**Build an android application that gives the user updates on the coronavirus throughout the country.**

Goal:

The Coronavirus has made drastic changes to our nation. The goal of this app is to quickly provide useful information to the user.

At the home screen, the app should:

* Line graph of the total number of cases each day (for the entire country), starting at the first case.
* Top 5 states with the greatest number of cases in one day, the amount of cases and deaths each had in a single day
* In the background, download the rest of the data for all the other states

On the second screen, the app should:

* Allow the user to select a state
  + States will be in alphabetical order

Once the user selects a state, they will be led to a third screen that:

* Name of state
* Date
* Displays a line graph of the total number of cases each day for that state
* Number of new cases
* Number of new deaths
* Number of people currently hospitalized
* Number of people currently on a ventilator

In order to provide information for each of the 50 states, 50 API ‘get’ calls need to be made. Making each call, formatting the information into an object, and saving the data into a file can take up a lot of time. In order to reduce this time, multithreading will be used in order to simultaneously make multiple calls.

OS Level Functionality:

Applications on default use 1 thread, the UI thread. Background threads (worker threads) can be used to quickly gather data in order to make the app run fast. Worker threads cannot manipulate UI directly, otherwise it may cause an “Application Not Responding” dialog. Furthermore, too many threads can slow down the application, since they would add a large amount of overhead. Thread pools can be used to help minimize this overhead.

API:

Multithreading: <https://developer.android.com/guide/components/processes-and-threads>

Creating a graph: <https://developer.android.com/training/custom-views/custom-drawing>

Displaying data on screen: <https://developer.android.com/guide/topics/ui/layout/grid>

Navigation between screens: <https://developer.android.com/guide/navigation>

3rd Party API for COVID-19 Data: <https://covidtracking.com/data/api>