**Submission name:** Quaranteam - Beat the pandemic

**Short description (10 words):** Mobile application to locate COVID-19 facilities in nearby area.

**Long description:**

**Problem:** The number of people getting affected by COVID-19 is increasing exponentially every day. Due to this Hospitals do not have beds/ventilators available to admit more patients. Currently not all Labs are equipped with COVID-19 testing kits. The central help-line communication systems are overwhelmed with people trying to find basic information about Hospitals treating COVID-19 or Labs equipped with COVID-19 testing kits near them. When communication lines get clogged, people who need real help can't get through. At present, there is no publicly available platform where people can look for this information. Lack of information in the need of the hour causes panic and chaos. During current COVID-19 crisis, when almost every other individual is combating the pandemic or the fear of it, lack of information not only causes chaos but also takes away lives.

**Solution:** It is dire need to have COVID-19 focused information made available which will allow a person to search for and get location of places within reach like:

1. Hospitals that are treating COVID-19 patients and number of beds/ventilators available in that facility.
2. Labs that are equipped with COVID-19 test kits.

Mobile applications play a critical role in quickly spreading crucial information and free up customer service resources to focus on higher-level issues.

The idea is to create a mobile application which can provide above information to people and hence would be in reach with every individual. A person, if symptomatic, can look for this information on his own and can initiate self-test by reaching out to nearby Lab and if found ‘positive’ can reach out to a Hospital for expert care.

**Benefits:**

1. Currently there is no centralized portal that has focused information regarding COVID-19 infrastructure. This mobile application would provide this centralized information.
2. With the information of available beds/ventilators visible to users, it will help Patients in picking the right hospital and avoid toggling between multiple hospitals.
3. It would also prevent the patients from overwhelming the hospitals.
4. This application will provide the information about all the Labs that are conducting COVID-19 test. This way, an individual can become self-sufficient by approaching the lab and getting tested and hence, potential patients can be reduced.
5. Through this application, a user can identify certified Hospitals and Labs and would be saved from any potential scams.
6. Since the information would be available through a mobile application in an easy-to-use format, it can be utilized by every individual. It would facilitate awareness and wide spread of information.

**Technological requirements:**

Currently Wire-framework for the solution is submitted. For a working mobile application, below services, tools/technology would be required:

1. Services:

* A user interface where required query can be entered to get information.
* Data base to hold the information of Hospitals, Labs.
* Location services with real-time information to get users the information they need.
* A server application to work, to communicate between frontend (User interface) and backend (database) and respond back with result set.

1. Tools/Technology:

* User interface: Any available sdk can be used to create a UI.
* Database: Any available database can be used to hold the data such as MySQL or Postgres-SQL etc.
* Location service: HERE Location Services or Google Maps Services can be used.
* Server application: It can be created using scripting languages such as Python, Java etc.

The Database would be built and dynamically updated by below methods:

1. Hospitals and Labs data would be gathered from State and Central Health Ministries to get list of certified facilities.
2. Hospitals and Labs can register in the mobile application to provider current status of beds/ventilators in their facility.
3. When a new Hospitals and Labs would enter their details, their information would be validated against data received from State and Central Health Ministries to avoid incorrect information.

**Solution roadmap:**

**Architecture model:**

The architecture model is as below.

User

Mobile App

Server Application

Location Services

Database

1. The User will use Mobile application to enter their query at frontend.
2. The query would then trigger server application. The server application would collect real-time location information from location services.
3. The server application will then send the query to backend database to get the result.
4. The query result will then be displayed to the user.
5. A Hospital can also add/update their information in same way.

**Details about the Wire Framework:** The attached document explains in detail the front-end of the application, each option available for the user and how information would be displayed.



**Sustainability Plan:** Once the services are ready and running, it would not need any manual intervention for any kinds of uploads or updates. The back-end data would be updated dynamically hence, user will always receive updated information. Any un-certified facility would not be able to enter their details as they would be validated against data received from State and Central Health Ministries. This would ensure validity of data.

**Future scope:** Once the COVID-19 infrastructure information would be made available the next steps would be to include below information in same platform:

1. **Addition of an alert of new COVID-19 case identification:** Since the platform would have dynamically updated information with respect to Geographic location and Hospital Centers. Any addition of new patient can be known through the status of beds/ventilators in that facility and hence an alert can be sent out for same. This alert would keep people informed on the cases in their neighborhood.
2. **Addition of Quarantine Center:** Different Quarantine centers have been opened by the government to accommodate patients. Information for same can be added in this platform. If a hospital cannot accommodate a patient, patient can opt for a quarantine center.
3. **Addition of information related to self-diagnosis:** Although this information is available at multiple websites, mobile applications etc., and inclusion of this information here would provide a one-stop data for COVID-19. A person can do a self-diagnosis if doubtful can reach out to nearby Lab. If found ‘positive’ can reach out to nearby Hospital for further care.