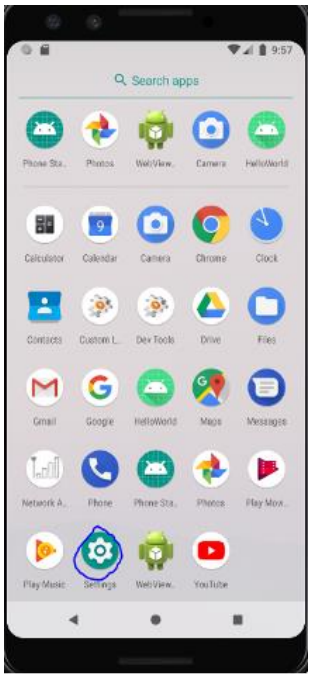
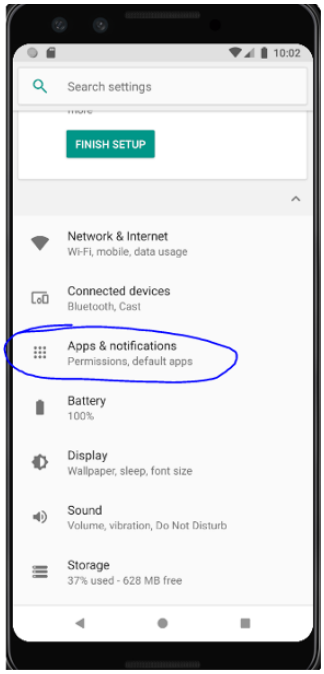
Network Analyzer

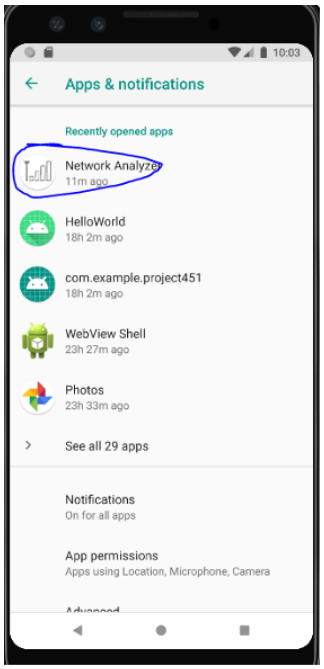
Objective

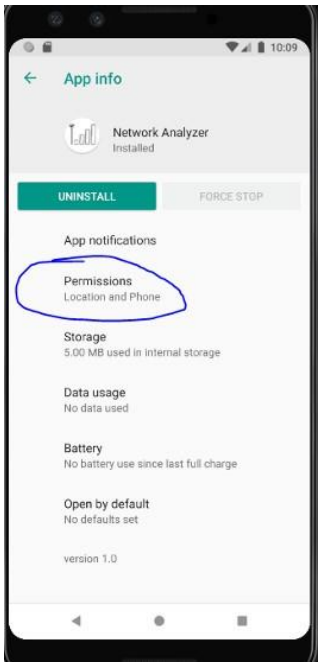
A network analyzer also called a "packet analyzer," "traffic analyzer" or sometimes "protocol analyzer," has several important functionalities in the field of communication, such as 1) provide detailed statistics for current and recent activity on the network; 2) detect unusual levels of network traffic; 3) detect unusual packet characteristics; 4) identify packet sources or destinations, 5) configure alarms for defined threats; 6) monitor bandwidth utilization. In this project we built an application that functions as a “Network Cell Analyzer”. This application seeks to analyze specific data received from the serving base station network to which an android device is connected to. Thus, the user of this application will be able to keep track of the network operators and various cellular network types connected to his device. Also, the user will be able to have detailed statistics about the previous links quality and measurements. This will be provided in a well-organized, distributed manner.

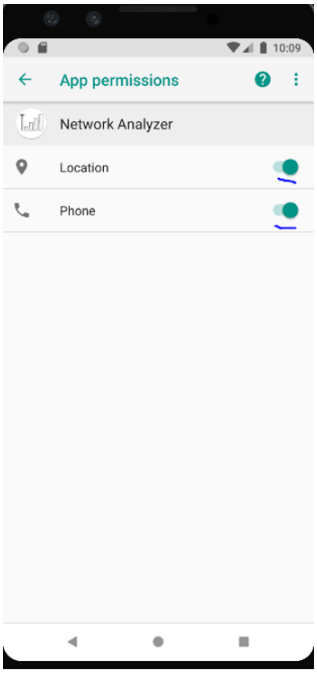
How Does The App Work?











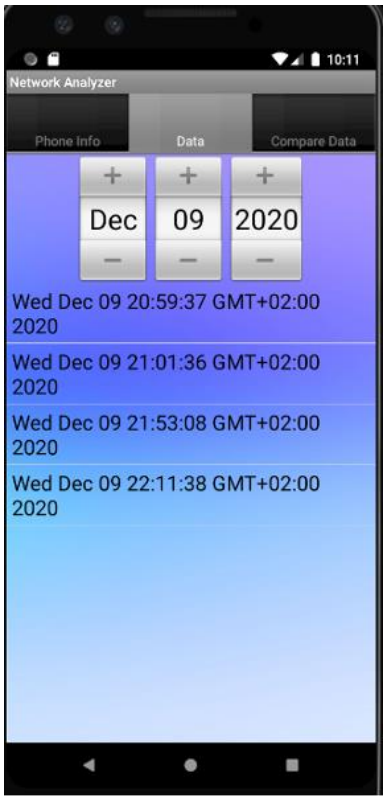
First and foremost, open the settings app and navigate through the menus as indicated, then turn on the app permissions in order to allow the app to access location and phone services.

Then, open the app.

This is the first tab.

We can see here all the phone info.

We implemented a Progress bar to see the signal strength.



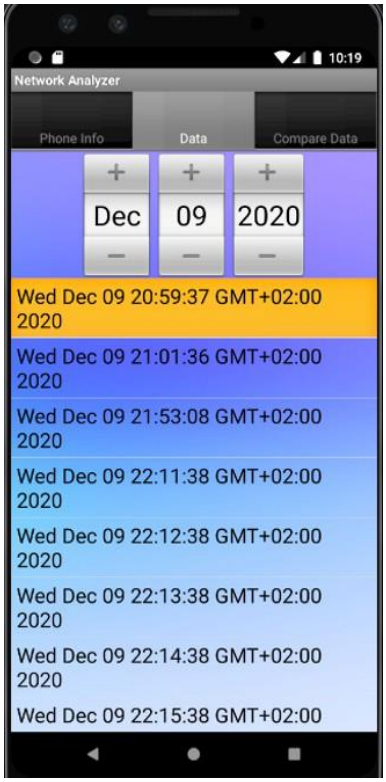
This is the second tab.

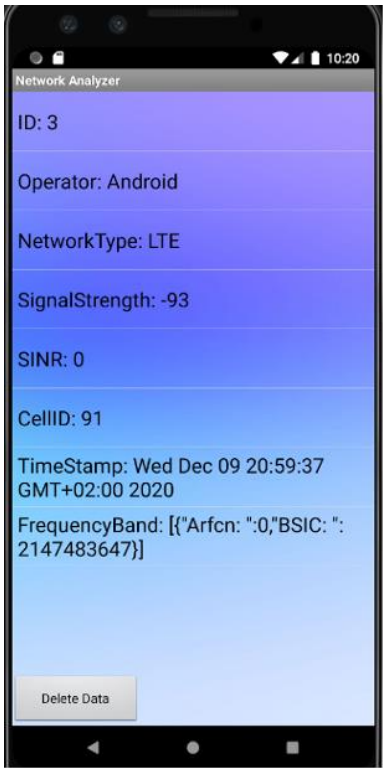
We can see here the database info.

On the left is when entries are found for the particular date.

On the right is when no entries are found. We implemented a toast to notify the user that this date is not found in
the database.

This tab is used to view individual entries, similar to other database viewing apps.



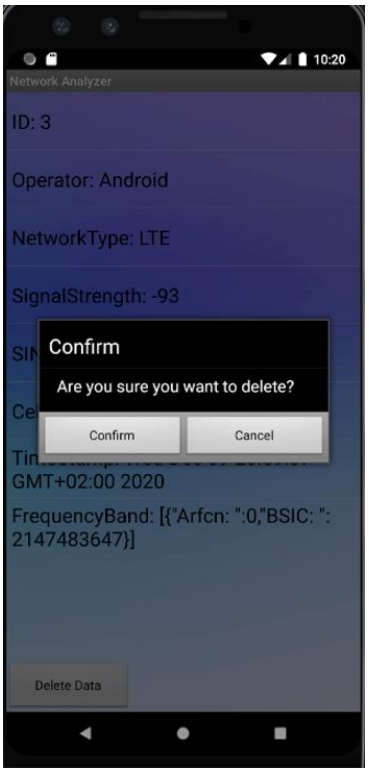


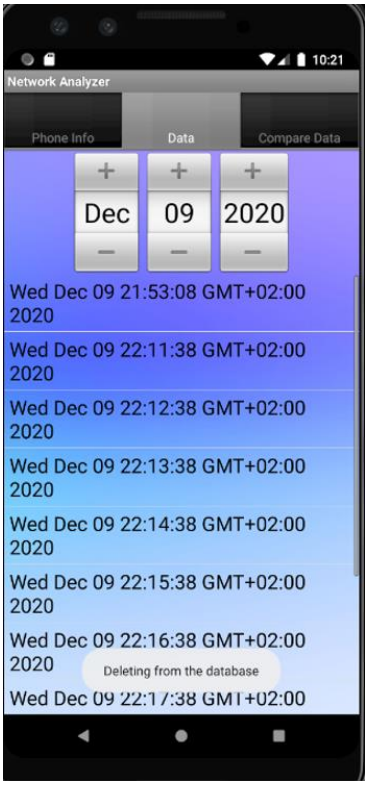
Here, we selected an entry to see its details.

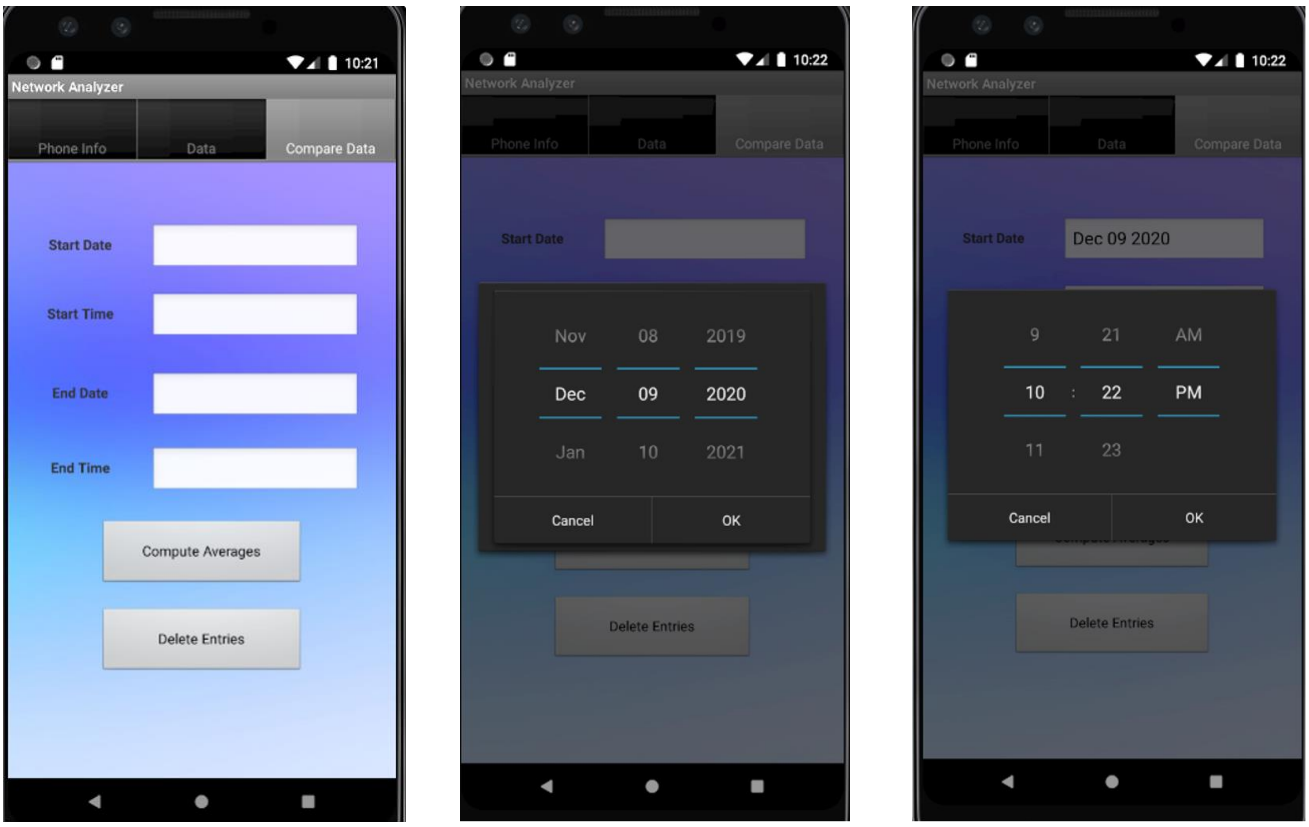
Its ID is used to facilitate the comparison —more on that later— and to have a specific “ID” for each entry. It auto-increments with every new entry (saved every minute)

The user has the option to delete the specific entry if he/she wishes to do so.

Toast shows that it is being deleted from the database.





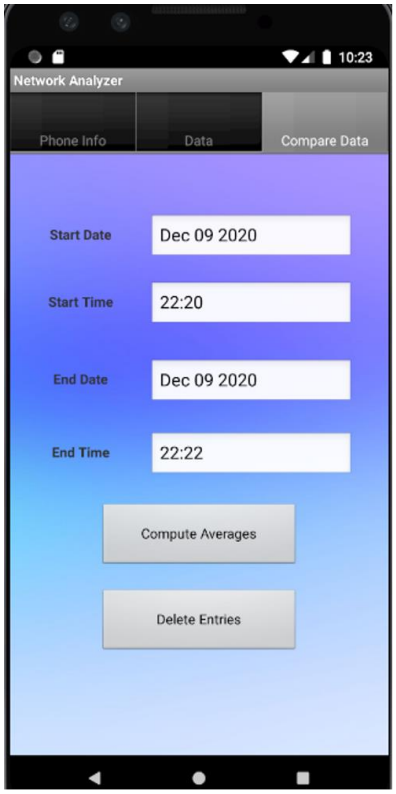


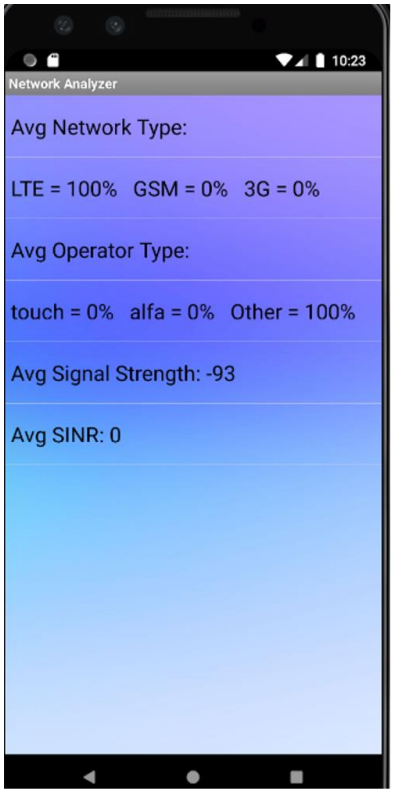
This is the Third Tab.

Here, we can input a start date and time as well as an end date and time to compare averages between the selected two dates. We implemented a date picker and a time picker —of same theme— to select the dates.

We used '`android:focusableInTouchMode="false"`' in order to prevent the keyboard from showing when a text box is selected. This way, the picker automatically shows because of its OnClickListener.

Also, the date and time defaults to the current date in order to facilitate date choosing.





The dates and times are then formatted to fit the text boxes in MMM/dd/YYYY and in HH:mm.

Then, we can see the averages computed. We implemented counters for each network type to easily compute the average.

Ex: i for LTE, j for GSM, k for 3G

The user has the option to delete the entries between the two specified dates if they want that.