

# CAT 5

Alejandro Pérez Bueno

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## Exercise 1

In this exercise we had to enable Firebase Cloud Messaging and integrate it on our app. To do this we had to do the following:

1. Obtain the token.
2. Create the notification.
3. Send it to the phone using the obtained token.
4. Receive it on the device while the app is in the background.

See Figure 1 to see how the notification appears on the end device

### Tip

For this CAT I used a real phone connected through *ADB*, as it was more convenient than using an Android VM.

### Note

Answered in Project Folder (see [MainActivity.kt](#)).

## Exercise 2

In the second exercise we had to extend the previous integration and also load an alert upon clicking the notification.

See Figure 2 for details on how the notification arrives, and how the alert looks upon clicking on the notification.

### Note

Answered in Project Folder (see [MainActivity.kt](#)).

## Exercise 3

For this one, we had to override the default `onMessageReceived` function to implement a new alert, this time it will receive remote notifications when the app is open, but will display them as an alert instead of as a notification.

Check Figure 3 to see an alert in action.

### Note

Answered in Project Folder (see [MainActivity.kt](#) and [MyFirebaseMessagingService.kt](#)).

## Exercise 4

The last exercise implements basic geolocation support in our app. To implement it, we followed the following logic:

1. Check if the location permission has been granted, if not request the user to grant it.
2. Attempt to determine a location using on Google Play Services.
3. Once a location is found, a toast message appears with the format “`latitude, longitude`” and a pop-up (also called heads-up) notification appears with the text “**Start Track**”.

Check Figure 4 for more details.

### Note

Answered in Project Folder (see [MainActivity.kt](#)).

## Annexes

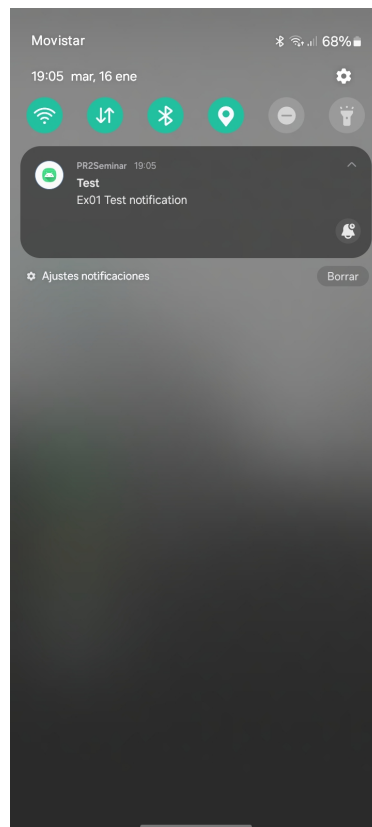


Figure 1: Simple remote notification with *FCM*

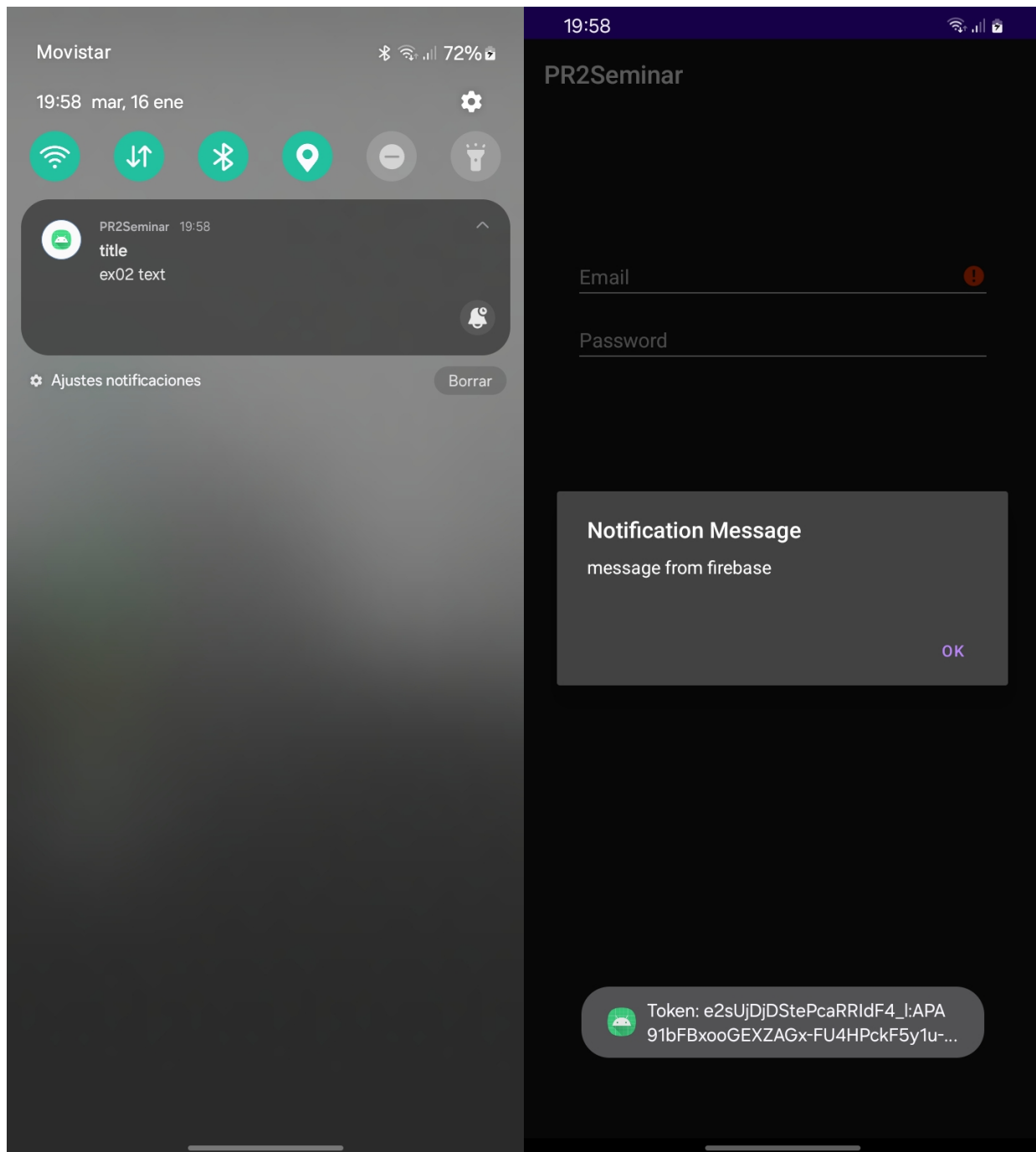
(a) Simple remote notification with *FCM*(b) Simple alert with *FCM*

Figure 2: Test alert upon opening notification

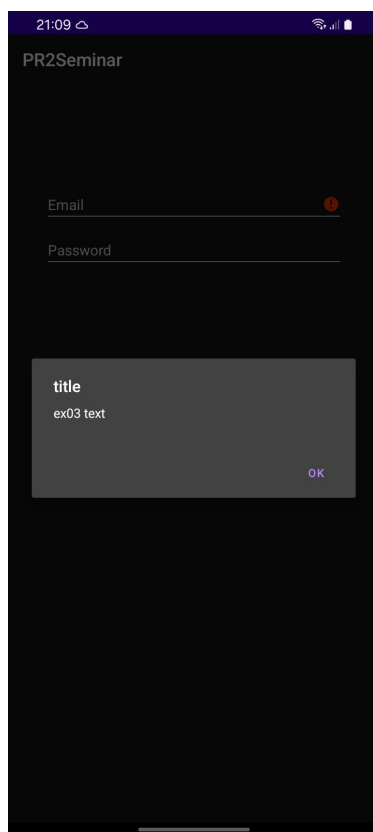


Figure 3: Alert dialog from remote notification

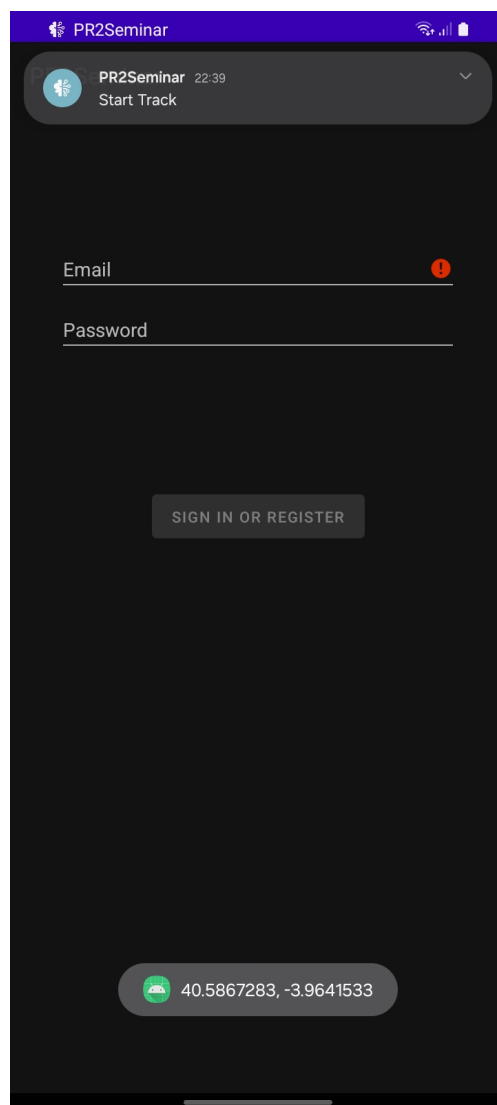


Figure 4: Location established message in pop-up notification and toast message