

Programação Para Dispositivos Móveis I

FIREBASE

2024/_25 CTeSP – Desenvolvimento para a Web e Dispositivos Móveis

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Adaptação do conteúdo dos slides de João Ramos jrmr@estg.ipp.pt e Fábio Silva fas@estg.ipp.pt

Índice

- Firebase;
- Funcionalidades;
- Extensões;
- Adicionar Funcionalidades Firebase;
- Bibliotecas Firebase;
- Leitura Adicional.

Firebase

Conjunto de funcionalidades desenvolvidas pela Google que permite

- Criar aplicações de forma mais célere;
- Utilização de base de dados, análise de *performance*, entre outras.

Estas funcionalidades possuem compatibilidade com as plataformas:

- Android;
- iOS;
- Web;
- ...

Funcionalidades Firebase

Desenvolvimento



Criação de aplicações seguras e escalonáveis com recurso à infraestrutura de nível global.

- Cloud firestore;
- ML Kit;
- Cloud Functions;
- Authentication;
- Hosting;
- Cloud Storage;
- Realtime Database.

Funcionalidades Firebase

Qualidade

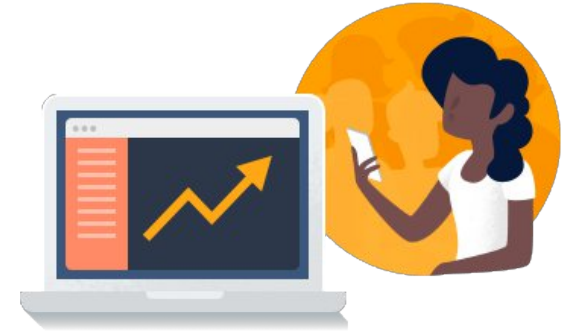


Insights sobre o desempenho e a estabilidade da aplicação.

- Crashlytics;
- Performance Monitoring;
- Test Lab;
- App Distribution.

Funcionalidades Firebase

Expansão



- In-App Messaging;
- Google Analytics;
- Predictions;
- A/B Testing;
- Cloud Messaging;
- Remote Config;
- Dynamic Links.

Funcionalidades Firebase

Extensões (BETA)

- Permite a adição de funcionalidades através de soluções pré-implementadas;
- São configuráveis e permitem integração com outras funcionalidades Firebase e produtos da Google Cloud Platform.



Edição de imagens



Tradução de texto



Sincronização de email



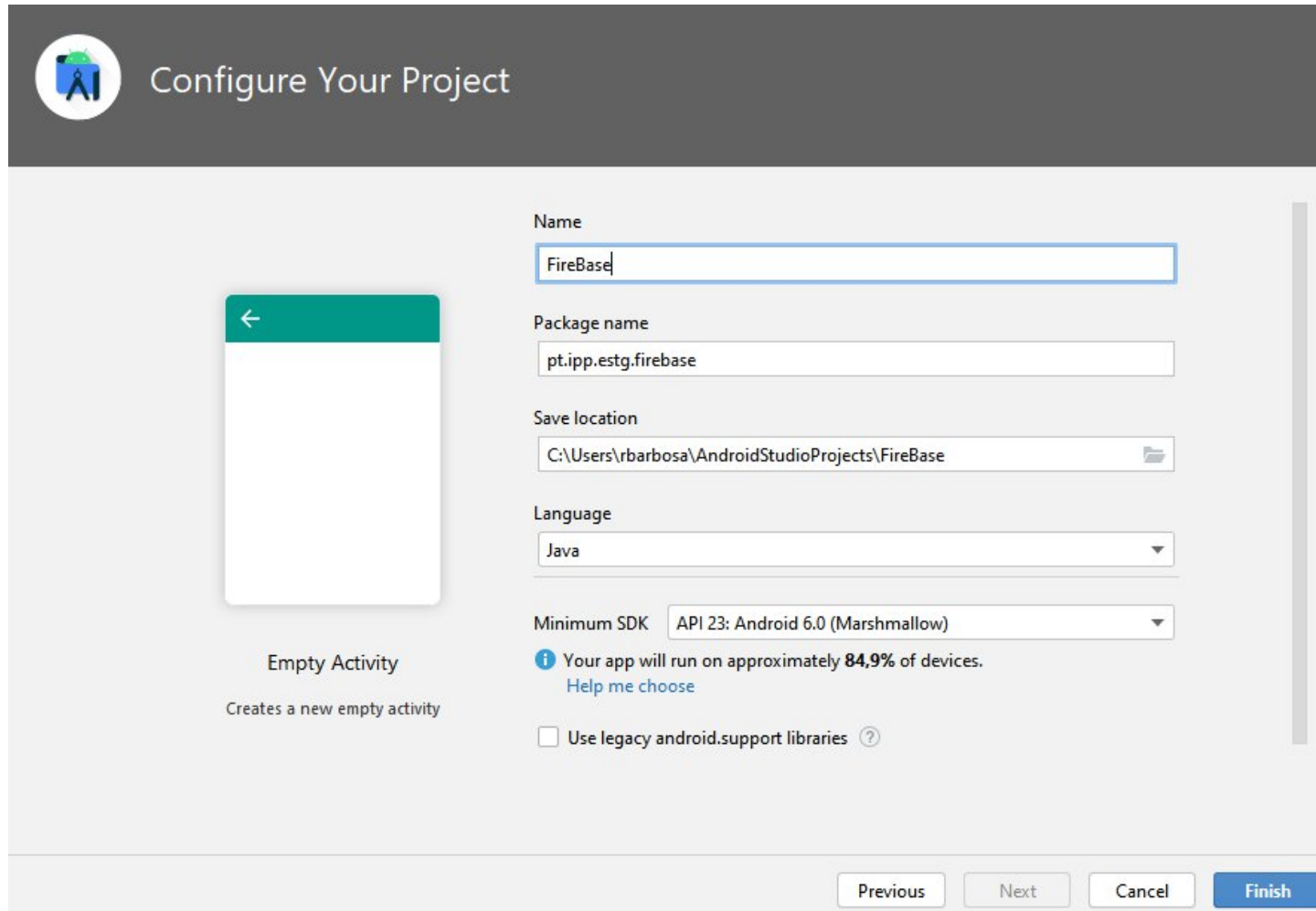
Triggers de email


Adicionar Funcionalidades Base

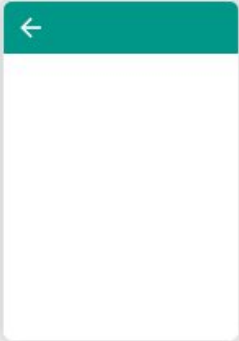
1. Criar um projeto (em branco) no Android Studio
2. Ir para a consola do Firebase (<https://console.firebase.google.com>)
 1. Criar um novo projeto Firebase;
 2. Atribuir nome ao projeto;
 3. Ativar Google Analytics (opcional, mas recomendado);
 4. Atribuir conta Google (de programador);
 5. Adicionar aplicação Android;
 1. Registrar aplicação (copiar o applicationId do gradle – module app)
 2. Download do ficheiro de configurações em formato *json*
 3. Adicionar o ficheiro ao projeto Android
 4. Adicionar o SDK do Firebase

Adicionar Funcionalidades Base

1. Criar um projeto (em branco) no Android Studio



 Configure Your Project



Empty Activity
Creates a new empty activity


Name
FireBase


Package name
pt.ipp.estg.firebase

Save location
C:\Users\rbarbosa\AndroidStudioProjects\FireBase

Language
Java

Minimum SDK
API 23: Android 6.0 (Marshmallow)

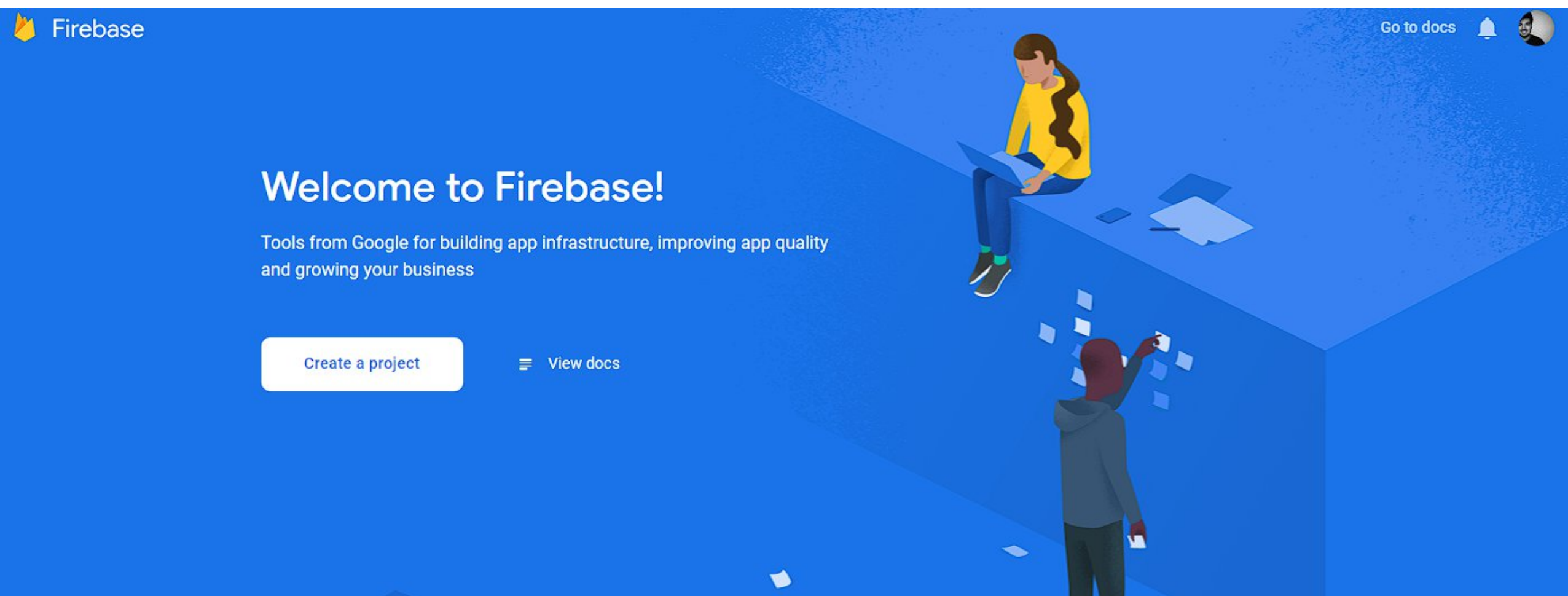
 Your app will run on approximately **84,9%** of devices.
[Help me choose](#)

☐ Use legacy android.support libraries 

Previous Next Cancel Finish

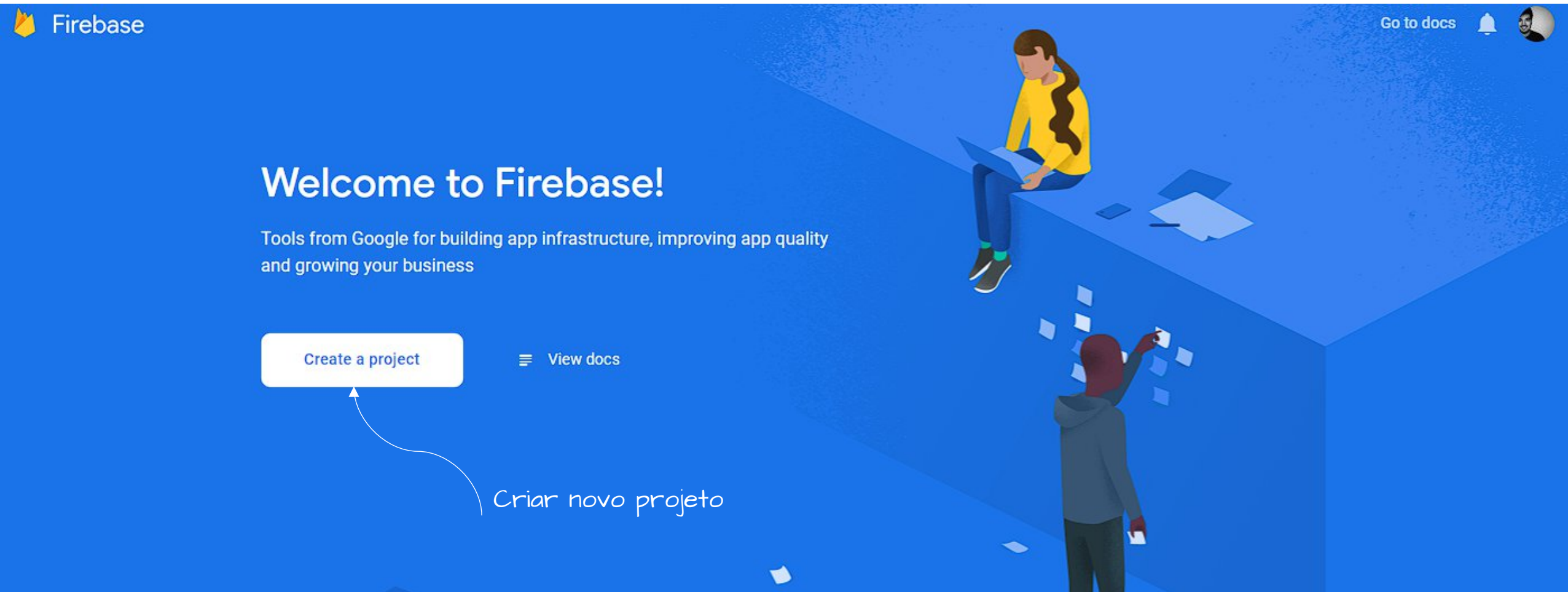
Adicionar Funcionalidades Base

2. Ir para a consola do Firebase (<https://console.firebase.google.com>)



Adicionar Funcionalidades Base

2.1. Criar um novo projeto Firebase



Adicionar Funcionalidades Base

2.2. Atribuir nome ao projeto

✕ Create a project(Step 1 of 3)

Let's start with a name for your project[?]

Enter your project name

Project name is required

my-awesome-project-id

Continue

Escolher um nome do projeto

✕ Create a project(Step 1 of 3)

Let's start with a name for your project[?]

Project name

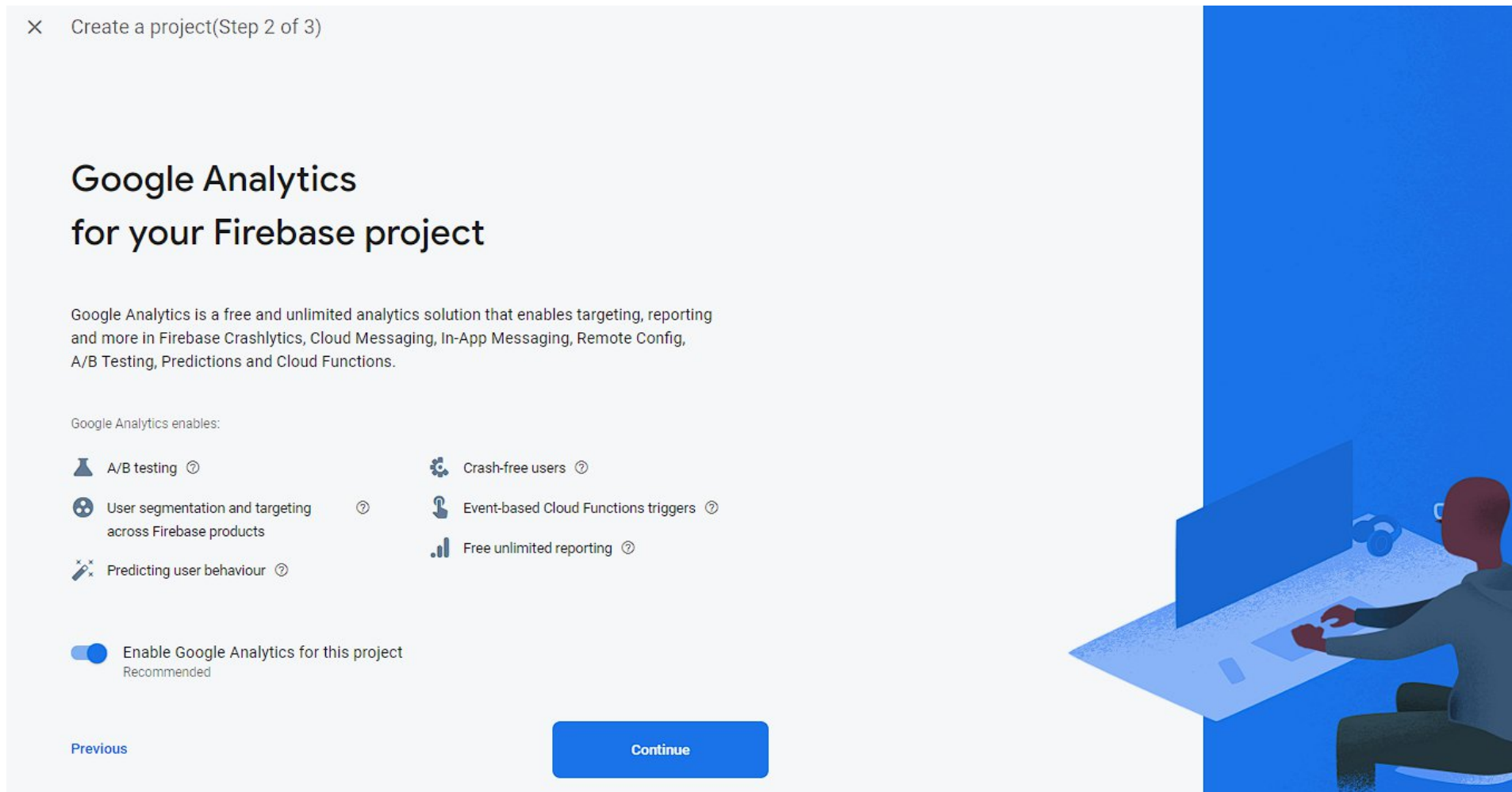
FirebaseExample

fir-example-bbc23

Continue

Adicionar Funcionalidades Base

2.3. Ativar Google Analytics (opcional, mas recomendado)



Adicionar Funcionalidades Base

2.4. Atribuir conta Google (de programador)

× Create a project(Step 3 of 3)

Configure Google Analytics

Choose or create a Google Analytics account ⓘ

Default Account for Firebase ▾

Automatically create a new property in this account ✎

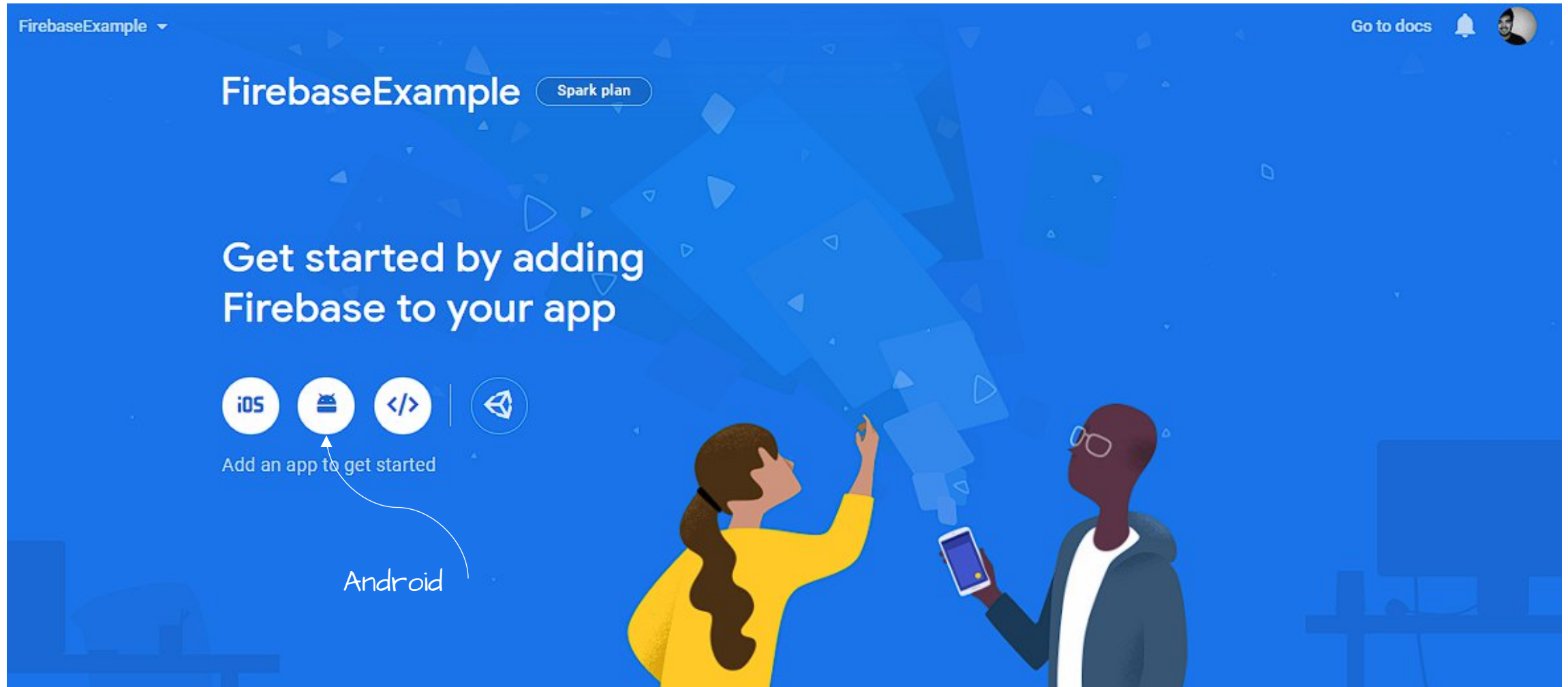
Upon project creation, a new Google Analytics property will be created in your chosen Google Analytics account and linked to your Firebase project. This link will enable data flow between the products. Data exported from your Google Analytics property into Firebase is subject to the Firebase terms of service, while Firebase data imported into Google Analytics is subject to the Google Analytics terms of service. [Learn more](#)

Previous

Create project

Adicionar Funcionalidades Base

2.5. Adicionar Aplicação Android



Adicionar Funcionalidades Base

2.5.1. Registar aplicação

× Add Firebase to your Android app

1

Register app

Android package name ?

com.android.application

App nickname (optional) ?

My Android App

Debug signing certificate SHA-1 (optional) ?

44:05:2E:14:A8:45:1A:6D:5E:2C:CC:94:2D:BC:23:49:01

Required for Dynamic Links, Invites and Google Sign-In or phone-number support in Auth. Edit SHA-1s in Settings.

Register app

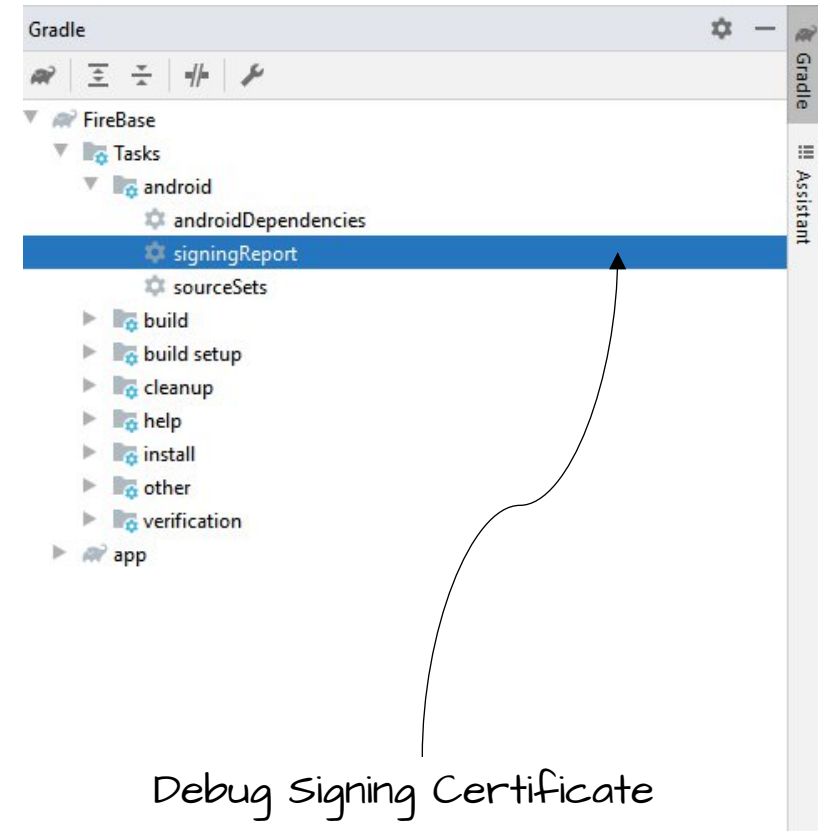
Adicionar Funcionalidades Base

2.5.1. Registrar aplicação

```
plugins {  
    id 'com.android.application'  
}
```

Android Package Name

build.gradle(Module)



Adicionar Funcionalidades Base

2.5.2. Download ficheiro de configurações

Download do ficheiro

×

Add Firebase to your Android app

✓

Register app

Android package name: com.android.application

2

Download config file

Download google-services.json

Switch to the Project view in Android Studio to see your project root directory.

Move the google-services.json file that you just downloaded into your Android app module root directory.

google-services.json

Previous

Next

Instructions for Android Studio below | [Unity](#) [C++](#)

Project Packages Scratch

MyApplication (~ / Desktop / My)

.gradle

.idea

app

build

libs

src

.gitignore

app.iml

build.gradle

google-services.json

proguard-rules.pro

gradle

P.PORTO

ESCOLA
SUPERIOR
DE TECNOLOGIA
E GESTÃO

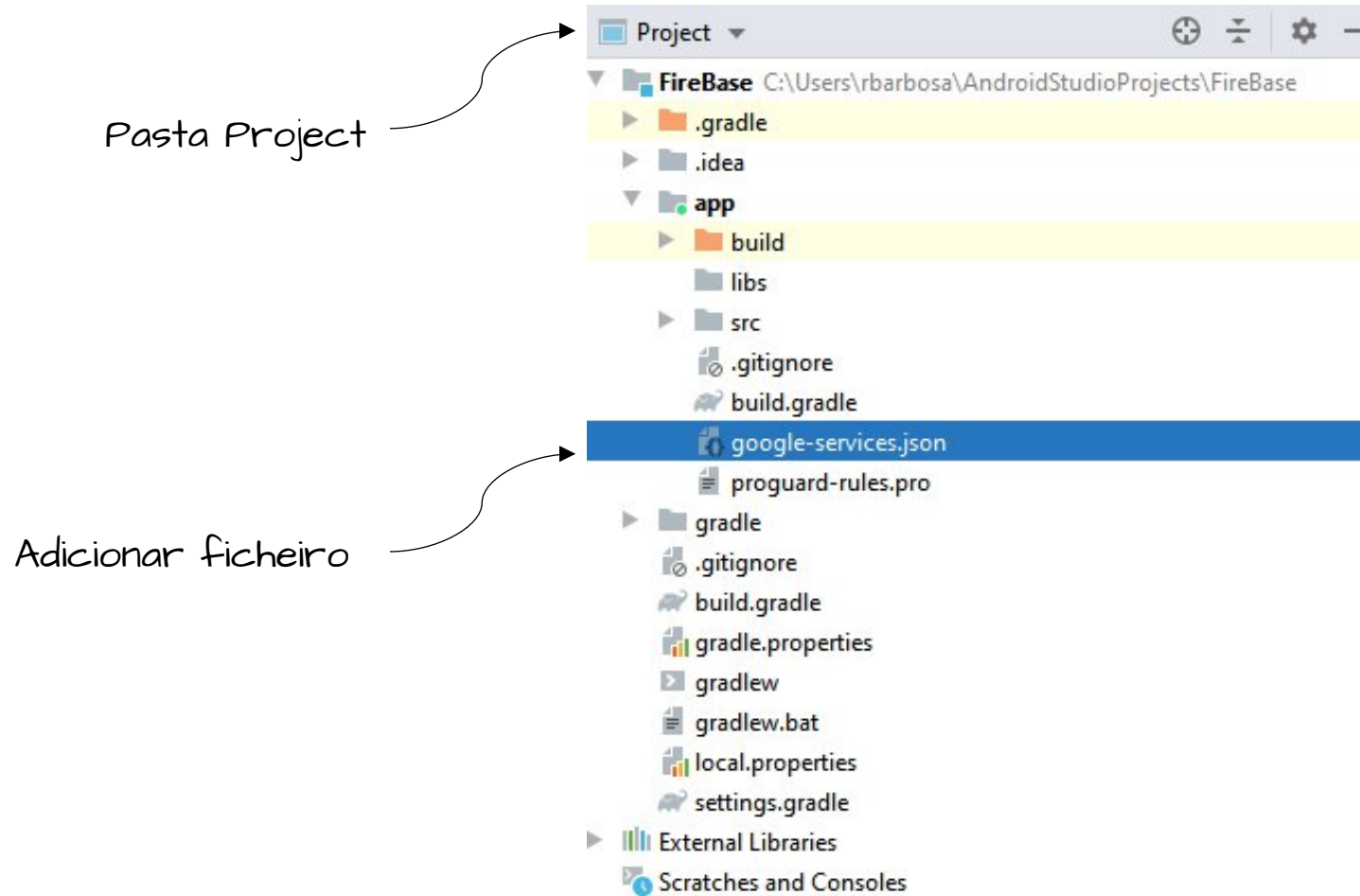
NORTE2030
Programa Regional do Norte

PORTUGAL
2030

Cofinanciado pela
União Europeia

Adicionar Funcionalidades Base

2.5.3. Adicionar ficheiro ao projeto



Adicionar Funcionalidades Base

2.5.4. Adicionar o SDK do FireBase [build.gradle (Project)]

```
buildscript {  
    repositories {  
        // Check that you have the following line (if not, add it):  
        google() // Google's Maven repository  
    }  
    dependencies {  
        ...  
        // Add this line  
        classpath 'com.google.gms:google-services:4.4.2'  
    }  
}  
  
allprojects {  
    ...  
    repositories {  
        // Check that you have the following line (if not, add it):  
        google() // Google's Maven repository  
        ...  
    }  
}
```

Adicionar Funcionalidades Base

2.5.4. Adicionar o SDK do FireBase [build.gradle (Module)]

```
apply plugin: 'com.android.application'
// Add this line
apply plugin: 'com.google.gms.google-services'

dependencies {
    // Import the Firebase BoM
    implementation platform('com.google.firebase:firebase-bom:33.13.0')

    // Add the dependency for the Firebase SDK for Google Analytics
    // When using the BoM, don't specify versions in Firebase dependencies
    implementation 'com.google.firebase:firebase-analytics'

    // Add the dependencies for any other desired Firebase products
    // https://firebase.google.com/docs/android/setup#available-libraries
}
```

Bibliotecas Firebase

Estão divididas em 3 categorias:

Play services required

Precisam dos serviços da Google Play ativos para funcionar

Play services recommended

Precisam dos serviços da Google Play ativos para funcionar na íntegra, mas oferecem grande parte das funcionalidades sem os serviços da Google Play

Play services not required

Não precisam dos serviços da Google Play ativos para funcionar

Google Play services not required

Product	Library	Google Play services?
App Check custom and debug providers	com.google.firebase:firebase-appcheck:18.0.0 com.google.firebase:firebase-appcheck-ktx:18.0.0 com.google.firebase:firebase-appcheck-debug:18.0.0	Not Required
App Distribution API	com.google.firebase:firebase-appdistribution-api:16.0.0-beta13 com.google.firebase:firebase-appdistribution-api-ktx:16.0.0-beta13	Not Required
App Distribution	com.google.firebase:firebase-appdistribution:16.0.0-beta13	Not Required
Authentication	com.google.firebase:firebase-auth:23.0.0 com.google.firebase:firebase-auth-ktx:23.0.0	Not Required
Cloud Firestore	com.google.firebase:firebase-firestore:25.0.0 com.google.firebase:firebase-firestore-ktx:25.0.0	Not Required
Cloud Functions for Firebase Client SDK	com.google.firebase:firebase-functions:21.0.0 com.google.firebase:firebase-functions-ktx:21.0.0	Not Required
Cloud Storage for Firebase	com.google.firebase:firebase-storage:21.0.0 com.google.firebase:firebase-storage-ktx:21.0.0	Not Required
Crashlytics	com.google.firebase:firebase-crashlytics:19.0.1 com.google.firebase:firebase-crashlytics-ktx:19.0.1	Not Required
In-App Messaging	com.google.firebase:firebase-inappmessaging:21.0.0 com.google.firebase:firebase-inappmessaging-ktx:21.0.0	Not Required
In-App Messaging Display	com.google.firebase:firebase-inappmessaging-display:21.0.0 com.google.firebase:firebase-inappmessaging-display-ktx:21.0.0	Not Required
Firebase installations	com.google.firebase:firebase-installations:18.0.0 com.google.firebase:firebase-installations-ktx:18.0.0	Not Required
Performance Monitoring	com.google.firebase:firebase-perf:21.0.1 com.google.firebase:firebase-perf-ktx:21.0.1	Not Required
Realtime Database	com.google.firebase:firebase-database:21.0.0 com.google.firebase:firebase-database-ktx:21.0.0	Not Required
Remote Config	com.google.firebase:firebase-config:22.0.0 com.google.firebase:firebase-config-ktx:22.0.0	Not Required
Vertex AI for Firebase	com.google.firebase:firebase-vertexai:16.0.0-beta01	Not Required

Bibliotecas Firebase

Google Play services required or recommended

Product	Library	Google Play services?
AdMob	com.google.android.gms:play-services-ads:23.1.0	Recommended*
Analytics	com.google.firebase:firebase-analytics:22.0.1 com.google.firebase:firebase-analytics-ktx:22.0.1	Recommended*
App Check Play Integrity provider	com.google.firebase:firebase-appcheck-playintegrity:18.0.0	Required
App Check SafetyNet provider	com.google.firebase:firebase-appcheck-safetynet:16.1.2	Required
App Indexing	com.google.firebase:firebase-appindexing:20.0.0	Required
Cloud Messaging	com.google.firebase:firebase-messaging:24.0.0 com.google.firebase:firebase-messaging-ktx:24.0.0	Required
Dynamic Links	com.google.firebase:firebase-dynamic-links:22.1.0 com.google.firebase:firebase-dynamic-links-ktx:22.1.0	Required
Firebase ML Vision	com.google.firebase:firebase-ml-vision:24.1.0	Required
Firebase ML Custom Model	com.google.firebase:firebase-ml-model-interpreter:22.0.4	Required

Leitura Recomendada

- Primeiros Passos:

<https://firebase.google.com/docs/android/setup?authuser=0>

- Firebase Console:

<https://console.firebase.google.com/u/0/>

Programação Para Dispositivos Móveis I

FIREBASE

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