Unit Test
Integration Test
E2E Test

Test

If debugging is the process of removing software bugs, then programming must be the process of putting them in.

— Edsger Dijkstra —

AZ QUOTES
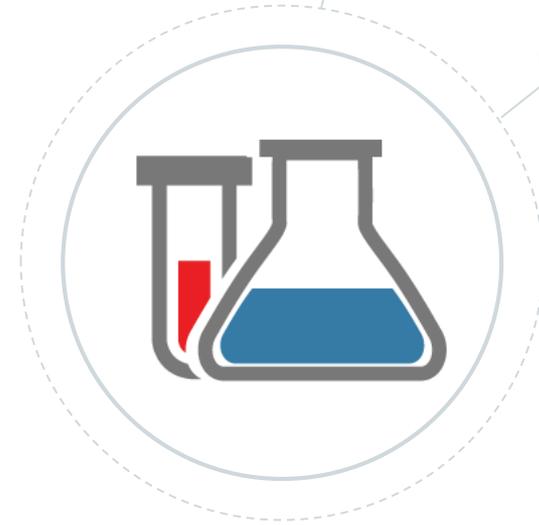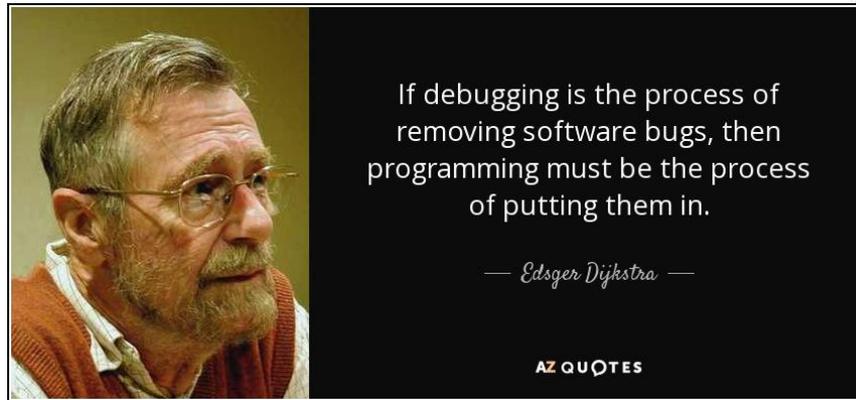
Il test di un programma può essere usato per mostrare la presenza di bug, ma mai per mostrare la loro assenza.

```java
public class MyUnit {

    public String concatenate(String one, String two){
        return one + two;
    }
}
```

```java
import org.junit.Test;
import static org.junit.Assert.*;

public class MyUnitTest {

    @Test
    public void testConcatenate() {
        MyUnit myUnit = new MyUnit();

        String result = myUnit.concatenate("one", "two");

        assertEquals("onetwo", result);

    }
}
```

Test

- Facilitano la modifica
- Il test fallisce prima di rilasciare il software
- Meno sorprese
- Documentazione migliore

Test

Program testing can be a very effective way to show the presence of bugs, but it is hopelessly inadequate for showing their absence.

(Edsger Dijkstra)

izquotes.com
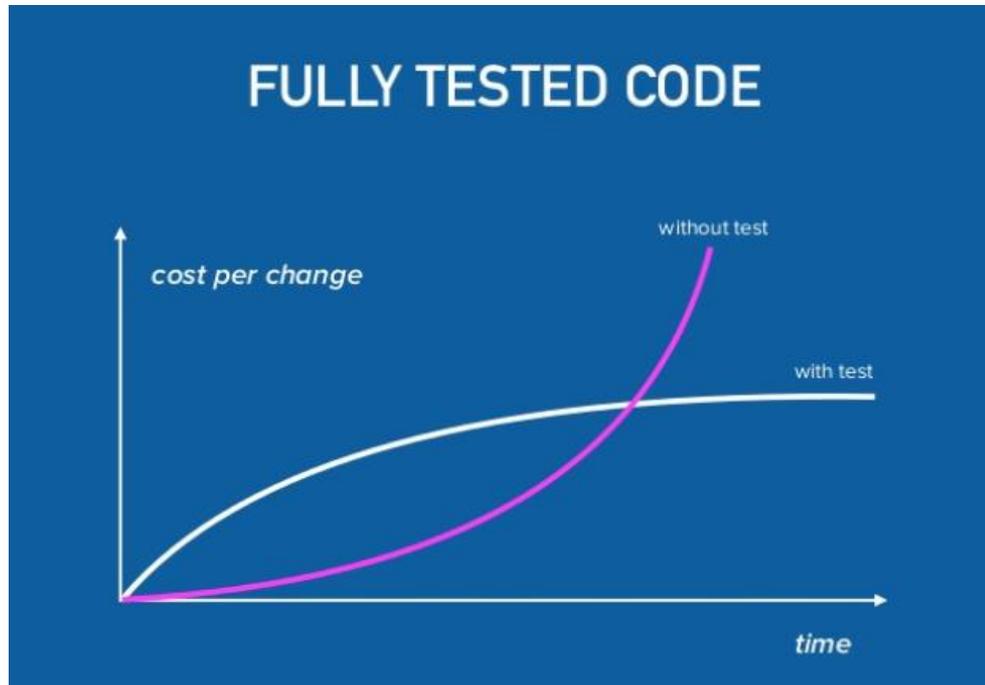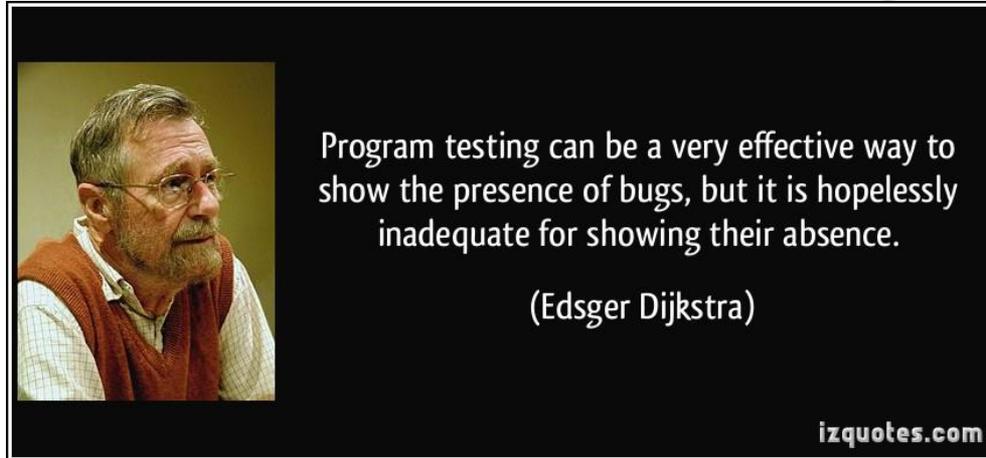
Unit Test:

Test unitari e isolati: permettono di testare singole parti del codice in maniera isolata. Devono essere semplici e veloci.

Integration Test:

Test di integrazione di vari moduli software per capire se qualcosa va male durante il loro uso combinato.

E2E Test (End 2 End Test):

Test dove automaticamente eseguo attività utilizzando la stessa interfaccia «grafica» che utilizzerà l'utente finale.

Test

Test in Ionic

Esistono molti progetti «seed» che mostrano come integrare unit e e2e test:

https://github.com/ionic-team/ionic-unit-testing-example

Getting Started with this Project

To get started, clone this repo, and run `npm install` in the root directory.

```
git clone https://github.com/ionic-team/ionic-unit-testing-example.git
cd ionic-unit-testing-example
npm install
```

Then, you should run `ionic serve` to make sure the project loads.

Unit Tests

To run the tests, run `npm run test`.

See the example test in `src/app/app.component.spec.ts` for an example of a component test.

End-To-End Tests (Browser-Only)

To serve the app, run `ionic serve`.

To run the end-to-end tests, run (while the app is being served) `npm run e2e`.

See the example end-to-end test in `e2e/app.e2e-spec.ts`.

Test nel mondo mobile

Come posso testare la mia applicazione (web o mobile)
Su tutti i dispositivi?

Mobile Services

(aggiungere rapidamente servizi alla propria app)
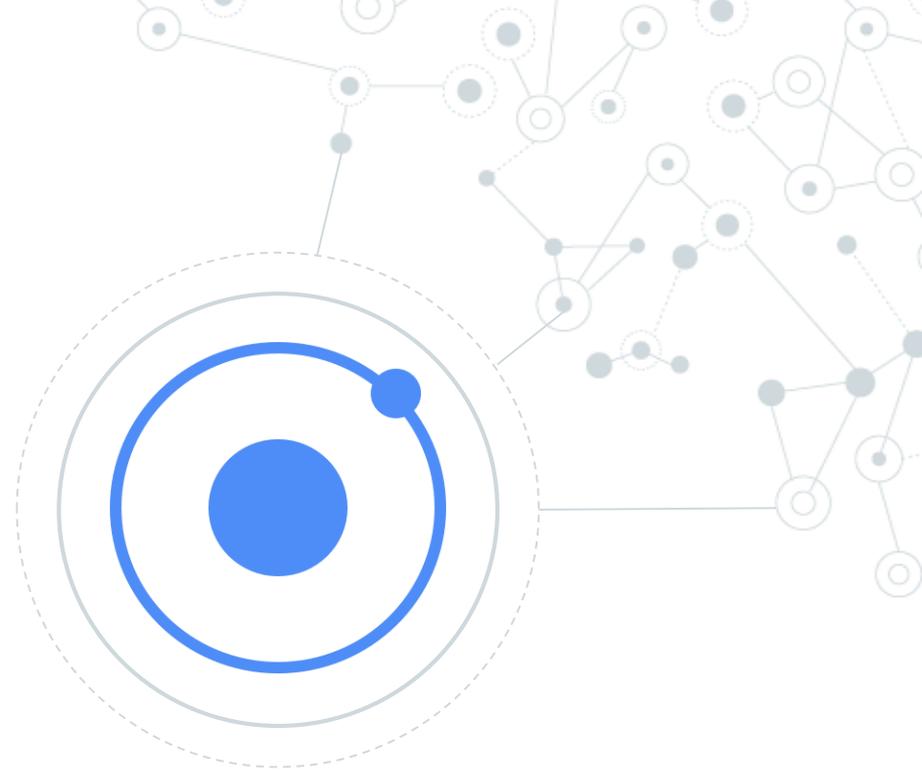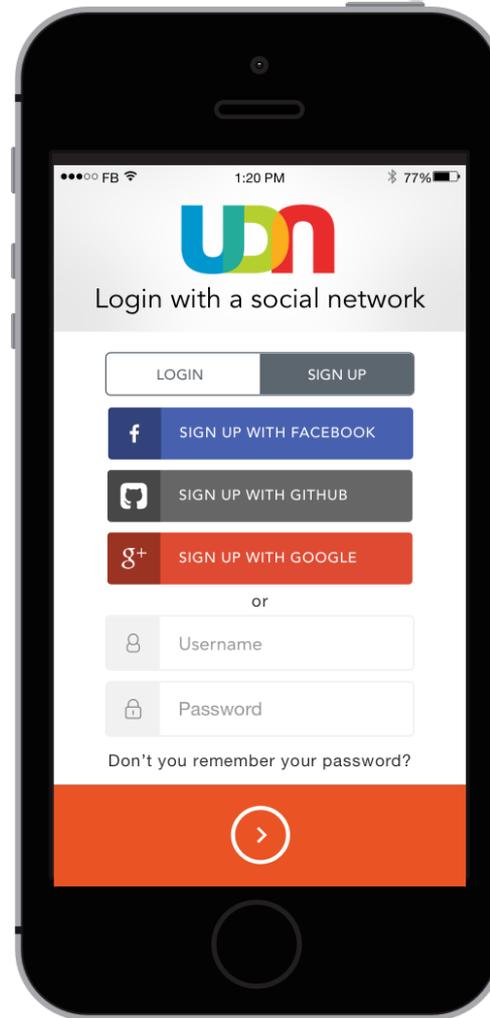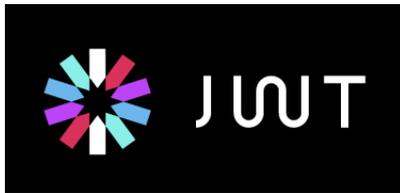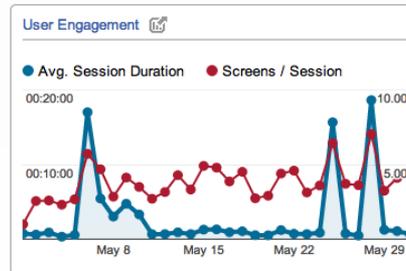
https://market.ionicframework.com/

Auth Service

https://auth0.com/blog/ionic-framework-how-to-get-started/

https://firebase.google.com/docs/auth/

Analytics Service

https://ionicframework.com/docs/native/google-analytics/

A/B Test Service

√ A

× B

VS.

25% Conversion

5% Conversion

https://github.com/optimizely/optimizely-cordova-plugin
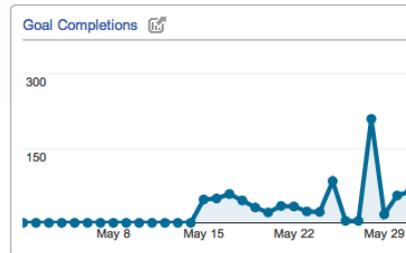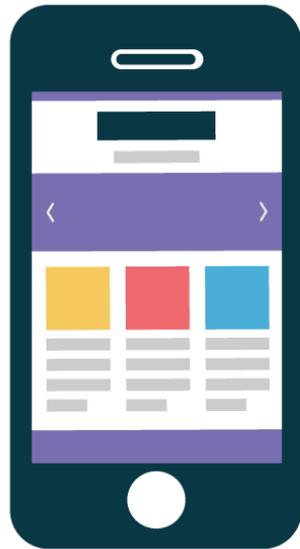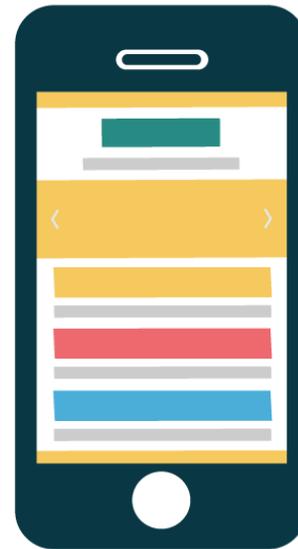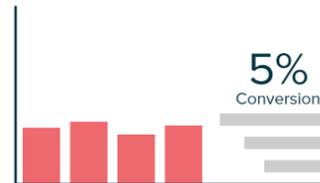
Signature

Componente standard Angular:

https://www.npmjs.com/package/signature_pad
https://github.com/wulfsolter/angular2-signaturepad

Basato su HTML5 Canvas

Integrato in Ionic 3:

https://github.com/srinivastamada/ionic3-angular4-signaturepad

Barcode / QR Code

https://ionicframework.com/docs/native/barcode-scanner/

https://www.scandit.com/
https://www.scandit.com/scandit-launches-matrixscan-a-first-of-its-ki[...]pabilit

OCR
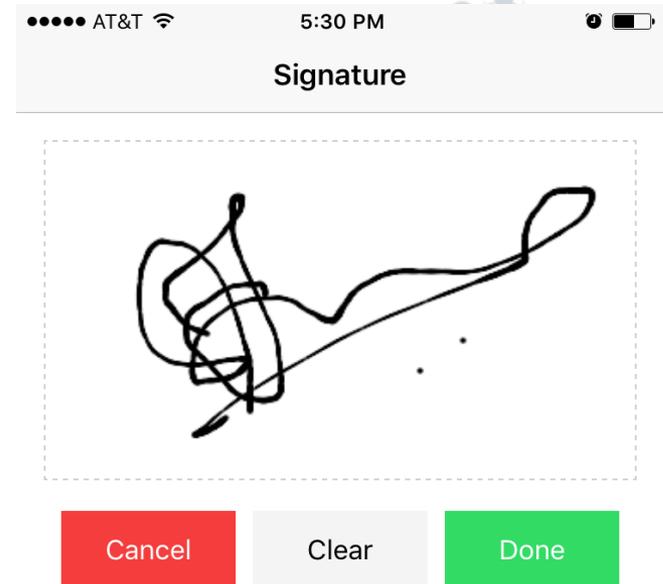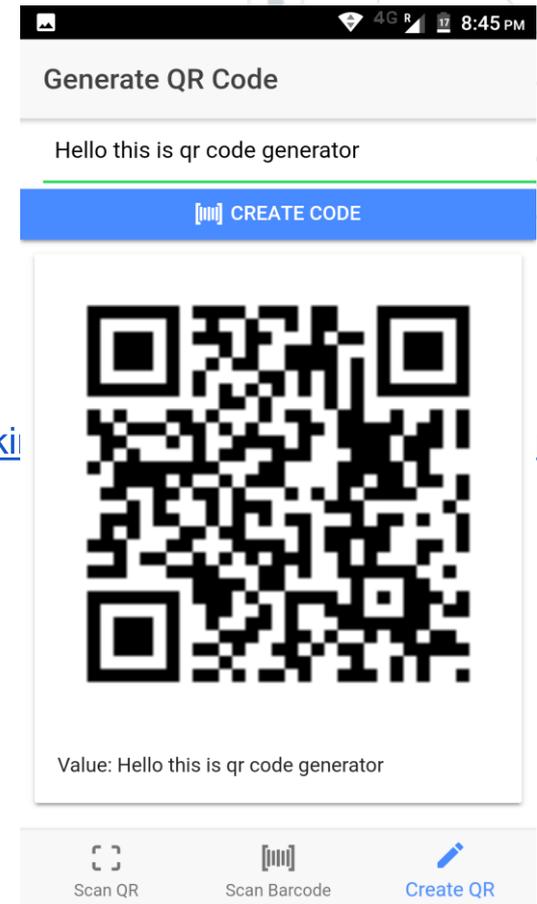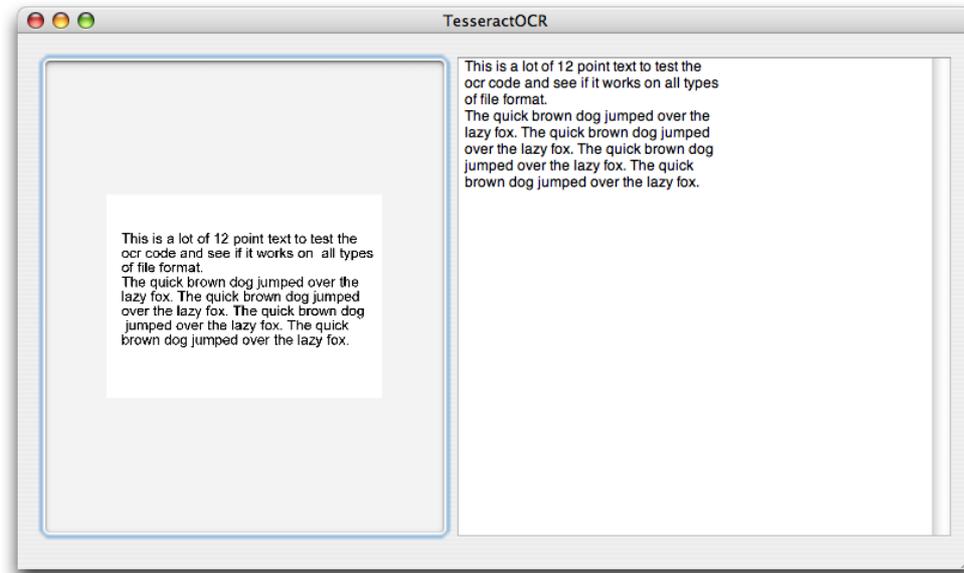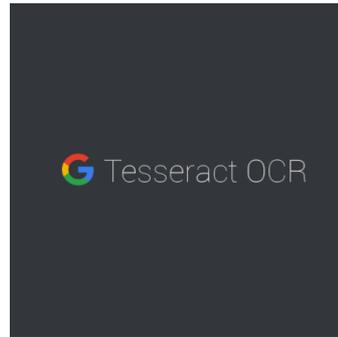
https://github.com/gustavomazzoni/cordova-plugin-tesseract
https://www.youtube.com/watch?v=NF_nnoA0aXM

AR

- Marker Based Augmented Reality: si utilizzano marker visuali e la camera per attivare la realtà aumentata. Da alcuni anni si possono utilizzare marker complessi come immagini.

- Markerless Augmented Reality: si utilizzano sensori come GPS, Bussola, Accelerometro per comprendere lo spazio

- Projection Based Augmented Reality: si proiettano informazioni su una superficie e in alcuni casi si interagisce con l'utente

- Superimposition Based Augmented Reality: l'immagine sintetica sostituisce o integra l'immagine reale

AR

SmartGlasses

MOVERIO BT-300
849,00 €

| | Panoramica | Specifiche tecniche | Accessori | Assistenza | Recensioni |

Piattaforma Android

Sistema operativo Android 5.1

https://www.wikitude.com/products/eyewear/epson-augmented-reality-sdk/

https://www.vuforia.com/devices.html

SmartGlasses

UP◆SKILL

https://www.youtube.com/watch?v=qTblKJjTadQ

Posizionamento Indoor

Trasmissione broadcast

- Beacon: trasmissione Bluetooth Low-Energy «del solo» UDDI

- Eddystone: trasmissione Bluetooth Low-Energy di UDDI e URL

Posizionamento Indoor

Fine Timing Measurement (FTM) protocol from IEEE 802.11-2016.

The Wi-Fi Alliance's system functions when mobile devices and access points share data. Radio waves travel through the air at a predictable speed—the speed of light
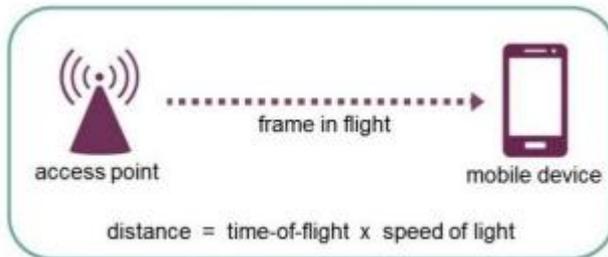

Figure 1. Basic transmission time calculation
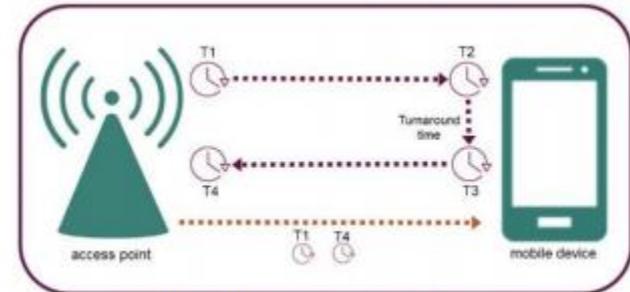
Figure 2. Round-trip timestamps synchronize to same clock

•Client can request an AP share its location (e.g. in latitude / longitude or as a civic address). The program is designed to cover situations whereby such information can be shared pre-association or post association (so an AP may have the ability to share its location to Clients that are not connected to that AP).

https://www.wi-fi.org/beacon/rolf-de-vegt/never-lost-indoors-the-promise-of-wi-fi-location

Animation

Lottie
Easily add high-quality animation to any native app.

Lottie is an iOS, Android, and React Native library that renders After Effects animations in real time, allowing apps to use animations as easily as they use static images.

https://github.com/yannbf/ionic-lottie

Game Engine

Si basano su due tecnologie:

Canvas: una estensione dell'HTML standard che permette il rendering dinamico di immagini bitmap gestibili attraverso un linguaggio di scripting.

WebGL: abilita l'utilizzo delle librerie OpenGL all'interno di un Canvas

http://madebyevan.com/webgl-water/

http://www.larsberg.net/#/hexanemone

Game Engine

http://phaser.io/examples/v2/animation/group-creation

http://phaser.io/examples/v2/box2d/car-on-terrain

https://github.com/photonstorm/phaser-
ce/tree/master/resources/Project%20Templates/ionic-example

Ionic Survey

Impariamo dalla community

https://ionicframework.com/survey/2017#
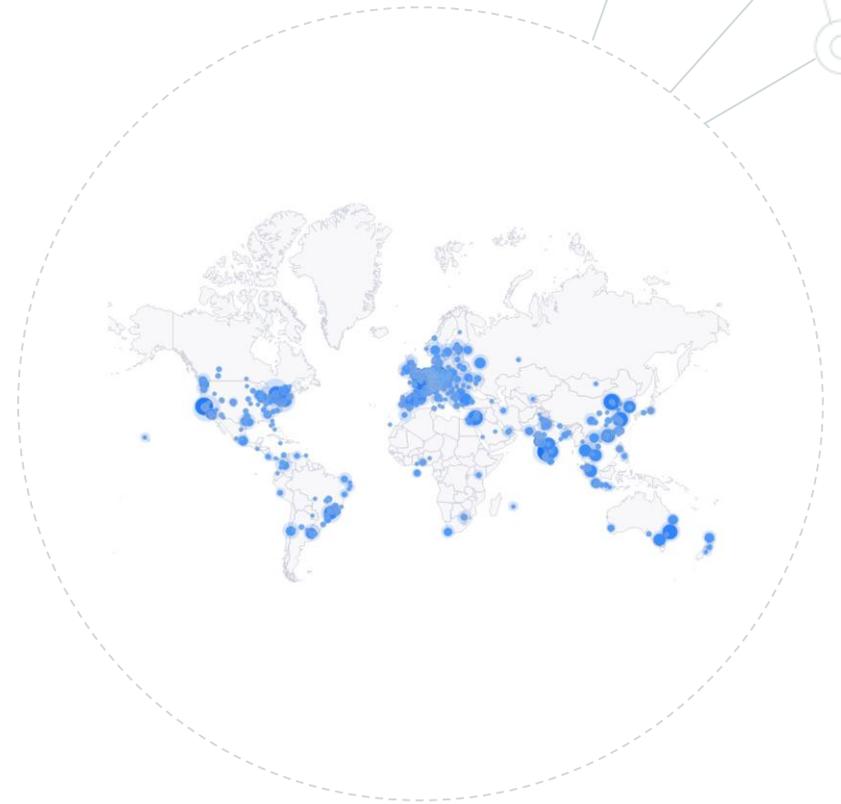
Logger / Crash Service

La mia applicazione è installata su 10 mila device. Sono sicuro che tutto funzioni come avevo previsto?

Logger / Crash Service

Sentry per web e ionic

https://sentry.io/organizations/humancare/issues/12599
50838/?project=1536259&query=is%3Aunresolved

https://sentry.io/for/angular2/

https://docs.sentry.io/platforms/javascript/ionic/