



Workshop - Android

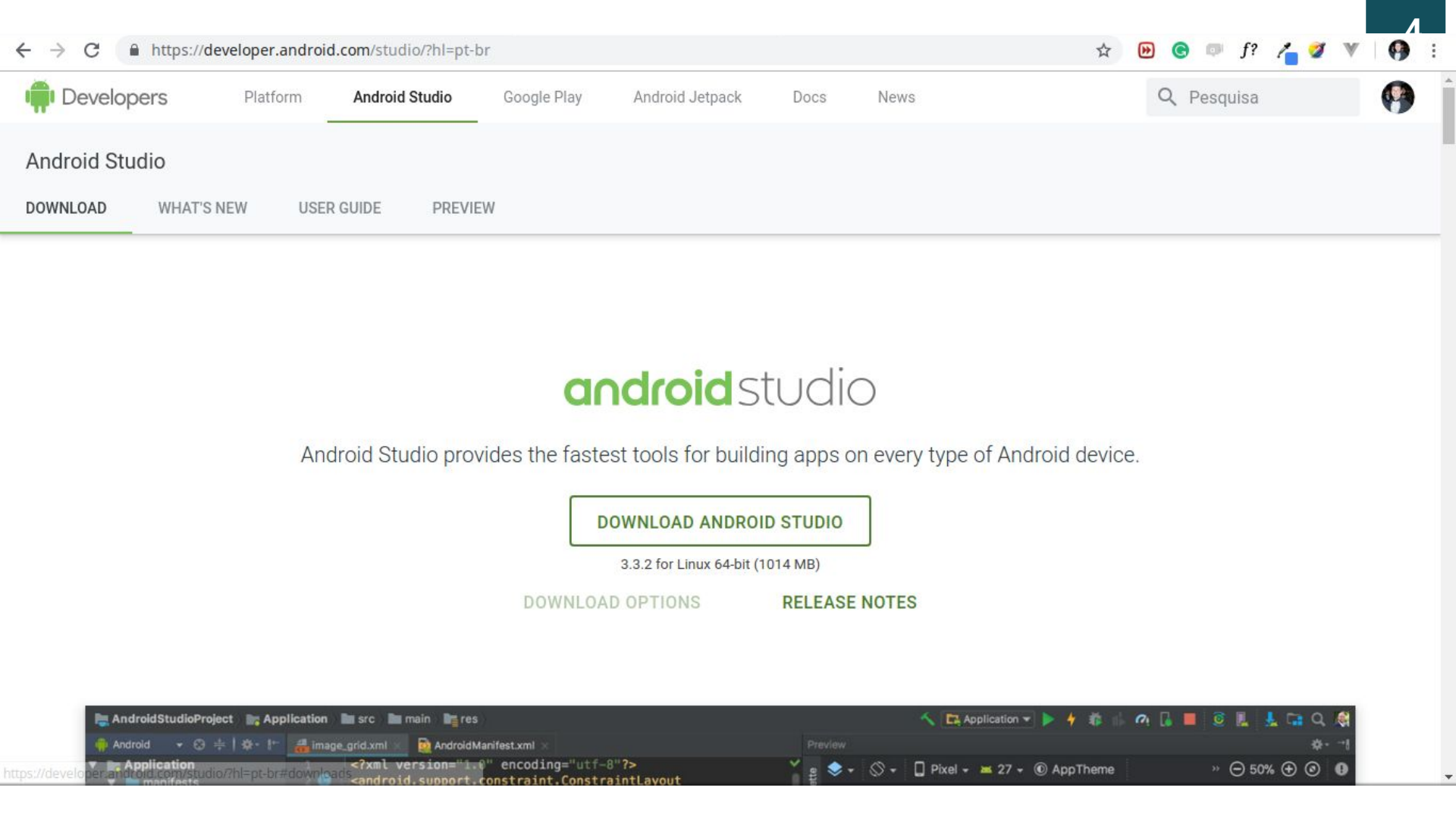


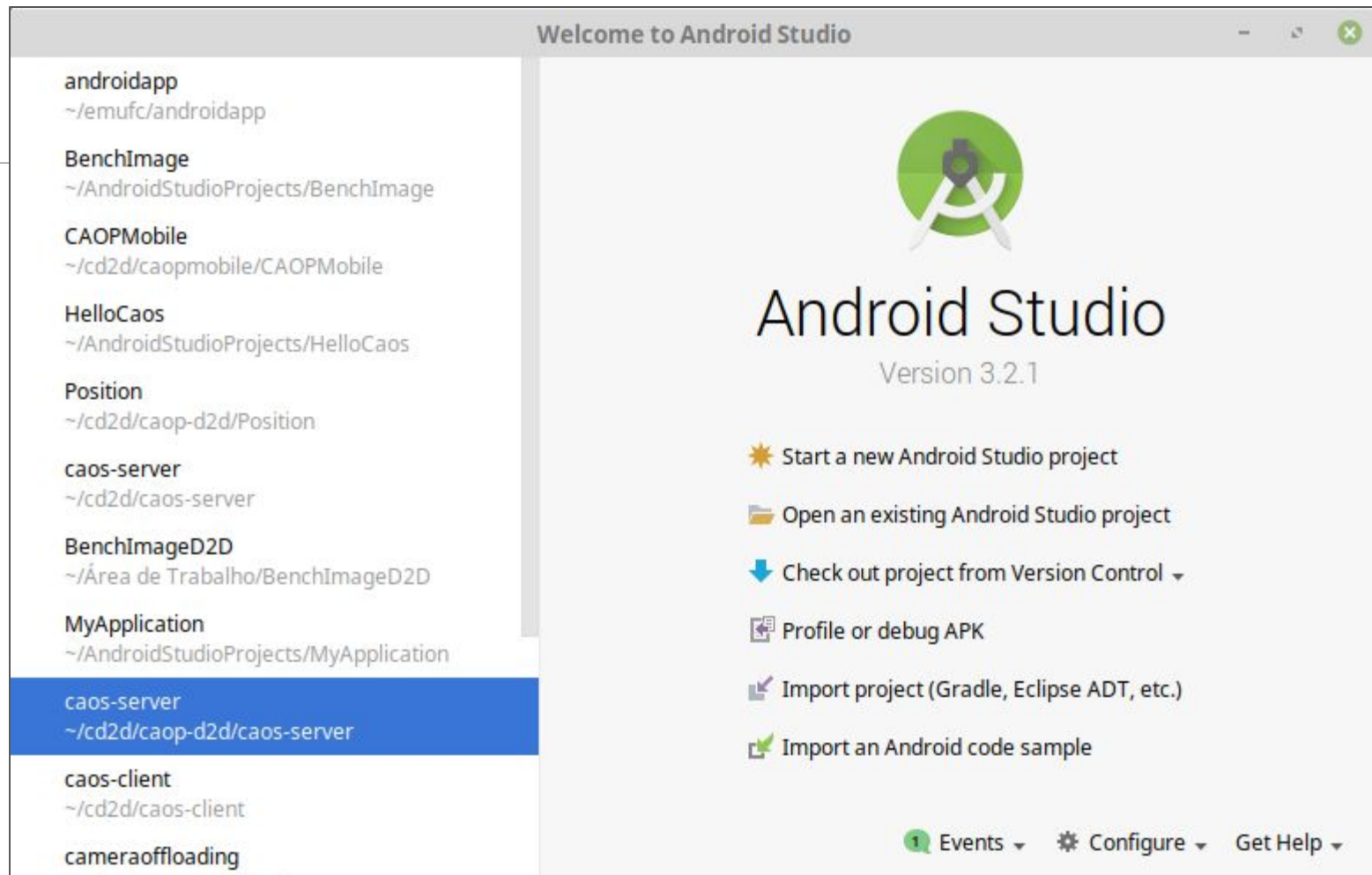
Professor: Anderson Almada

Agenda

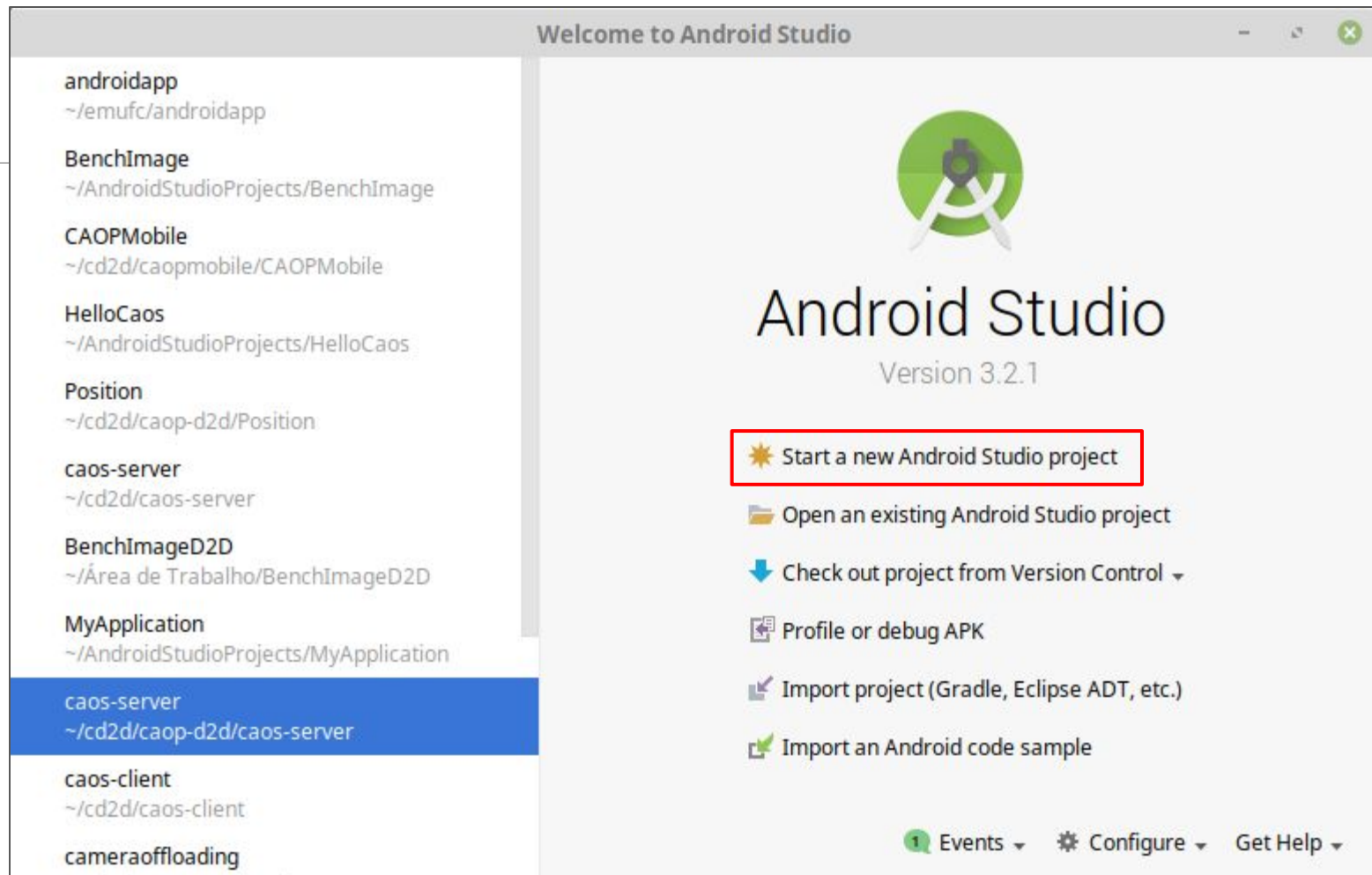
- IDE
- Criação de um Hello World
- Utilização do emulador
- Criação de um formulário
- Envio de mensagens entre telas
- Desafio !

IDE





Hello World





Create Android Project

Application name

Company domain

Project location



Package name

- ☐ Include C++ support
- ☐ Include Kotlin support



Target Android Devices

Select the form factors and minimum SDK

Some devices require additional SDKs. Low API levels target more devices, but offer fewer API features.

☒ **Phone and Tablet**

API 19: Android 4.4 (KitKat)

By targeting **API 19 and later**, your app will run on approximately **95,3%** of devices. [Help me choose](#)

☐ Include Android Instant App support

☐ **Wear OS**

API 23: Android 6.0 (Marshmallow)

☐ **TV**

API 21: Android 5.0 (Lollipop)

☐ **Android Auto**

☐ **Android Things**

API 24: Android 7.0 (Nougat)

Previous

Next

Cancel

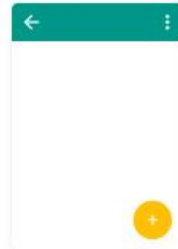
Finish



Add an Activity to Mobile



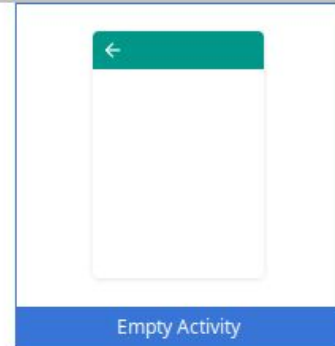
Add No Activity



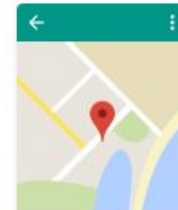
Basic Activity



Bottom Navigation Activity



Empty Activity





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Next

Cancel

Finish

Create New Project

 Configure Activity 

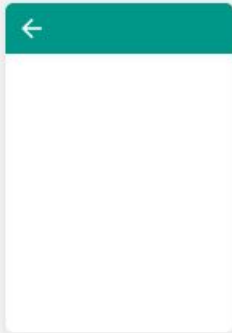
Creates a new empty activity

Activity Name:

☒ Generate Layout File

Layout Name:

☒ Backwards Compatibility (AppCompat)

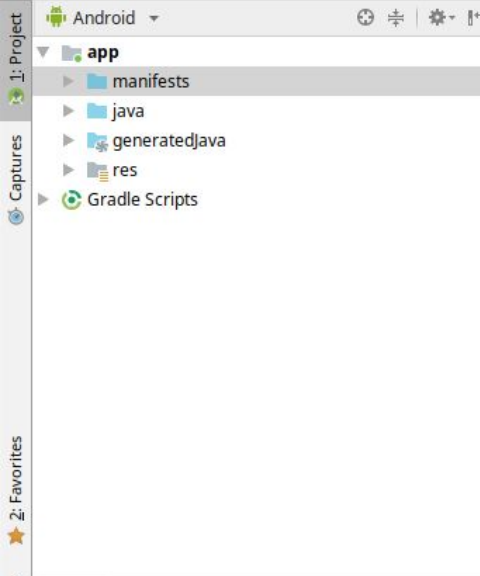


The name of the activity class to create

```
1 package com.example.anderson.myapplication;
2
3 import ...
4
5 public class MainActivity extends AppCompatActivity {
6
7     @Override
8     protected void onCreate(Bundle savedInstanceState) {
9         super.onCreate(savedInstanceState);
10        setContentView(R.layout.activity_main);
11    }
12 }
13
14
```

```
Build Sync
:app:generateDebugResValues UP-TO-DATE
:app:generateDebugResources UP-TO-DATE
:app:mergeDebugResources
:app:createDebugCompatibleScreenManifests UP-TO-DATE
:app:processDebugManifest
:app:splitsDiscoveryTaskDebug UP-TO-DATE
:app:processDebugResources
:app:generateDebugSources

BUILD SUCCESSFUL in 3s
13 actionable tasks: 3 executed, 10 up-to-date
```



```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3       package="com.example.anderson.myapplication">
4
5     <application
6         android:allowBackup="true"
7         android:icon="@mipmap/ic_launcher"
8         android:label="My Application"
9         android:roundIcon="@mipmap/ic_launcher_round"
10        android:supportRtl="true"
11        android:theme="@style/AppTheme">
12         <activity android:name=".MainActivity">
13             <intent-filter>
14                 <action android:name="android.intent.action.MAIN" />
15
16                 <category android:name="android.intent.category.LAUNCHER" />
17             </intent-filter>
18         </activity>
19     </application>
20
21 </manifest>
```

manifest

Text Merged Manifest

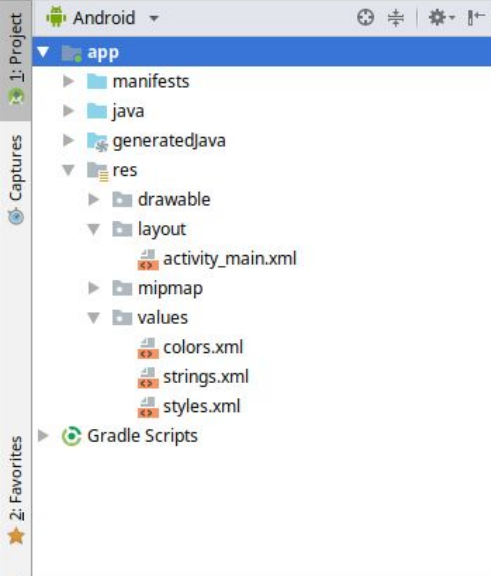
Build Sync

```
:app:generateDebugResvalues UP-TO-DATE
:app:generateDebugResources UP-TO-DATE
:app:mergeDebugResources
:app:createDebugCompatibleScreenManifests UP-TO-DATE
:app:processDebugManifest
:app:splitsDiscoveryTaskDebug UP-TO-DATE
:app:processDebugResources
:app:generateDebugSources
```

```
BUILD SUCCESSFUL in 3s
13 actionable tasks: 3 executed, 10 up-to-date
```

Logcat Terminal Build TODO

1 Event Log



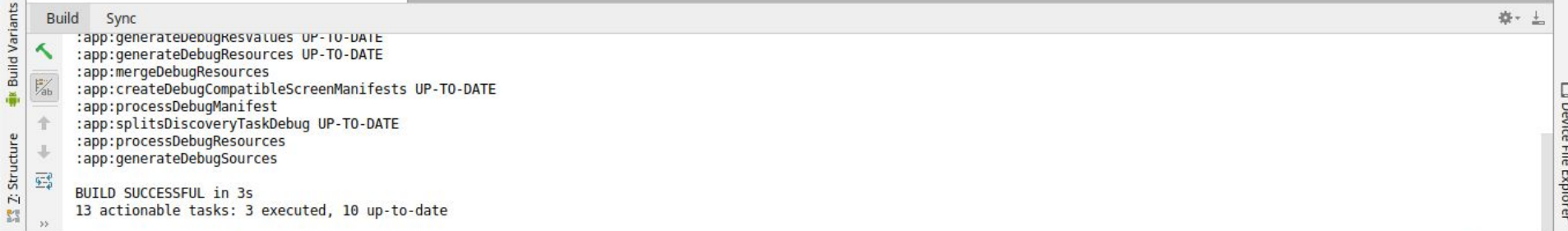
Search Everywhere [Double Shift](#)

Go to File [Ctrl+Shift+R](#)

Recent Files [Ctrl+E](#)

Navigation Bar [Alt+Inicio](#)

Drop files here to open



Android > styles.xml x strings.xml x colors.xml x activity_main.xml x

1: Project

- app
 - manifests
 - java
 - generatedjava
 - res
 - drawable
 - layout
 - activity_main.xml
 - mipmap
 - values
 - colors.xml
 - strings.xml
 - styles.xml
- Gradle Scripts

2: Favorites

Build Variants

7: Structure

Palette

- Common
 - Ab TextView
 - Button
 - ImageView
 - RecyclerView
 - <> <fragment>
 - ScrollView
 - Switch
- Text
- Buttons
- Widgets
- Layouts
- Container
- Google

Component Tree

- ConstraintLayout
 - Ab TextView - "Hello World!"

Design Text

Build Sync

```
:app:splitDiscoveryTaskDebug UP-TO-DATE
:app:processDebugResources
:app:generateDebugSources

BUILD SUCCESSFUL in 3s
13 actionable tasks: 3 executed, 10 up-to-date
```

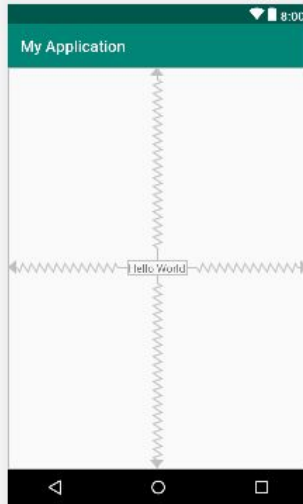
Logcat Terminal Build TODO

Event Log

Context: <no context>

Device File Explorer

Emulador





Your Virtual Devices

Android Studio

Type	Name	Play Store	Resolution	API	Target	CPU/ABI	Size on Disk	Actions
	Nexus 5X API 24		1080 × 1920: 420dpi	24	Android 7.0 (Google Play)	x86	10 GB	
	Nexus 5X API 19		1080 × 1920: 420dpi	19	Android 4.4 (Google APIs)	x86	5,1 GB	

[+ Create Virtual Device...](#)



Select Hardware

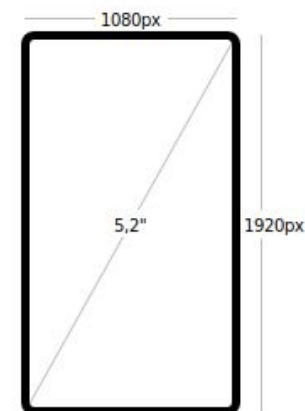
Android Studio

Choose a device definition

Category	Name ▾	Play Store	Size	Resolution	Density
TV	Pixel		5,0"	1080x1920	420dpi
Phone	Nexus 5		4,0"	480x800	hdpi
Wear OS	Nexus One		3,7"	480x800	hdpi
Tablet	Nexus 6P		5,7"	1440x2560	560dpi
	Nexus 6		5,96"	1440x2560	560dpi
	Nexus 5X		5,2"	1080x1920	420dpi
	Nexus 5		4,95"	1080x1920	xxhdpi
	Nexus 4		4,7"	768x1280	xhdpi

New Hardware ProfileImport Hardware Profiles

Nexus 5X



Size: large
Ratio: long
Density: 420dpi

Clone Device...PreviousNextCancelFinishHelp



Select Hardware

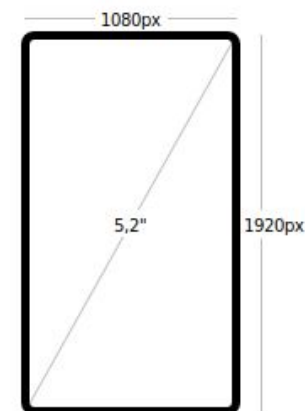
Android Studio

Choose a device definition

Q					
Category	Name ▾	Play Store	Size	Resolution	Density
TV	Pixel	▶	5,0"	1080x1920	420dpi
Phone	Nexus 5		4,0"	480x800	hdpi
Wear OS	Nexus One		3,7"	480x800	hdpi
Tablet	Nexus 6P		5,7"	1440x2560	560dpi
	Nexus 6		5,96"	1440x2560	560dpi
	Nexus 5X	▶	5,2"	1080x1920	420dpi
	Nexus 5	▶	4,95"	1080x1920	xxhdpi
	Nexus 4		4,7"	768x1280	xhdpi

New Hardware ProfileImport Hardware ProfilesClone Device...

Nexus 5X



Size: large
Ratio: long
Density: 420dpi

Previous

Next

Cancel

Finish

Help



System Image

Android Studio

Select a system image

Recommended

x86 Images

Other Images

Release Name	API Level ▾	ABI	Target
Q Download	Q	x86	Android API Q (Google Play)
Pie Download	28	x86	Android 9.0 (Google Play)
Oreo Download	27	x86	Android 8.1 (Google Play)
Oreo Download	26	x86	Android 8.0 (Google Play)
Nougat Download	25	x86	Android 7.1.1 (Google Play)
Nougat	24	x86	Android 7.0 (Google Play)

Nougat



API Level

24

Android

7.0**Google Inc.**

System Image

x86

We recommend these Google Play images because this device is compatible with Google Play.

Questions on API level?

See the [API level distribution chart](#)

Previous

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Cancel

Finish

Help



System Image

Android Studio

Select a system image

Recommended x86 Images Other Images

Release Name	API Level ▾	ABI	Target
Lollipop Download	22	x86	Android 5.1
Lollipop Download	22	x86_64	Android 5.1
Lollipop Download	21	x86_64	Android 5.0 (Google APIs)
Lollipop Download	21	x86	Android 5.0 (Google APIs)
Lollipop Download	21	x86_64	Android 5.0
Lollipop Download	21	x86	Android 5.0
KitKat	19	x86	Android 4.4 (Google APIs)
KitKat Download	19	x86	Android 4.4
Jelly Bean Download	18	x86	Android 4.3 (Google APIs)
Jelly Bean Download	18	x86	Android 4.3



KitKat



API Level

19

Android

4.4**Google Inc.**

System Image

x86

Questions on API level?

See the [API level distribution chart](#)

Previous

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Cancel

Finish

Help



Android Virtual Device (AVD)

Android Studio

Verify Configuration

AVD Name 

Nexus 5X

5.2 1080x1920 420dpi

[Change...](#)

KitKat

Android 4.4 x86

[Change...](#)

Startup orientation



Portrait



Landscape

Emulated
PerformanceGraphics: Device Frame ☐ Enable Device Frame[Show Advanced Settings](#)

Enable device frame

Enable a frame around the Android emulator window that mimics the look of a real Android device. Click on Show Advanced Settings for more options.

[Previous](#)[Next](#)[Cancel](#)[Finish](#)[Help](#)

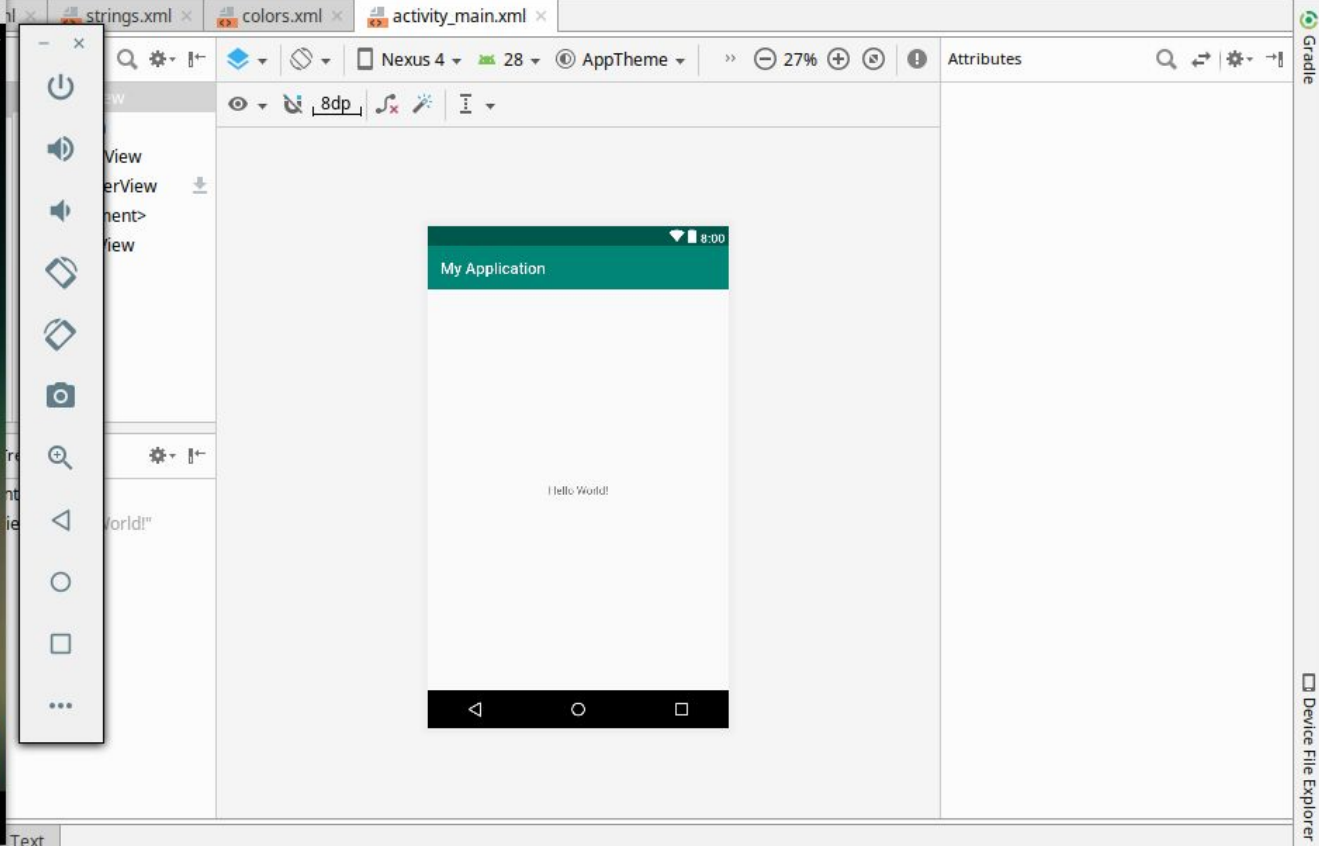
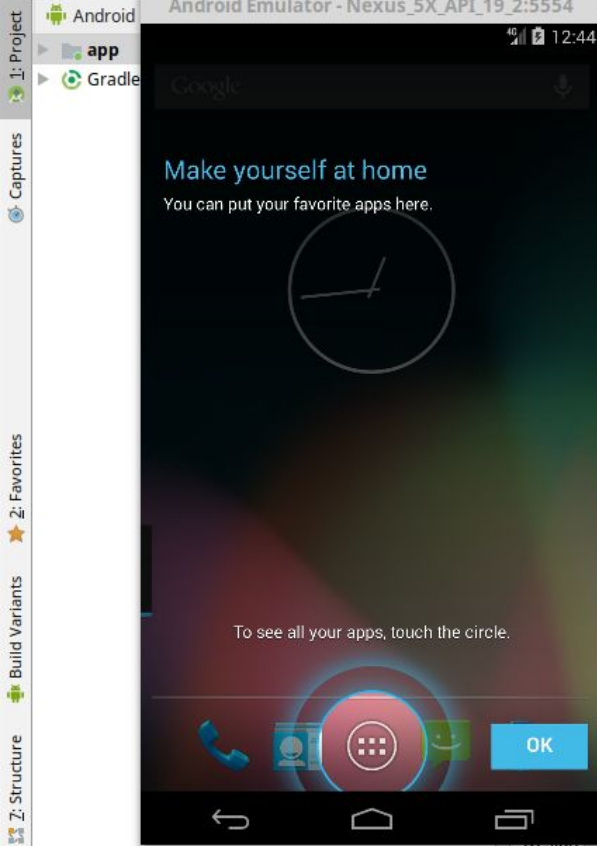


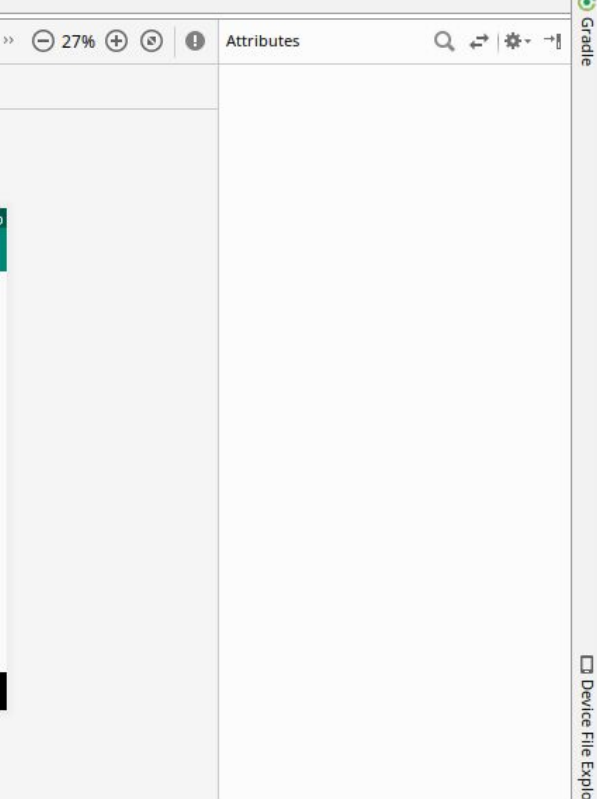
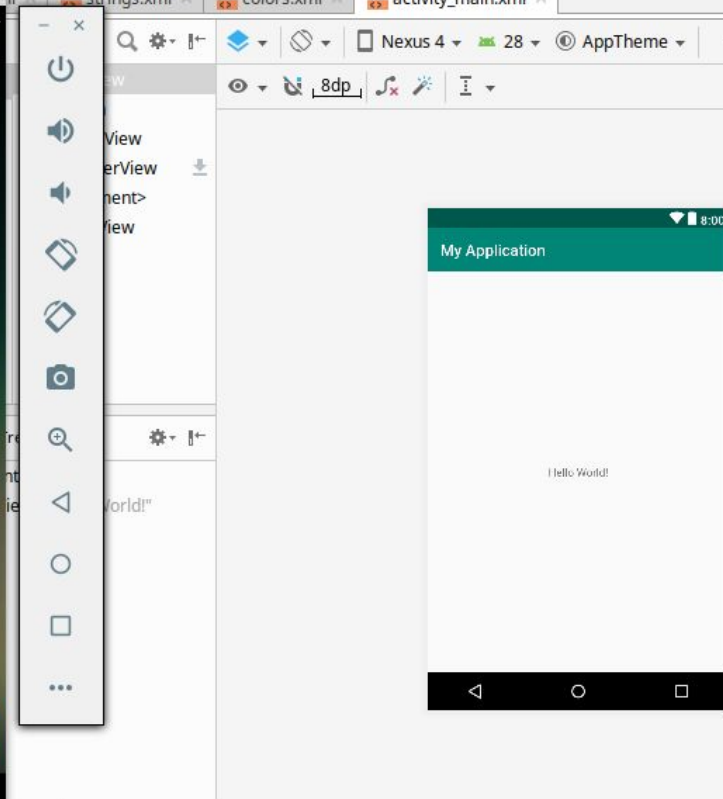
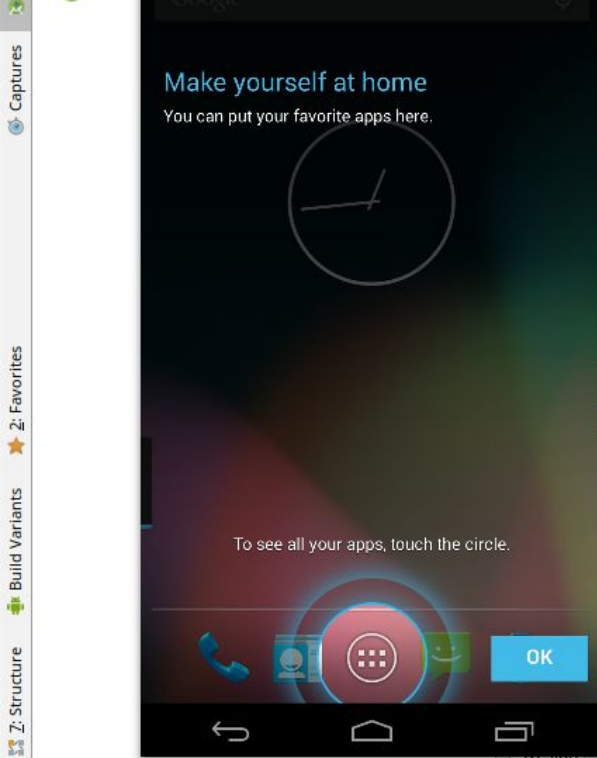
Your Virtual Devices

Android Studio

Type	Name	Play Store	Resolution	API	Target	CPU/ABI	Size on Disk	Actions
	Nexus 5X API 24		1080 × 1920: 420dpi	24	Android 7.0 (Google Play)	x86	10 GB	
	Nexus 5X API 19		1080 × 1920: 420dpi	19	Android 4.4 (Google APIs)	x86	5,1 GB	
	Nexus 5X API 19 2		1080 × 1920: 420dpi	19	Android 4.4 (Google APIs)	x86	2,5 GB	

[+ Create Virtual Device...](#)







Connected Devices

 Nexus 5X API 19 2 (Android 4.4.2, API 19)

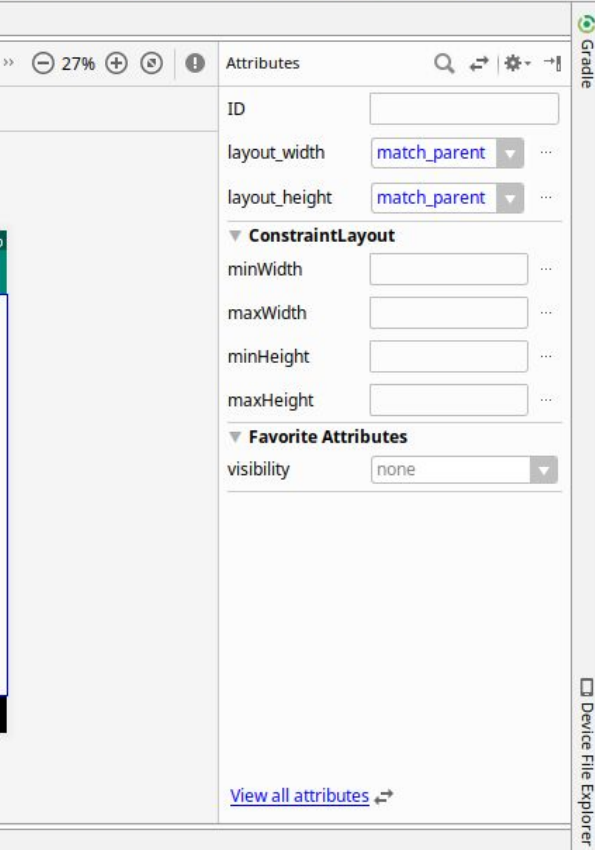
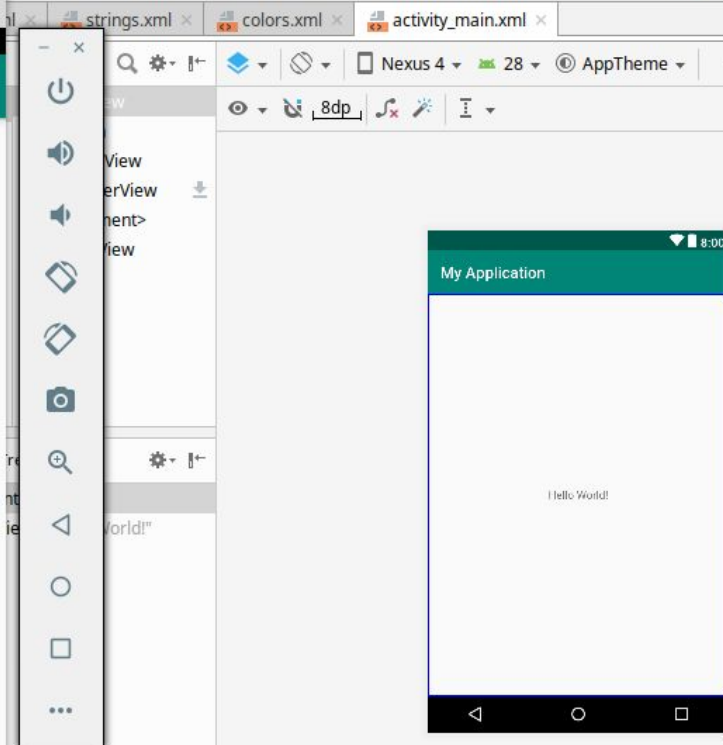
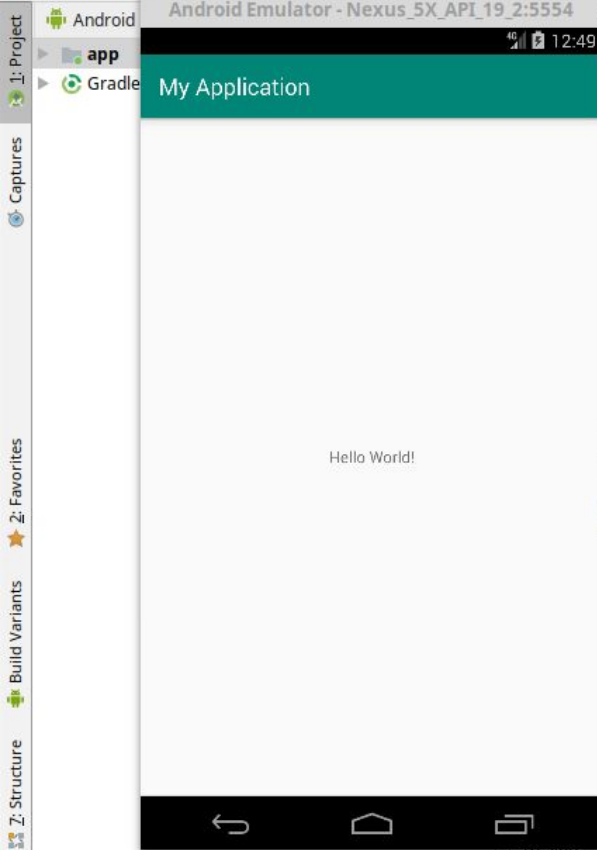
Available Virtual Devices

 Nexus 5X API 24 Nexus 5X API 19[Create New Virtual Device](#)☒ Use same selection for future launches

OK

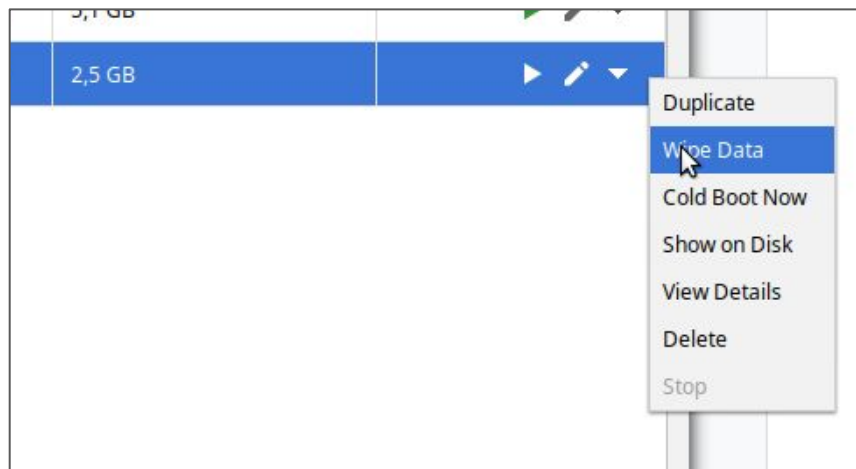
Cancel

Help



Emulator

- Se caso o emulador demorar muito a iniciar, pode ser o caso de apagar os dados de cache do mesmo.



Simples formulário

Android > app > src > main > res > layout > activity_main.xml

1: Project
Captures
2: Favorites
Build Variants
3: Structure
Device File Explorer

Palette

- Common
 - Ab TextView
 - Button
- Text
 - ImageView
- Buttons
 - RecyclerView
- Widgets
 - <> <fragment>
- Layouts
 - ScrollView
- Containers
 - Switch
- Google
- Legacy

Component Tree

- ConstraintLayout
 - Ab TextView "Nome"

Design Text

Attributes

ID

layout_width

layout_height

3

5

▼ TextView

text

text

contentDescript

textAppearar

▼ Favorite Attributes

visibility

View all attributes

Palette









































































































































































































































































































































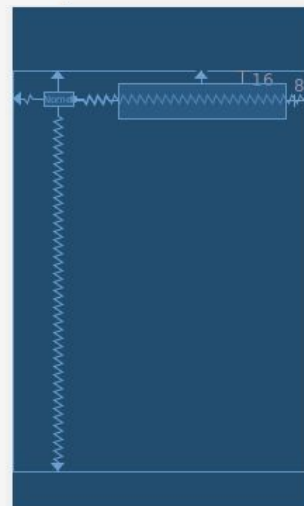






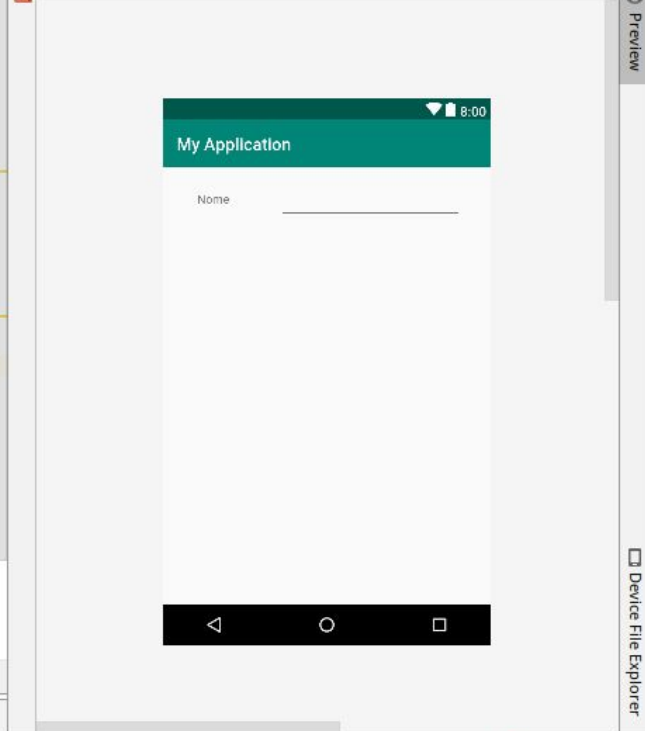






```
1 <?xml version="1.0" encoding="utf-8"?>
2 <android.support.constraint.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res-auto"
3     xmlns:app="http://schemas.android.com/apk/res-auto"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     tools:context=".MainActivity">
8
9     <TextView
10         android:id="@+id/textView3"
11         android:layout_width="wrap_content"
12         android:layout_height="wrap_content"
13         android:layout_marginTop="8dp"
14         android:text="Nome"
15         app:layout_constraintBottom_toBottomOf="parent"
16         app:layout_constraintHorizontal_bias="0.115"
17         app:layout_constraintLeft_toLeftOf="parent"
18         app:layout_constraintRight_toRightOf="parent"
19         app:layout_constraintTop_toTopOf="parent"
20         app:layout_constraintVertical_bias="0.04000002" />
21
22     <EditText
23         android:id="@+id/editText2"
24         android:layout_width="wrap_content"
25         android:layout_height="wrap_content"
26         android:layout_marginStart="32dp"
27         android:layout_marginTop="16dp"
28         android:layout_marginEnd="8dp"
29         android:ems="10"
30         android:inputType="textPersonName"
31         app:layout_constraintEnd_toEndOf="parent"
32         app:layout_constraintStart_toEndOf="@+id/textView3"
33         app:layout_constraintTop_toTopOf="parent" />
34
35 </android.support.constraint.ConstraintLayout>
```

Design Text



Android > styles.xml x strings.xml x colors.xml x activity_main.xml x

1: Project
app
Gradle Scripts

2: Captures

3: Favorites

4: Build Variants

5: Structure

6: Device File Explorer

Palette

- Common
 - Button
- Text
 - ImageButton
- Buttons
 - CheckBox
 - RadioGroup
 - RadioButton
 - ToggleButton
- Widgets
 - Switch
 - FloatingAction...
- Layouts
- Containers
- Google
- Legacy

Component Tree

- ConstraintLayout
 - Ab textView3- "Nome" ⚠
 - Ab editText2(Plain Text) ⚠
 - Ab textView6- "Sobrenome" ⚠
 - Ab editText5- "Name" ⚠
 - button- "Button" ⚠

Design Text

Attributes

ID button

layout_width wrap_content

layout_height wrap_content

Button

style buttonStyle

onClick none

background

TextView

text Button

text

contentDescript

Android > app > src > main > res > layout > activity_main.xml

Palette

- Common
 - Button
- Text
 - ImageButton
- Buttons
 - CheckBox
 - RadioGroup
 - RadioButton
 - ToggleButton
- Widgets
 - Switch
 - FloatingActionButton
- Layouts
- Container
- Google

Component Tree

- ConstraintLayout
 - Ab textView3- "Nome"
 - Ab etNome(Plain Text)
 - Ab textView6- "Sobrenome"
 - Ab etSobrenome(Plain Text)
 - btEnviar- "Enviar"

Attributes

- ID: etNome
- layout_width: wrap_content
- layout_height: wrap_content

Design Text

Build Sync

```
:app:validateSigningdebug UP-TO-DATE
:app:packageDebug
:app:assembleDebug
```

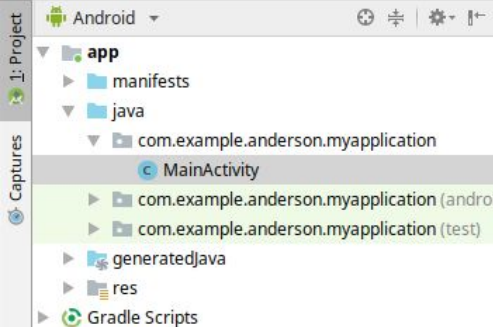
BUILD SUCCESSFUL in 2s
27 actionable tasks: 7 executed, 20 up-to-date

Logcat Terminal Build Profiler Run TODO

1 occurrence changed

Event Log

Context: <no context>



```
1 package com.example.anderson.myapplication;
2
3 import ...
4
5
6 public class MainActivity extends AppCompatActivity {
7
8     @Override
9     protected void onCreate(Bundle savedInstanceState) {
10         super.onCreate(savedInstanceState);
11         setContentView(R.layout.activity_main);
12     }
13
14 }
```

MainActivity

Build Sync

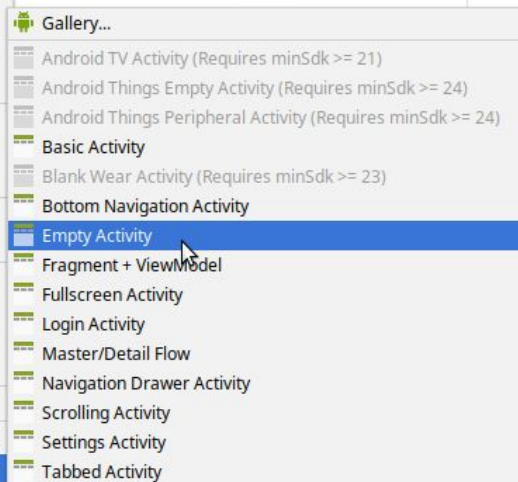
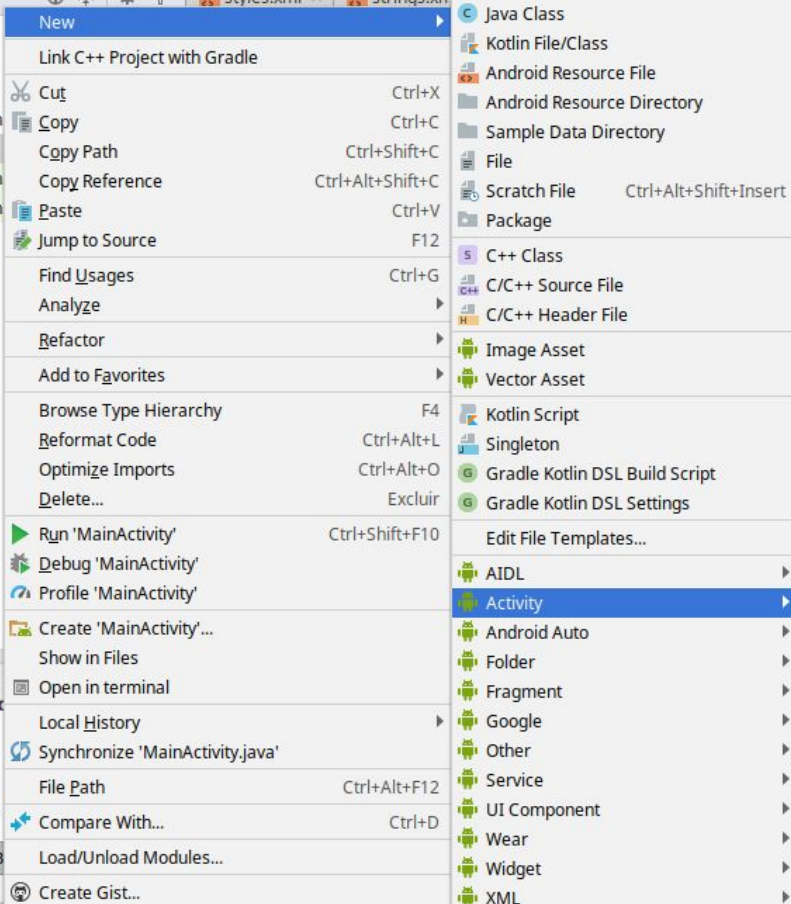
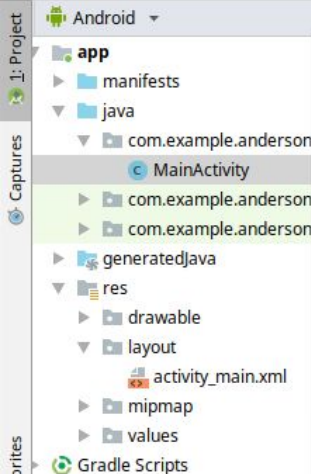
```
:app:validateSigningdebug UP-TO-DATE
:app:packageDebug
:app:assembleDebug
```

```
BUILD SUCCESSFUL in 2s
27 actionable tasks: 7 executed, 20 up-to-date
```

Código-fonte

- XML
 - <https://pastebin.com/2ZqFaSNu>
- Java
 - <https://pastebin.com/mswLRjQR>

Envio de mensagens entre telas



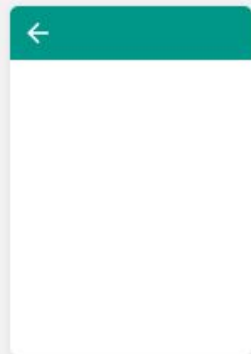


Configure Activity

Android Studio



Creates a new empty activity



Activity Name:

Main2Activity

☒ Generate Layout File

Layout Name:

activity_main2

☐ Launcher Activity☒ Backwards Compatibility (AppCompat)

Package name:

com.example.anderson.myapplication

Source Language:

Java



The name of the activity class to create

Previous

Next

Cancel

Finish

Android > styles.xml x strings.xml x colors.xml x activity_main.xml x MainActivity.java x activity_main2.xml x Main2Activity.java x

1: Project

- app
 - manifests
 - java
 - generatedjava
 - res
 - drawable
 - layout
 - activity_main.xml
 - activity_main2.xml
 - mipmap
 - values
- Gradle Scripts

2: Favorites

3: Build Variants

4: Structure

5: Design

6: Text

7: Build

8: Sync

9: Logcat

10: Terminal

11: Build

12: Profiler

13: Run

14: TODO

15: Event Log

16: App is not indexable by Google Search; consider adding at least one Activity with an ACTION-VIEW intent filter. See issue explanation for more details.

8 chars 1:9 Context: <no context>

17: Palette

18: Common

- Ab TextView
- Button
- ImageView
- RecyclerView
- <> <fragment>
- Layouts
- ScrollView
- Container
- Switch
- Google

19: Component Tree

- ConstraintLayout
- Ab tvResult: "TextView"

20: Design

21: Text

22: Attributes

23: ID

24: tvResult

25: layout_width

26: wrap_content

27: layout_height

28: wrap_content

29: 8

30: 8

31: 8

32: 8

33: 8

34: 8

35: 8

36: 8

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42: 8

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Código-fonte

- XML
 - <https://pastebin.com/Hi8cmEwV>
- Java
 - MainActivity
 - <https://pastebin.com/dLVzAg0T>
 - Main2Activity
 - <https://pastebin.com/EEMLUSxM>

Desafio



Dúvidas??

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