets of this virus so we have included habits in our parameter.
* This virus could be transmitted locally or internationally. So, to track those factors we have included location and travels made by the patients 5 days before showing major symptoms.
* The region to count 5 days travelled location is because, though the virus shows its symptoms in between 2-14 days, in large population these are replicated in 5 days’ time period.

Guardian App: This application is our proposed solution to handle the challenge. This app mainly collects personal and health-related data from patients and calculated the probability that they are currently infected with the coronavirus.

Step1: First the application will collect details like current symptoms, habits, age, and major visited public places in past 5 days from the patient. After completing the form as the patient submits the query form it leads to few steps that runs on background.

Step2: Based on the details provided our application will access medical history of patient and request for major illness or current health status of the patient.

Step3: As all the data we collected are nominal. We process those data and grade each key parameter with numerical value considering each key parameter as factor that shows the possibility of infection. The numerical value will range in one of the class from 0-10 for minor to major symptoms, 0-10 for medical history and current health status, 0-5 for habits that can weakens the immunity, 0-10 for living area considering possible local transfers (will access current infected count based on suburb or postal code from government collected data) and 0-5 for the age group. After this we will pass this pre-processed data to Machine Learning model (which has already been trained in similar data, currently not ready but can be done as government can provide us relevant data for this propose) and predict the probability of patient currently infected with the corona virus.

Step4: If the probability is higher than 85% then we will submit all the collected to federal government / council and government will take all the possible steps.

Step5: if the probability range from 50% to 85% then we recommend the patient to contact their GP and follow suggestions respectively.

Step5: if the probability is below 50% then in that case we recommend the personnel to take care my themselves at home, doing rest, maintaining proper diet, and taking general medications if required.

Changes required on federal government side to handle this problem (base on our application) are as:

* Federal government should operate on at maximum council level or post code level so that they can target as many people as possible in short period of time.
* There should be different authority that will handle the cases with highest probability of infection and balance the load of patients within the state postal area, suburb or state level.
* As government will be provided with the information we gathered, they can pick-up patient from their address and redirect them to probably less busy hospital or medical service for the checkup with proper priority.
* As we have collected data related to patients’ possible public place travel within 5 days, their international travel details, these will be helpful for government to track the possible spread of this disease locally or through international travel.
* In addition to that government can track possibly close friends and family members who might have come across to the patient before symptoms showed up and take proper actions (Which government is currently doing).