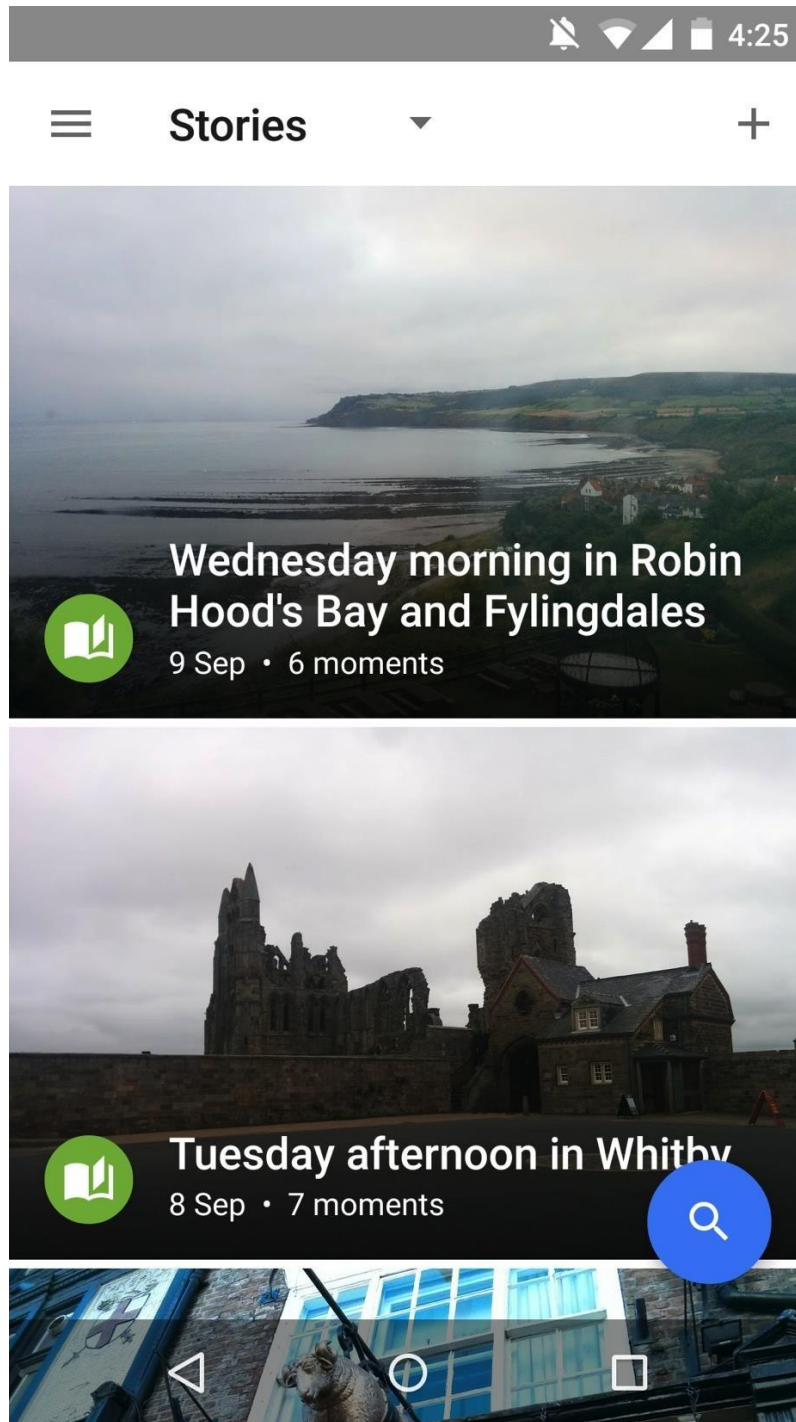


## Chapter 1: Introducing the Android UI





19:01



# Payments



Credit/Debit Card



Add payment types to autofill them  
online

PayPal



Get express checkout on any site...without having to  
store your pay

Bank account

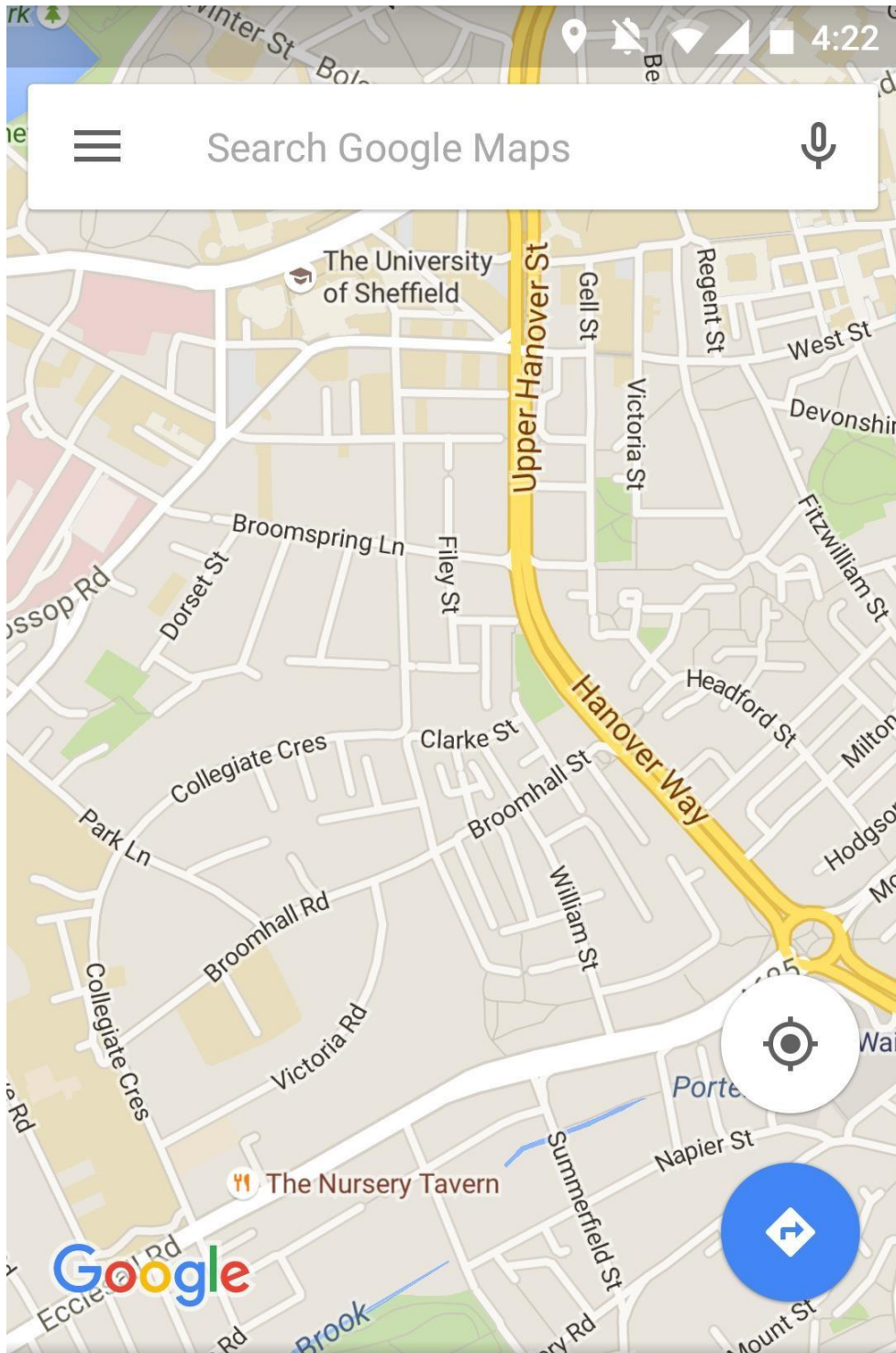


✓ Sync: On

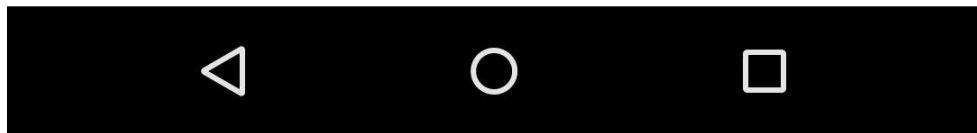
✓ Backup: On

[GO PREMIUM](#)





Around Broomhall





Jessica ▾



Home ▾





**Jessica Thornsby**

@gmail.com



Home



**Jessica Thornsby**

@canstudios...



To



**Sheffield Eats**

@gmail.com

8m



Select Google+ page



IMHO..I h  
released  
have no n  
forwards through my videos. Maybe if it had other  
features I would utilize it more...I found myself alw...

+1



Jessica ▾

1

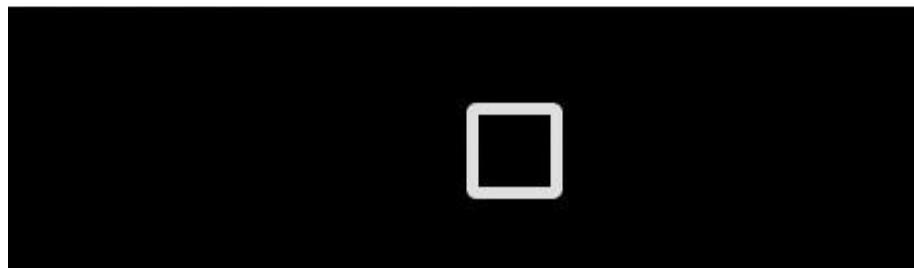
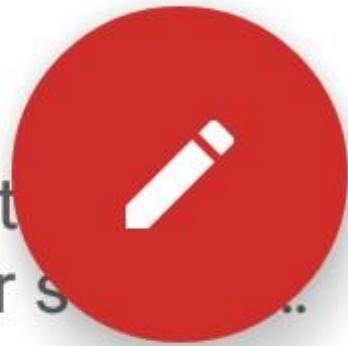


2





from tending to t  
omers. Customer s...





Jessica ▾



Home ▲

🔍 Search Google+



Home



Circles



Communities



Collections



Recent



Friends

Explore



Locations



Events







Jessica Thornsby



PASTE

Cut copy paste



1 2 3 4 5 6 7 8 9 0  
 q w e r t y u i o p  
 a s d f g h j k l  
 ↑ z x c v b n m ✕  
 ?123 , . ↩



← **Jessica Thornsby**  
jessica.thornsby@gmail.com



 Notifications

 Photos and Videos Shared on Google+

 Sharing

 Location sharing

 Contacts

 Profile

 Apps with Google+ Sign-In

Sign out

[More](#)

Delete Google+ Profile





Jessica Thornsby



Public

New photo!

Add your location

Do you want to discard this post?

NO YES



Add photo

Create album





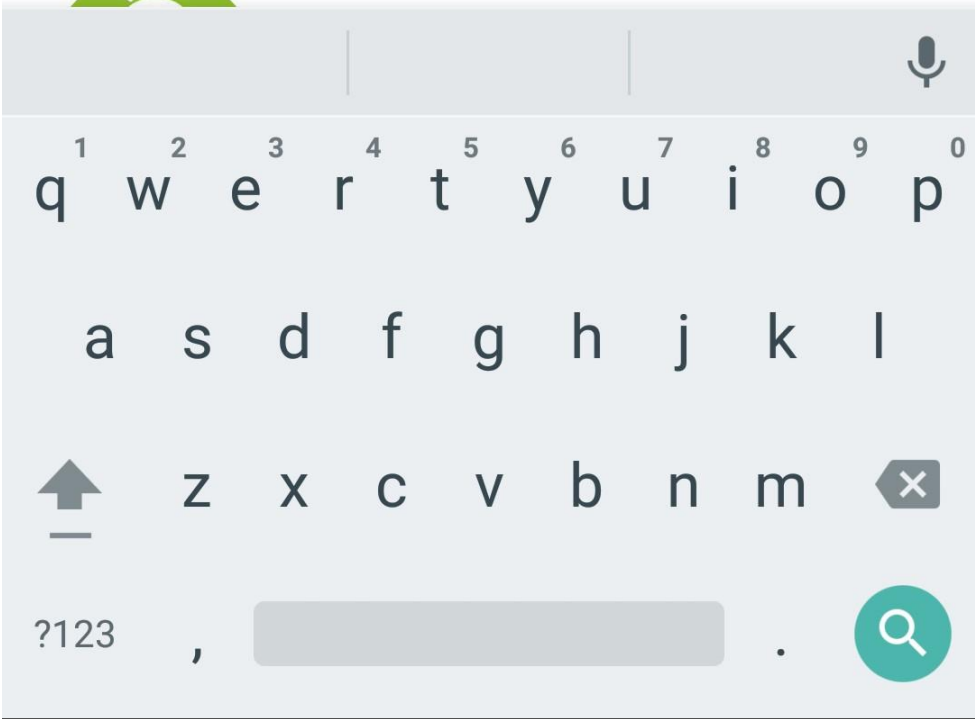
Android Developers

+ Follow



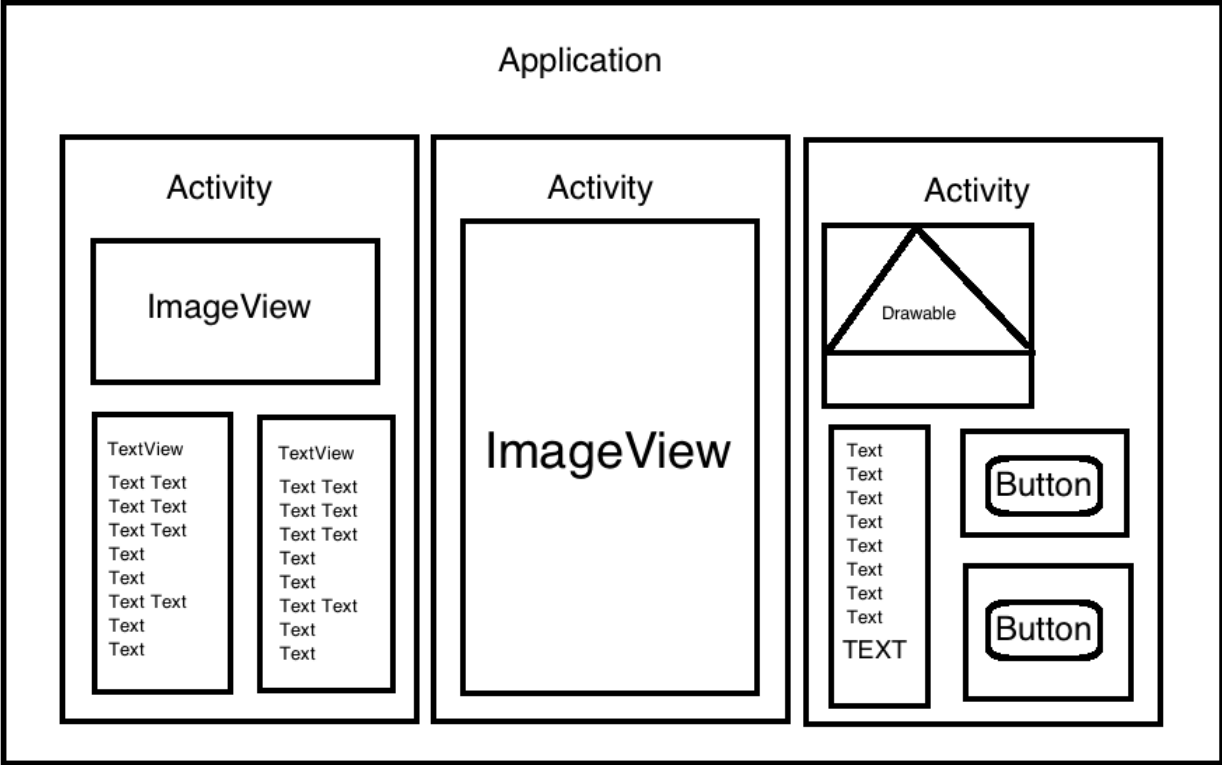
Android One ✓

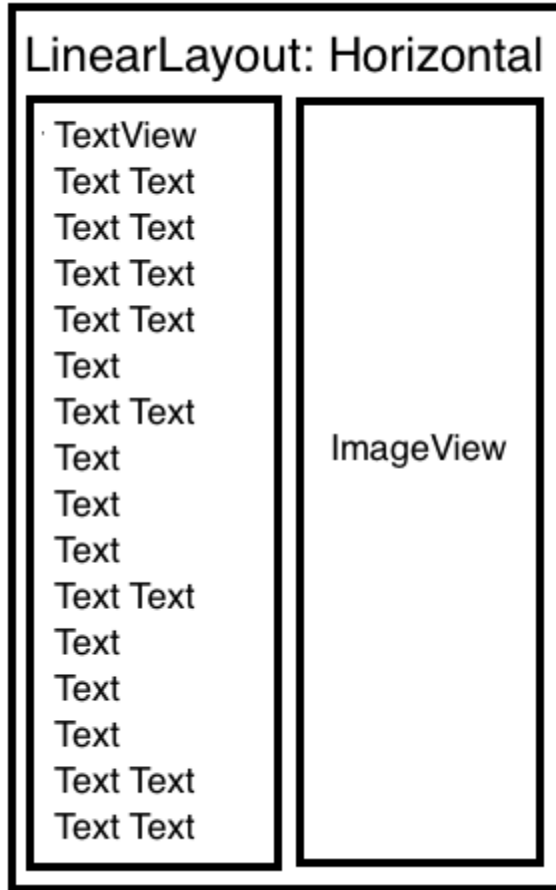
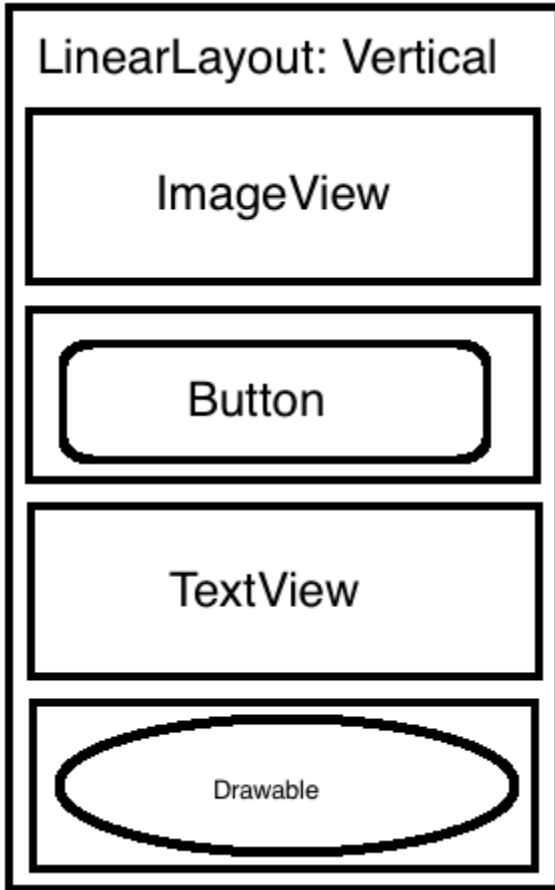
+ Follow





# Chapter 2: What Goes into an Effective UI?





Create New Project

## Customize the Activity

Creates a new blank activity with an action bar.

Blank Activity

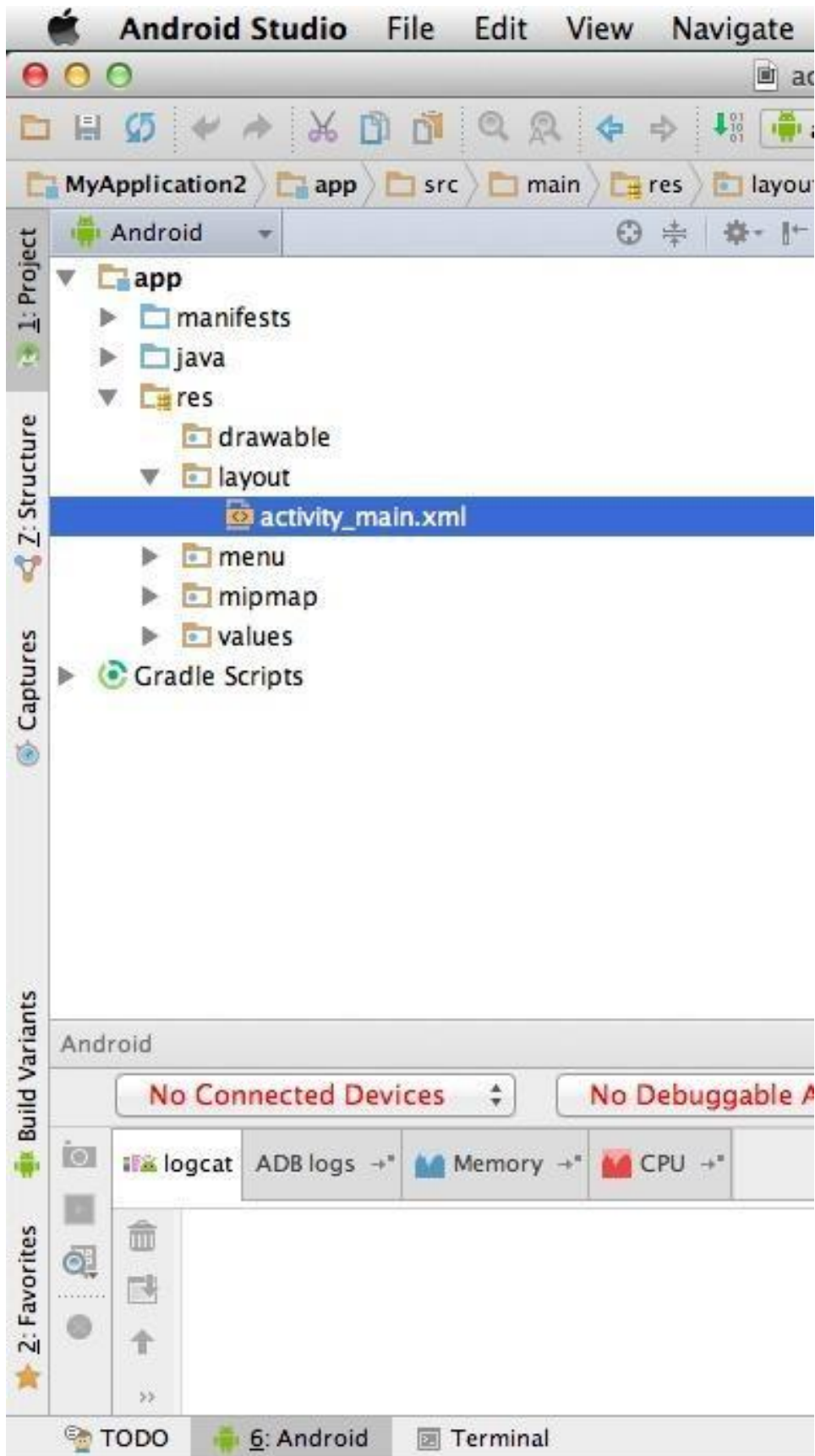
Activity Name:

Layout Name:

Title:

Menu Resource Name:

The name of the activity. For launcher activities, the application title.





# My Application



OK

CANCEL





# My Application



OK

CANCEL





# My Application

alignParentTop   centerHorizontal   alignParentRight

centerVertical   centerInParent

alignParentBottom





16:57

# My Application

toStartOf

toEndOf

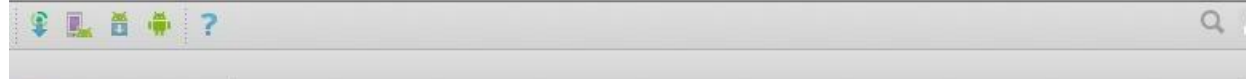


layout\_above

**THIS IS OUR REFERENCE POINT**

layout\_below

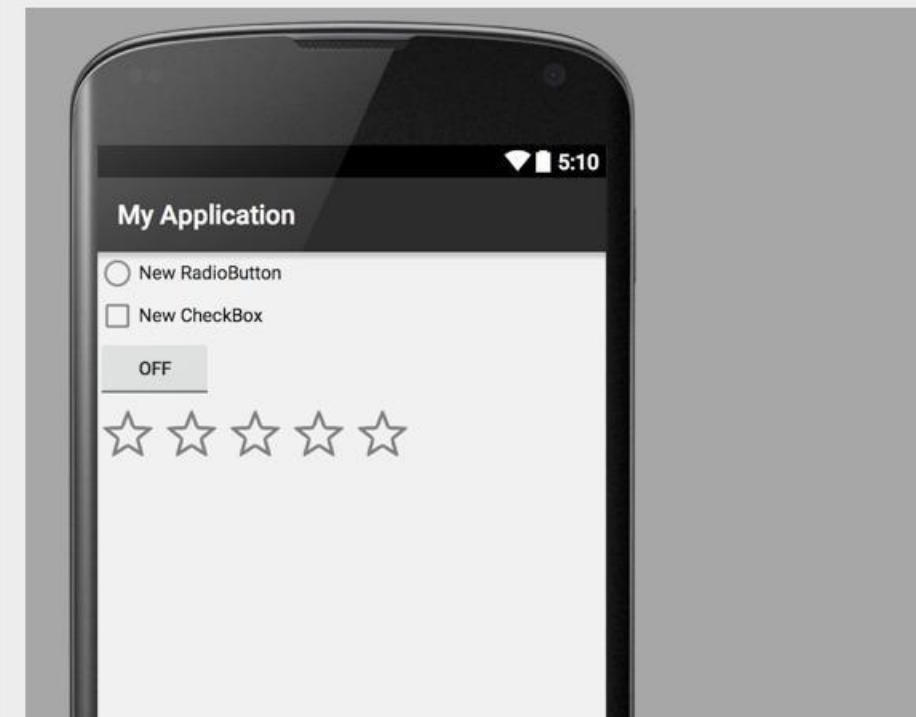




activity\_main.xml x

Palette Nexus 4 AppTheme MainActivity 22

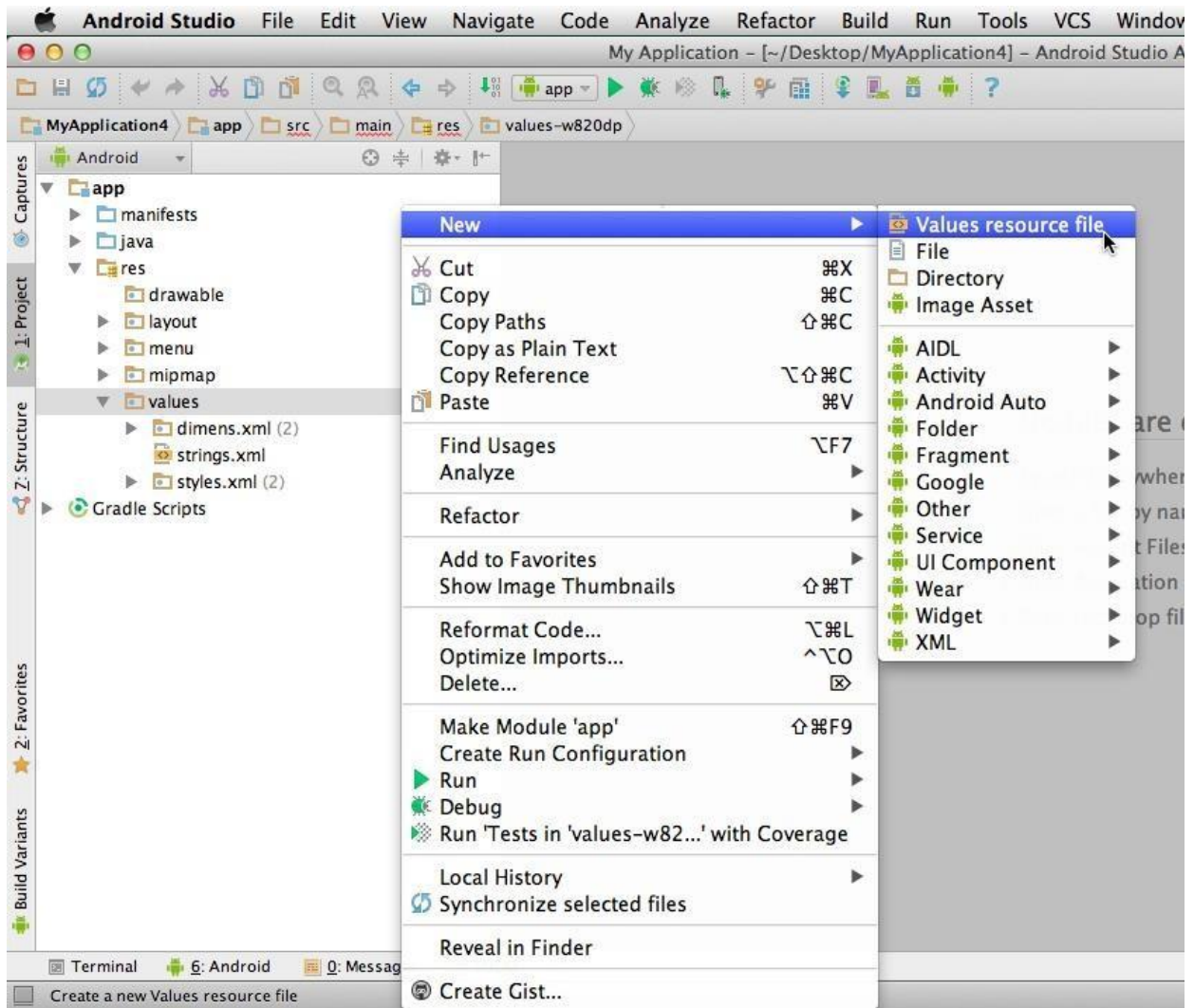
- Layouts
  - FrameLayout
  - LinearLayout (Horizontal)
  - LinearLayout (Vertical)
  - TableLayout
  - TableRow
  - GridLayout
  - RelativeLayout
- Widgets
  - Plain TextView
  - Large Text
  - Medium Text
  - Small Text
  - Button**
  - Small Button
  - RadioButton
  - CheckBox
  - Switch
  - ToggleButton
  - ImageButton
  - ImageView
  - ProgressBar (Large)
  - ProgressBar (Normal)
  - ProgressBar (Small)
  - ProgressBar (Horizontal)
  - SeekBar



Design Text

Event Log Gradle Console

n/a n/a



# My Application



A

B

C







This is normal

**This is bold**

*This is italic*

***This is bold/italic***





This is normal typeface

This is monospace  
typeface

This is sans typeface

This is serif typeface



# My Application



Please complete this form:

Name

---

Email address

---

Postal address

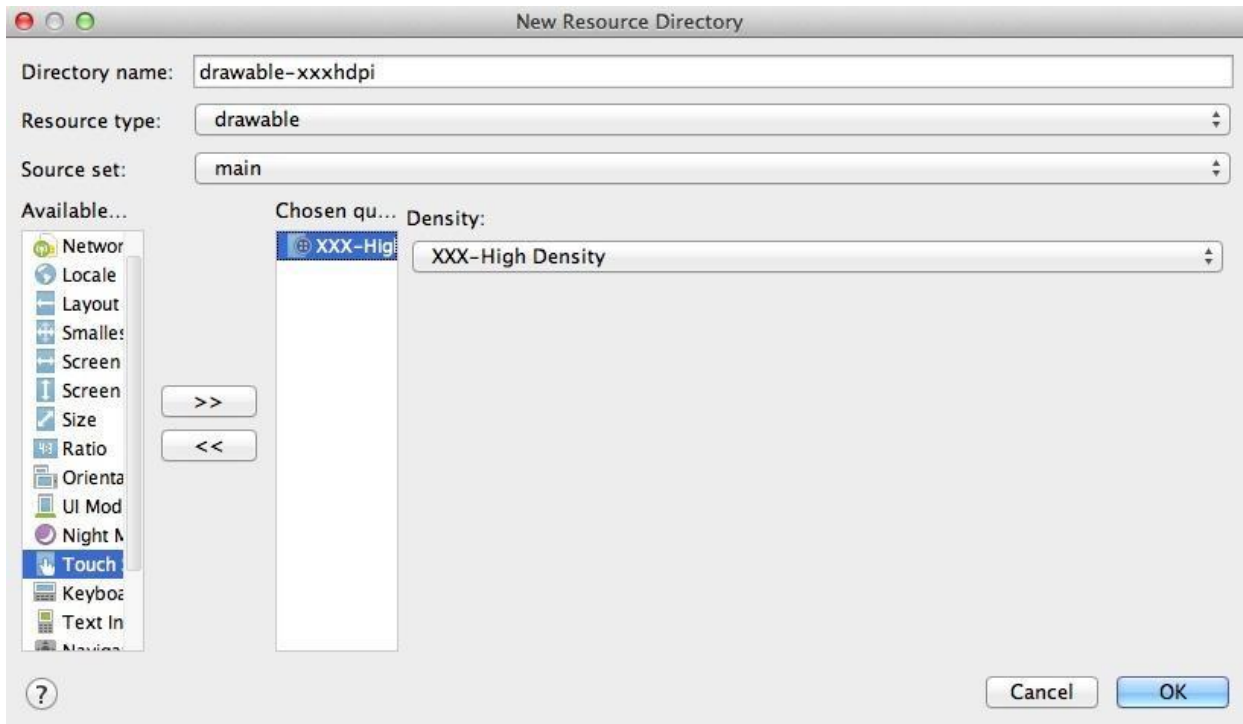
---

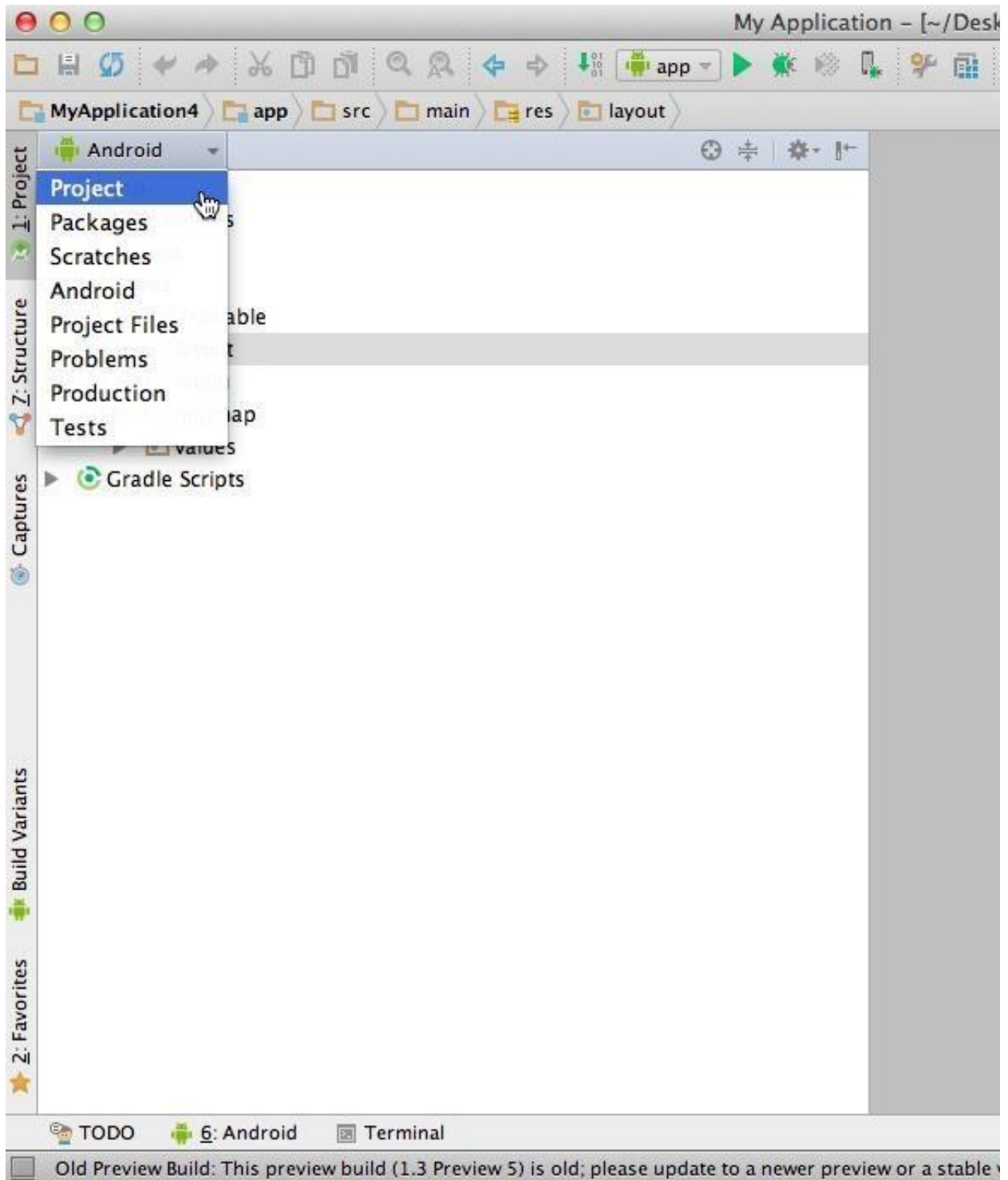
Password

---

**SIGN UP**







# My Application



OK

CANCEL

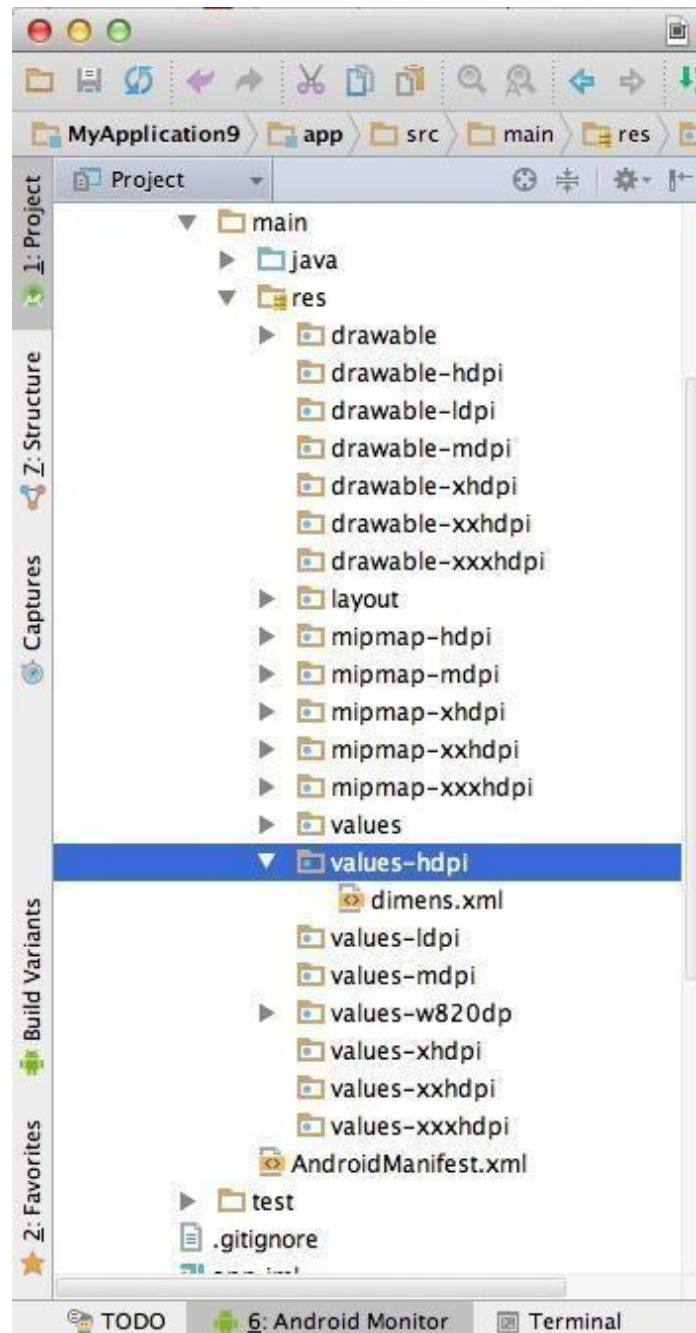


SHARE





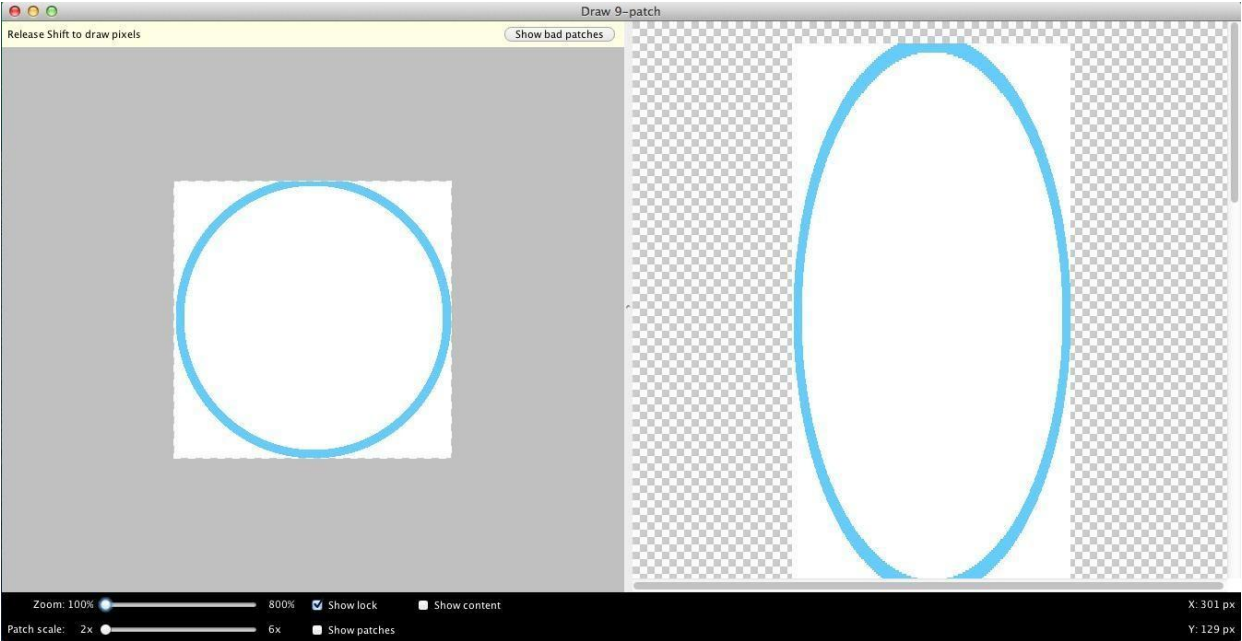
## Chapter 3: Expanding your UI – Fragments, Resources, and Gathering User Input

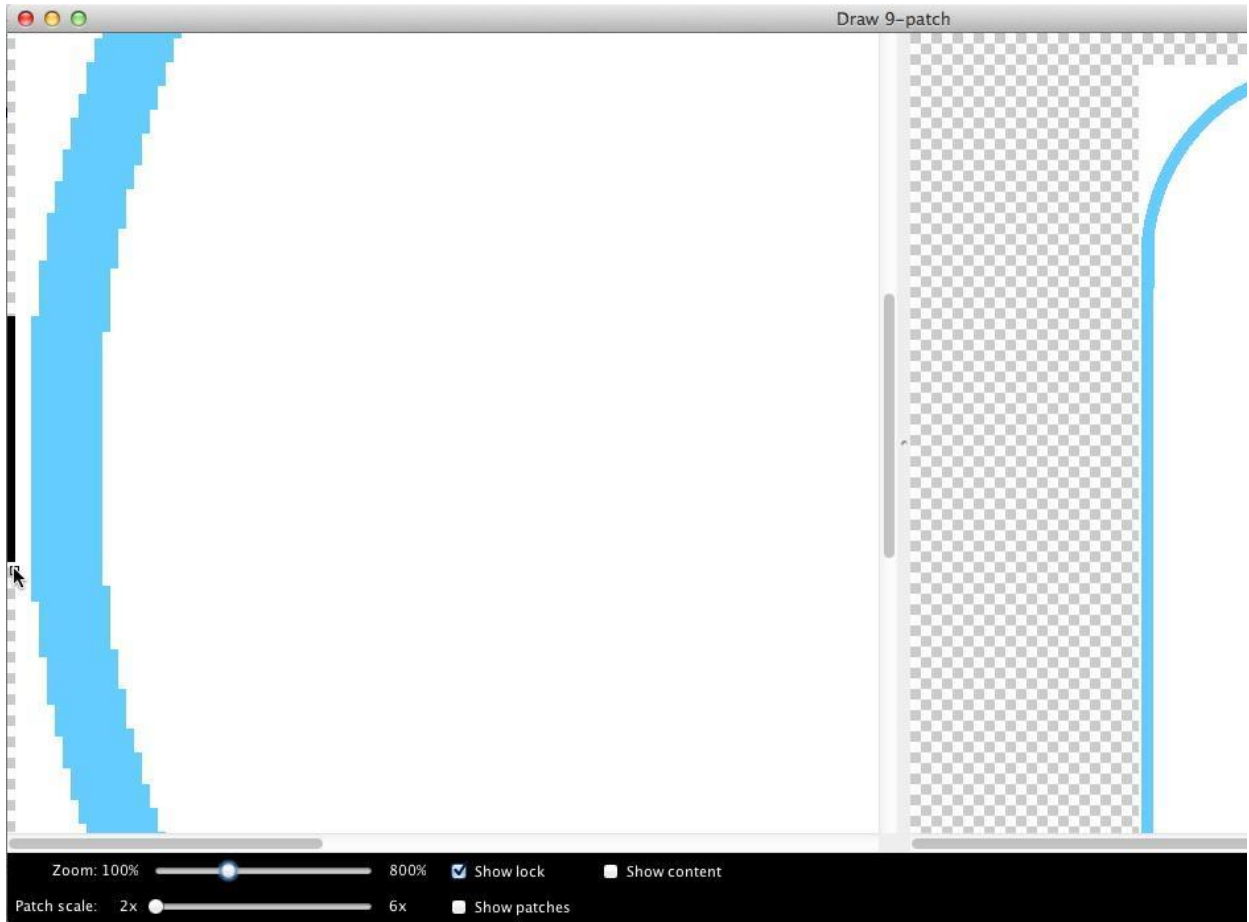




Stretchable area

Stretchable area





Please complete the form below

Enter your name

**SUBMIT**

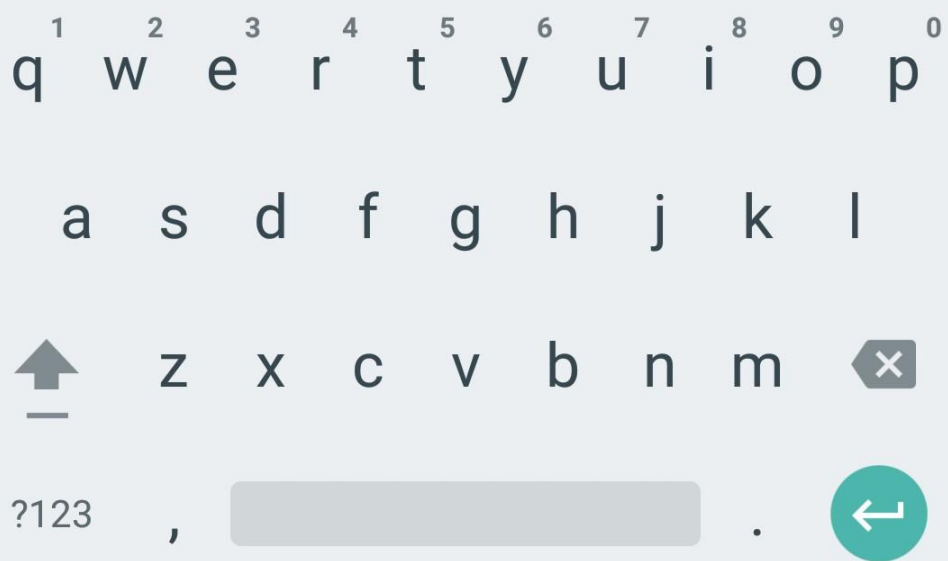


Welcome Jessica!

Jessica

SUBMIT

Jessie's | Jessica's | Jessi's



Activity 1

Fragment A

Fragment B

Activity 1  
Fragment A

Activity 2  
Fragment B



## **Chapter 4: Getting Started with Material Design**





# Hangouts



Toby

Fri

You: I can't see pictures on my phone, it ju...



'EE'

Thu

Your e-Bill is now ready to view in My Acco...



Mum

Sun

You: Yes, they reckon spark plugs have go...



Sarah

2 Nov

You: Anything



Katie

24 Oct

I have a spare ticket to see The Witch at th...



Sheffield Eats

16 Sep

Hello!



Dad

Voicemail message received 18:03 o...





November



30  
Mon

St Andrew's Day (Scotland)

St Andrew's Day

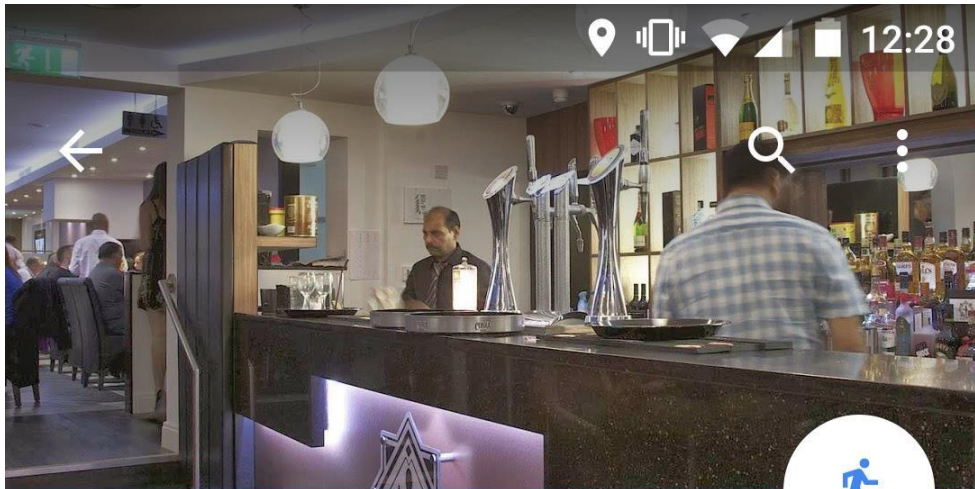
[MR] Business Development Meeting  
10-11 am

Running Club  
5:30-6:30 pm



December 2015





## Butlers Balti House

4.0 ★★★★★ 21 reviews

Indian restaurant



32 min



CALL



SAVE



WEBSITE

Aromatic Northern Indian dishes in a stylish, spotlit, contemporary space with upholstered seats.



44-46 Broad Ln, Sheffield, Sheffield, South Yorkshire S1 4BT

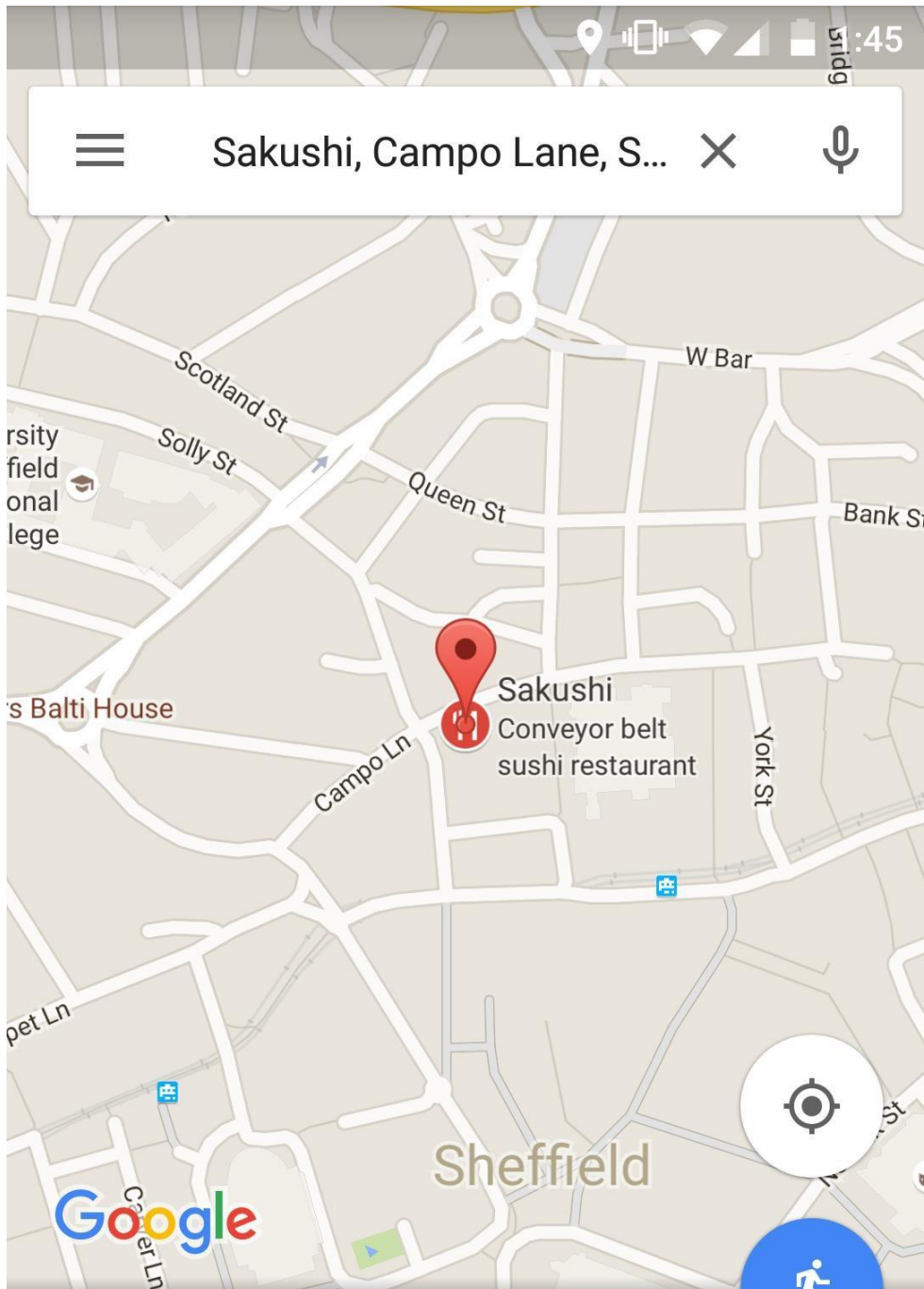


**Closed.** Reopens at 5:30 pm ▾



More info

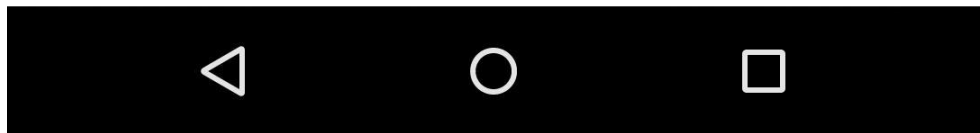




## Sakushi

4.1 ★★★★★ (45)

34 min





Weather · Updated 21 mins ago



# 10° at Home

Partly Cloudy



MON



10°

7°

TUE



13°

7°

WED



12°

8°

THU



11°

6°

FRI



8°

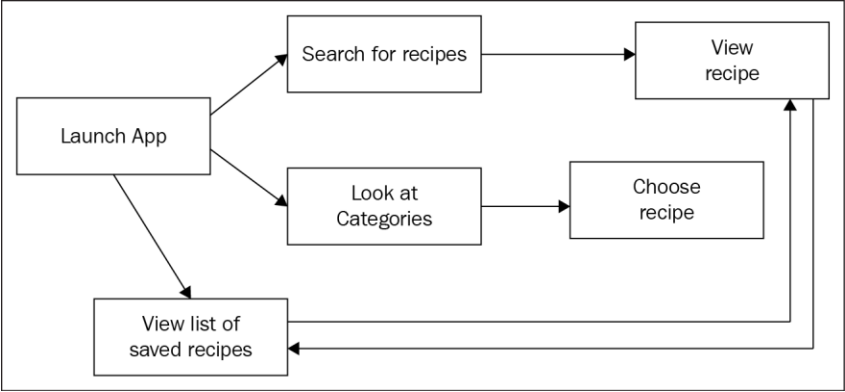
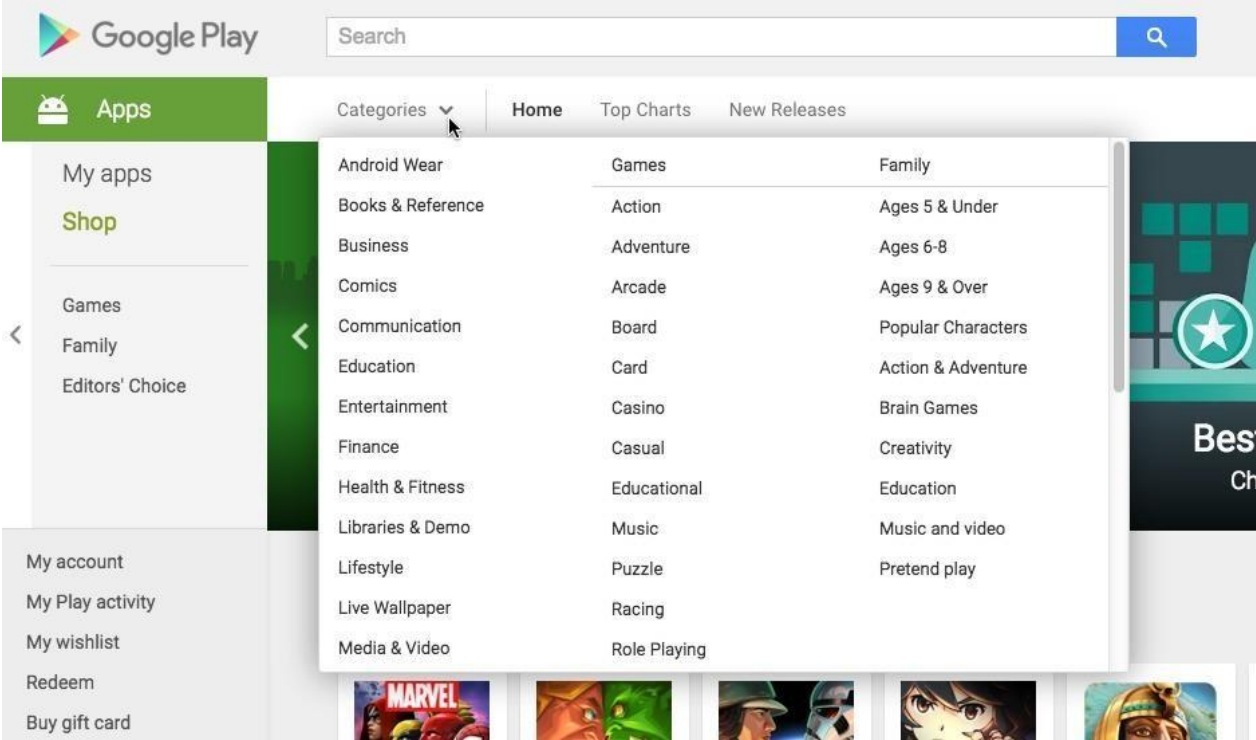
1°

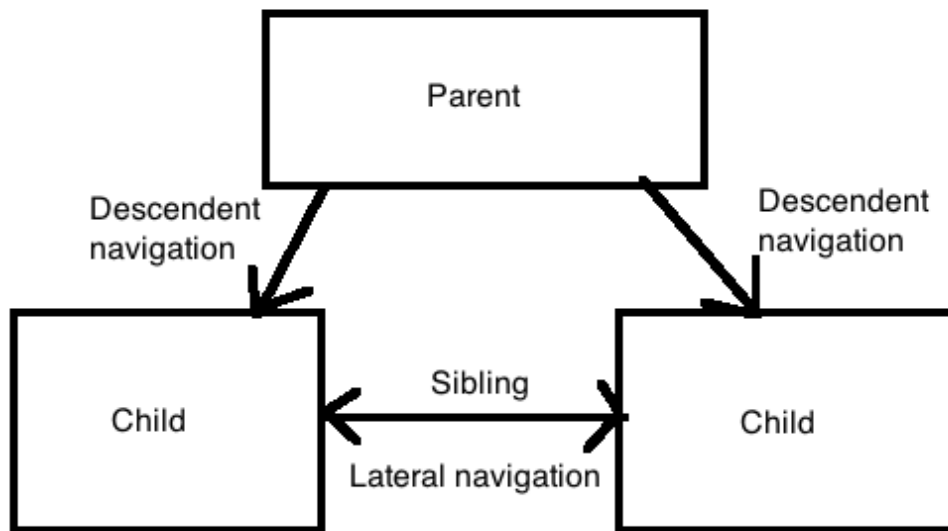
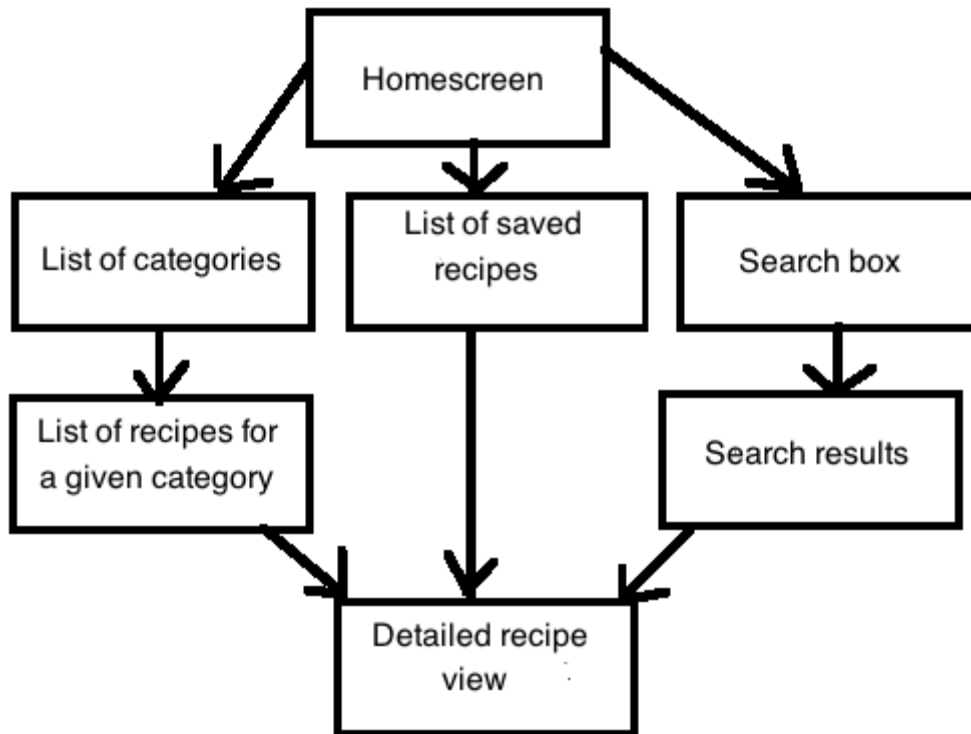
*weather.com*





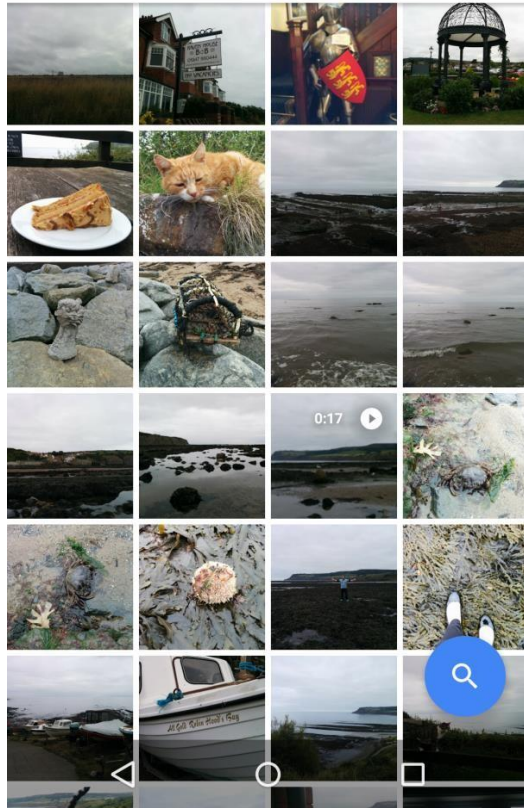
# Chapter 5: Turning Your Bright Idea into a Detailed Sketch

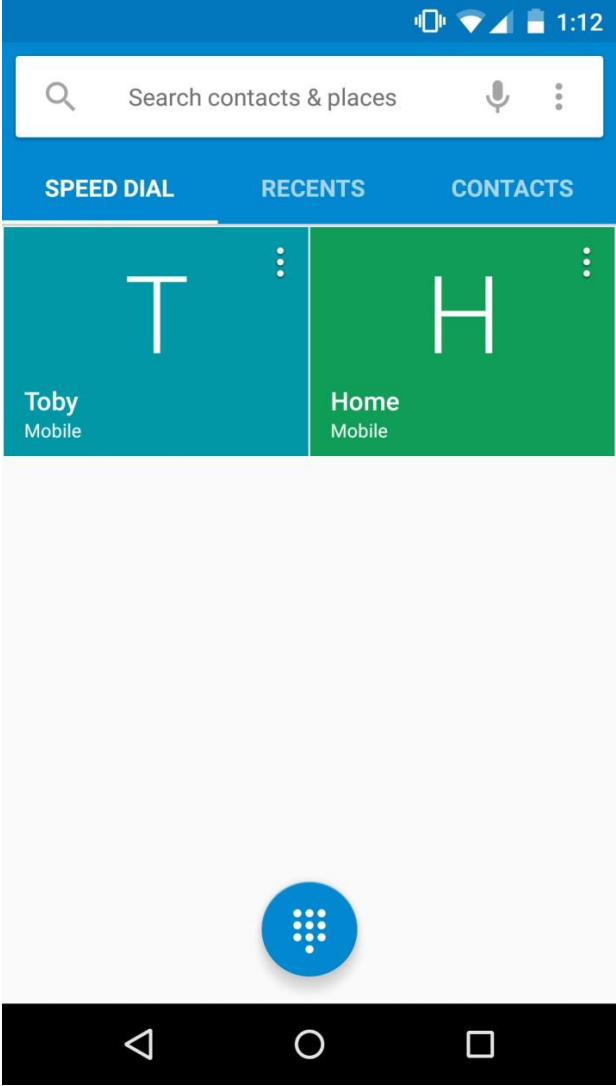






Photos







SAVE

Lunch



Sakushi

27 Campo Ln, Sheffield S1 2EG, United Kingdom



10 minutes before

Add another notification



Invite people



Default color



# FIND FRIENDS

FRIENDS

FEATURED



BBC Music Playlist



Calvin Harris



Coca-Cola



Daniel Ek



La Santa Cecilia



Rio Ferdinand



Rockstar Games



## Chapter 6: Turning Your Sketches into Wireframes



  
    

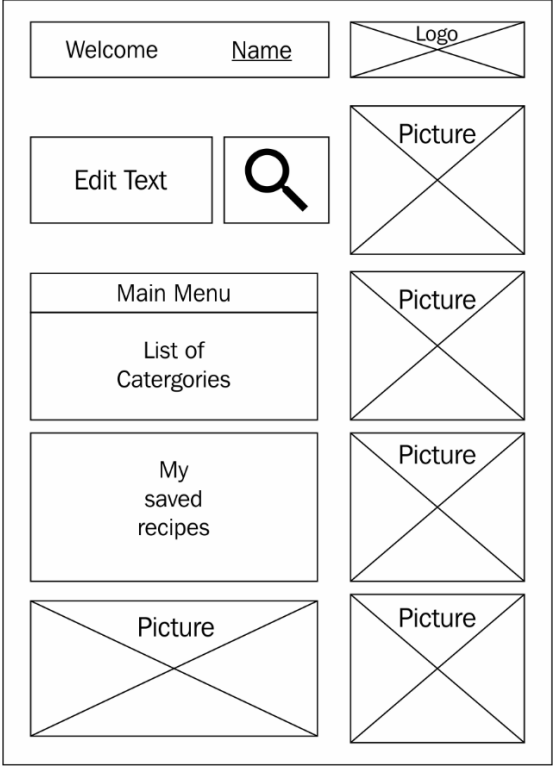
Photo	Title	Add to scrapbook
Photo	Title	Add to scrapbook
Photo	Title	Add to scrapbook
Photo	Title	Add to scrapbook
Photo	Title	Add to scrapbook
Photo	Title	Add to scrapbook
Photo	Title	Add to scrapbook

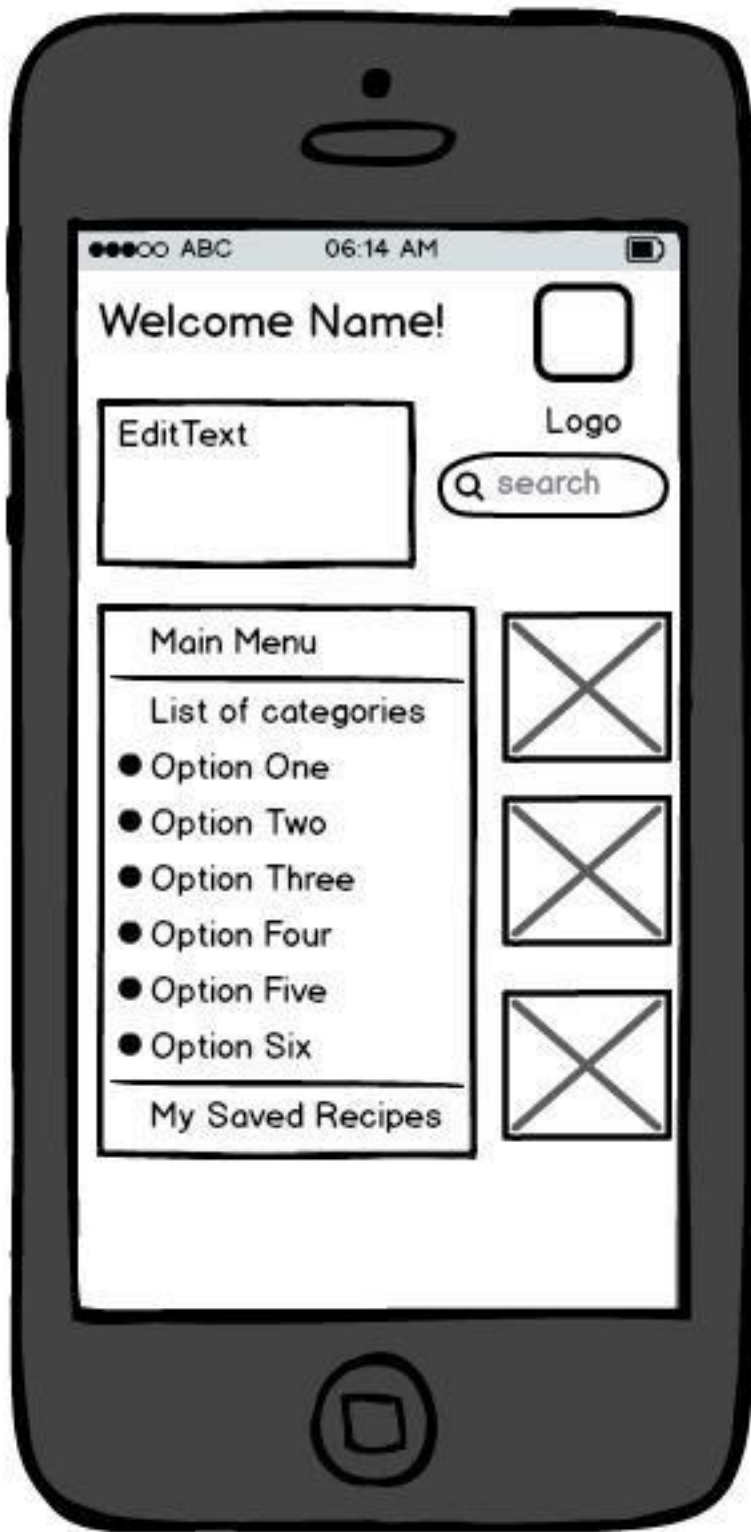
  
  

<input type="button" value="Prices"/>	<input type="button" value="Time estimated"/>
<input type="button" value="£1- £2"/> <input checked="" type="checkbox"/>	<input type="button" value="under 1"/> <input type="checkbox"/>
<input type="button" value="£2- £3"/> <input type="checkbox"/>	<input type="button" value="1-5 mins"/> <input type="checkbox"/>
<input type="button" value="3£ +"/> <input type="checkbox"/>	<input type="button" value="5-15 mins"/> <input type="checkbox"/>
	<input type="button" value="15-30 mins"/> <input checked="" type="checkbox"/>
	<input type="button" value="30 mins +"/> <input type="checkbox"/>

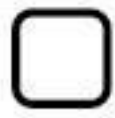
<input type="button" value="No. of people"/>	
<input type="button" value="1-2"/> <input type="checkbox"/>	
<input type="button" value="2-3"/> <input checked="" type="checkbox"/>	
<input type="button" value="3+"/> <input type="checkbox"/>	





●●●● ABC 06:14 AM [Battery Icon]

Welcome Name!



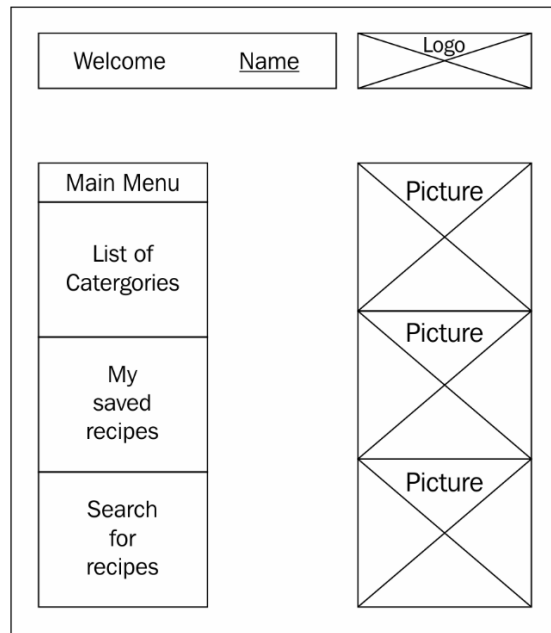
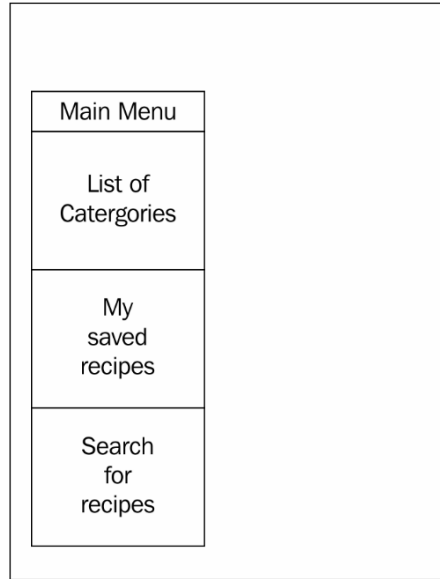
Logo

EditText

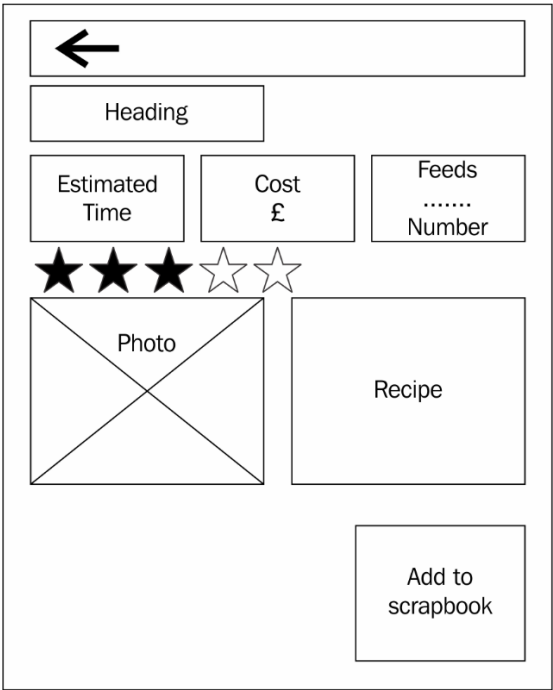
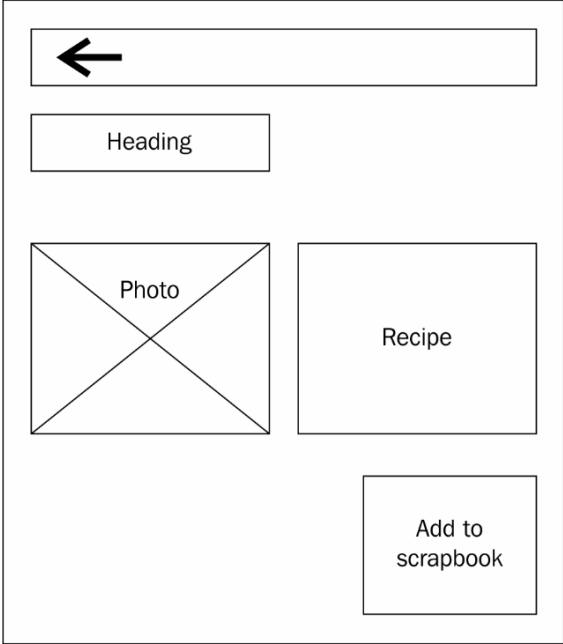
🔍 search

- Main Menu
- 
- List of categories
- Option One
  - Option Two
  - Option Three
  - Option Four
  - Option Five
  - Option Six
- 
- My Saved Recipes









←

Heading

Estimated Time

★ ★ ★ ☆ ☆

Cost £

Feeds .....  
Number

Photo

Recipe

Add to scrapbook

←

Heading

Estimated Time

★ ★ ★ ☆ ☆

Cost £

Feeds .....  
Number

Photo

Recipe

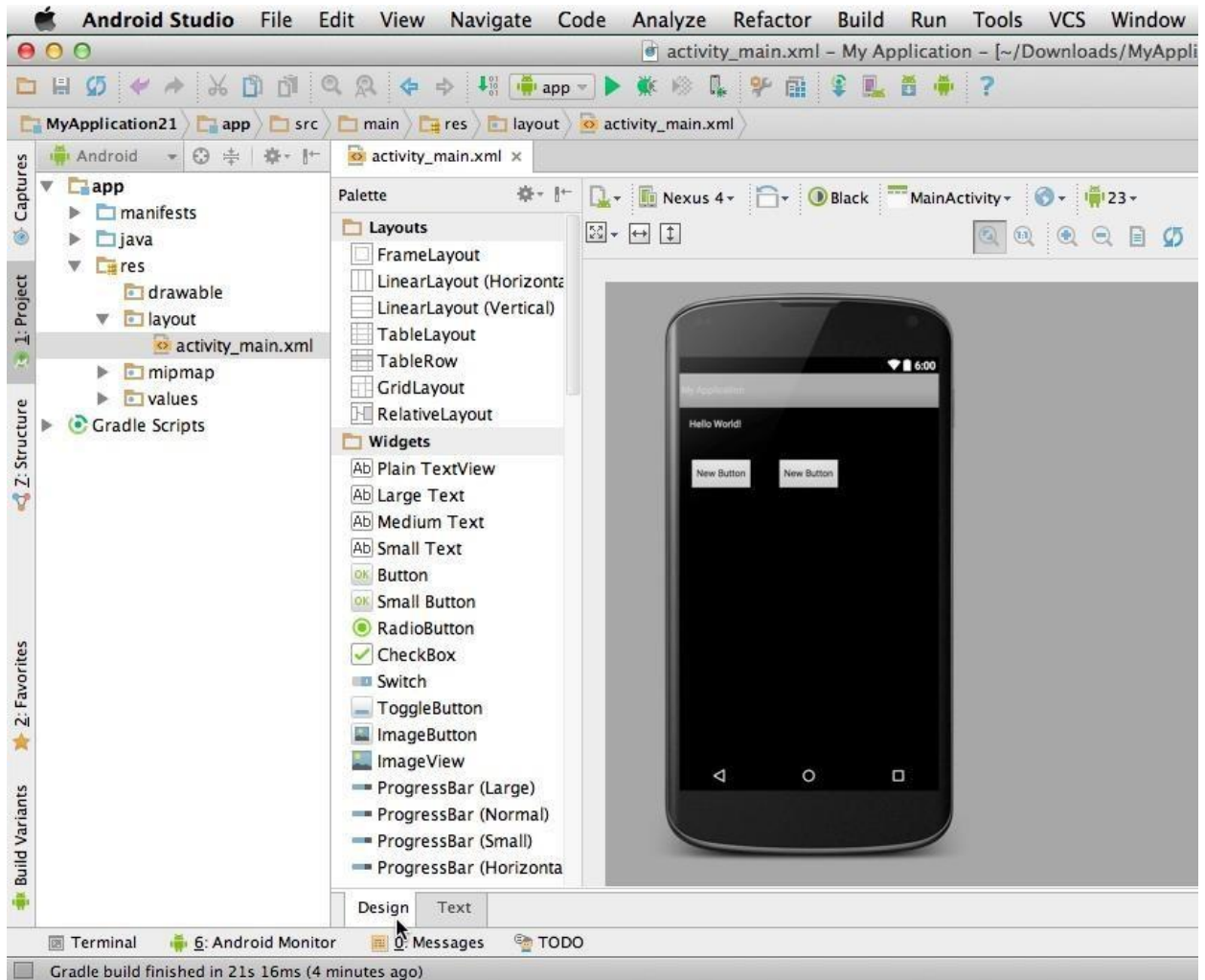
Add to scrapbook

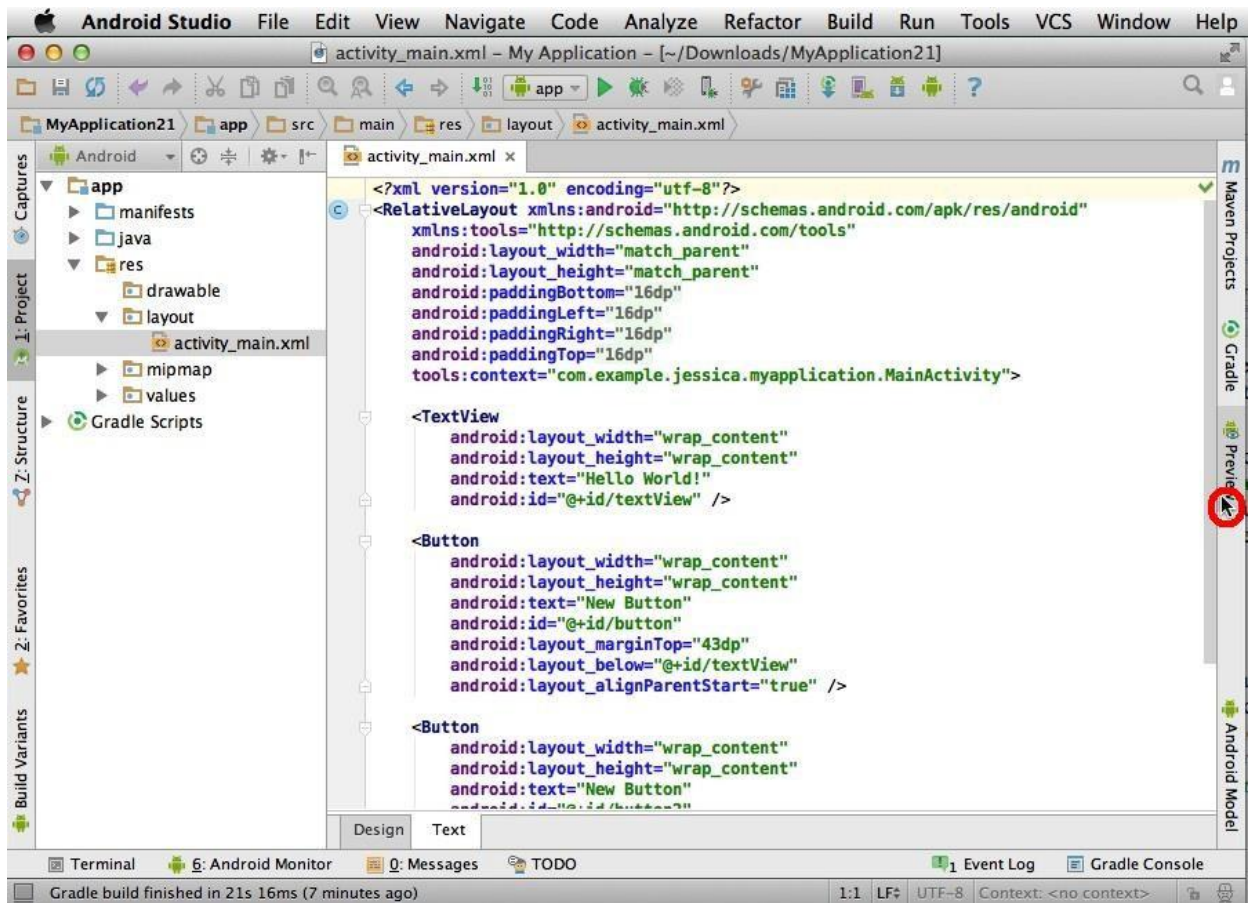


Edit Text



# Chapter 7: Building a Prototype





Preview

Nexus 4 Black MainActivity 23



Maven Projects  
Gradle  
Preview  
Android Model

1 Event Log Gradle Console

1:1 LF+ UTF-8 Context: <no context>

Welcome!





Android Studio  
android.studio@android.com



**Breakfast**



**Lunch**



**Dinners**



**Healthy**



**Light meals and snacks**



**Vegetarian and vegan**



**Budget friendly**



**My Scrapbook**



**Search for recipes**





# Search Results...



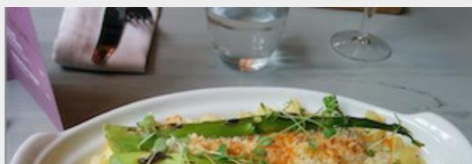
Easy veggie chilli



Deep fried calamari with garlic and lemon mayo



Best-ever chocolate brownies

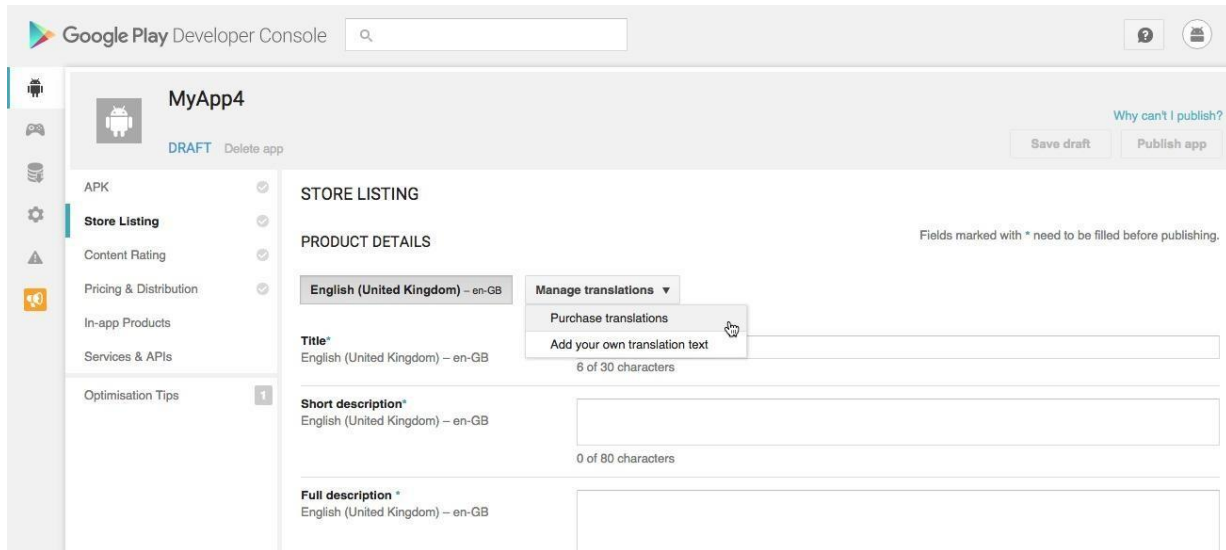


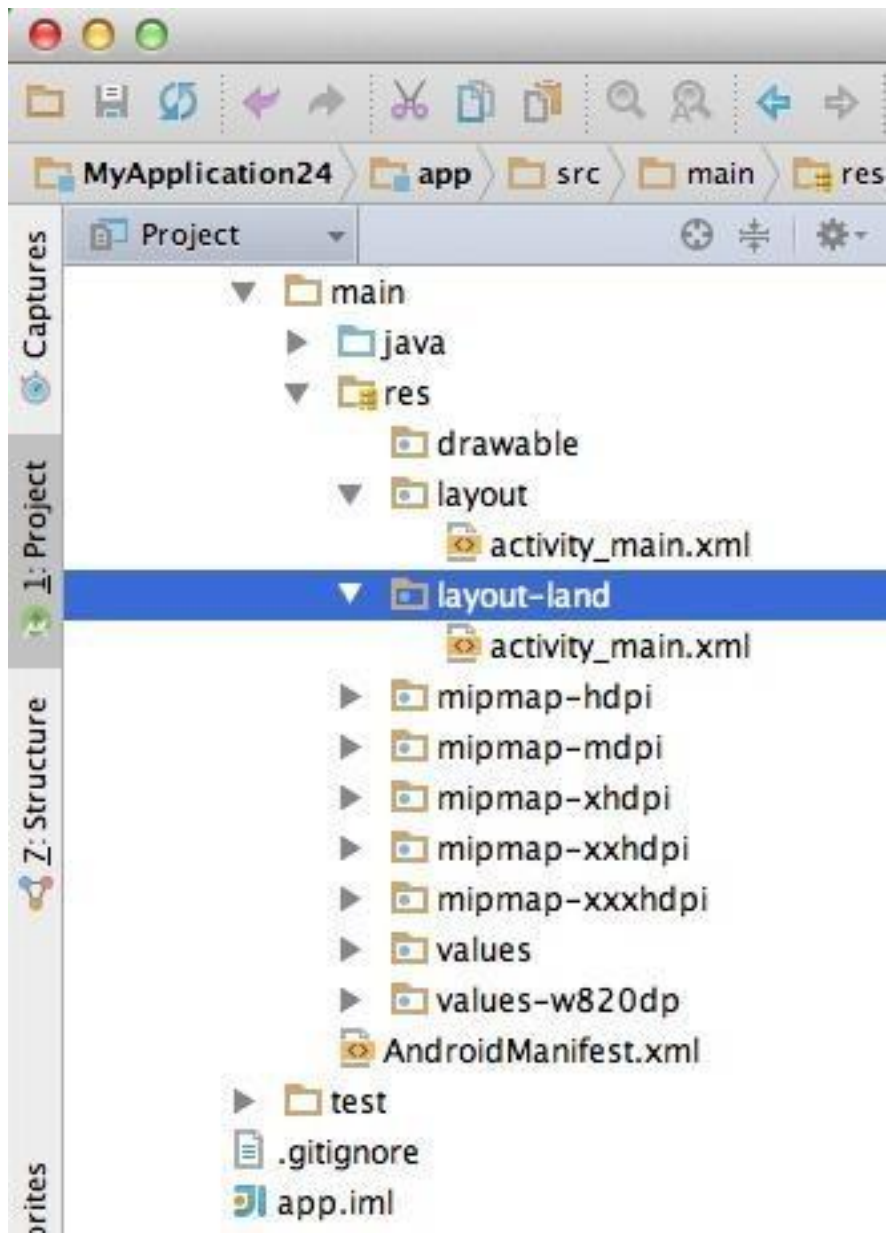
Everyday fish pie with cheesy





# Chapter 8: Reaching a Wider Audience – Supporting Multiple Devices







# Configure Hardware Profile

Device Name:

Device Type:

Screen: Screensize:  inch  
Resolution:  x  px

Memory: RAM:

Input:  Has Hardware Buttons (Back/Home/Menu)  
 Has Hardware Keyboard  
Navigation Style:

Supported device states:  Portrait  
 Landscape

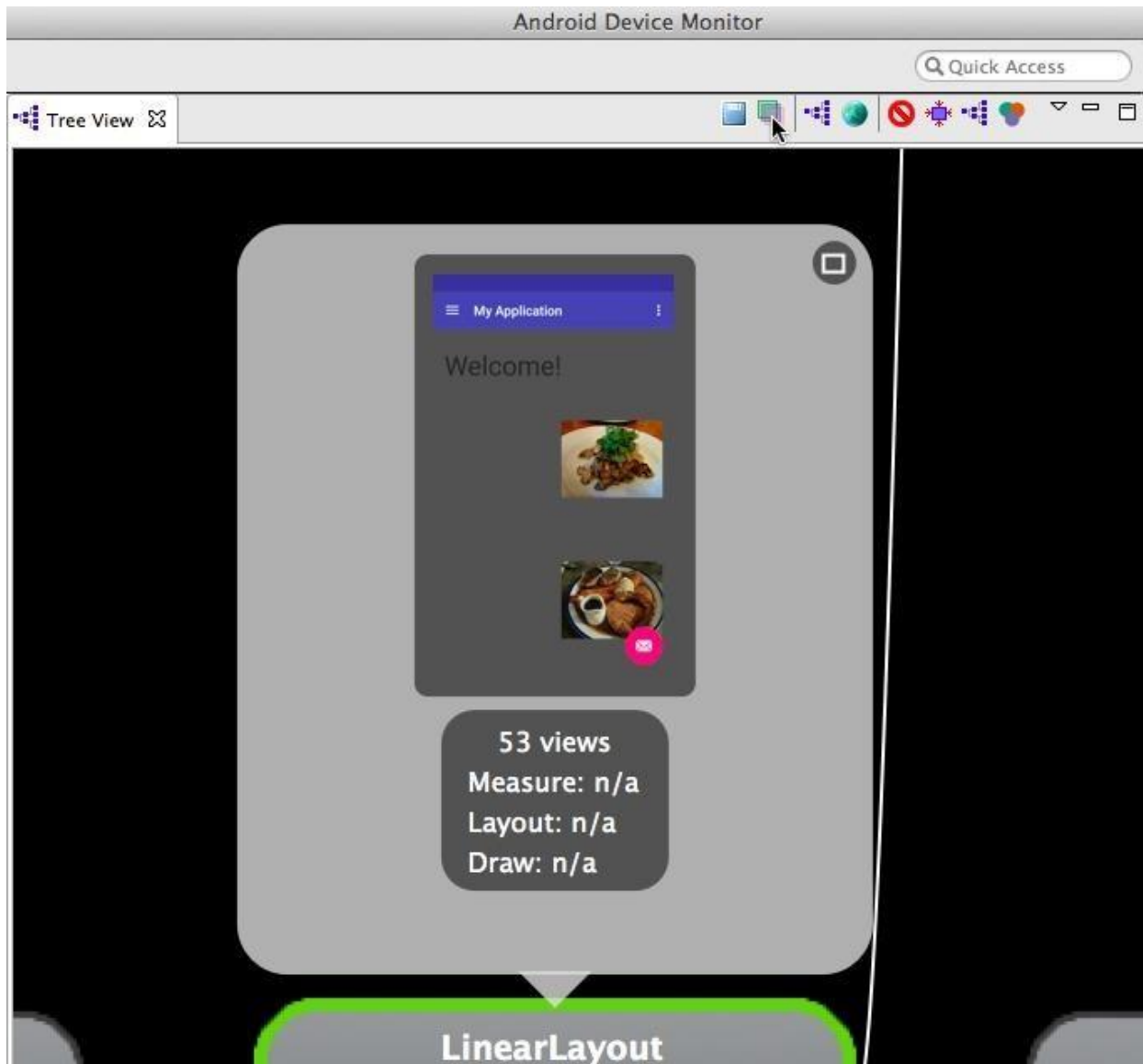
Cameras:  Back-facing camera

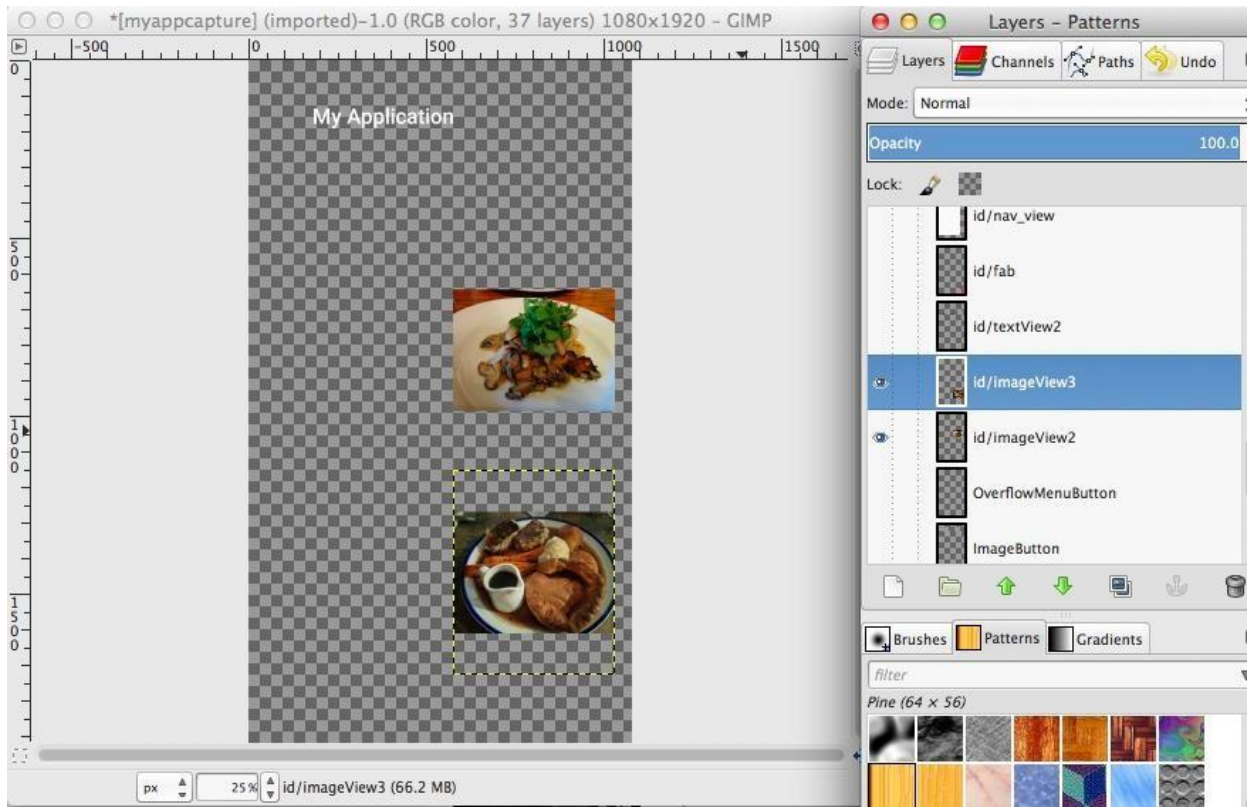
### New Device

Size: large  
Ratio: long  
Density: 420dpi



## Chapter 9: Optimizing Your UI







Tree View

0

ImageButton  
@e2ce22b  
1

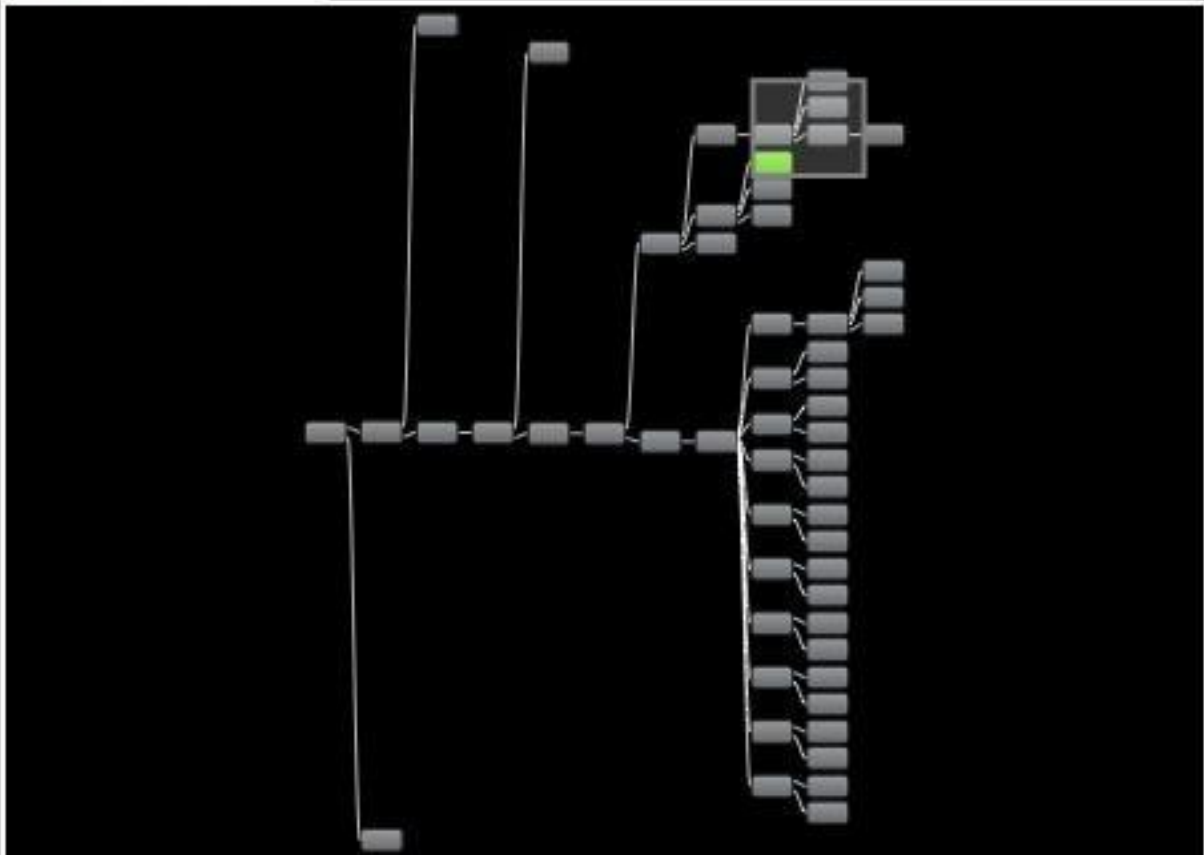
ActionMenuView  
@a47a955  
2




ActionM

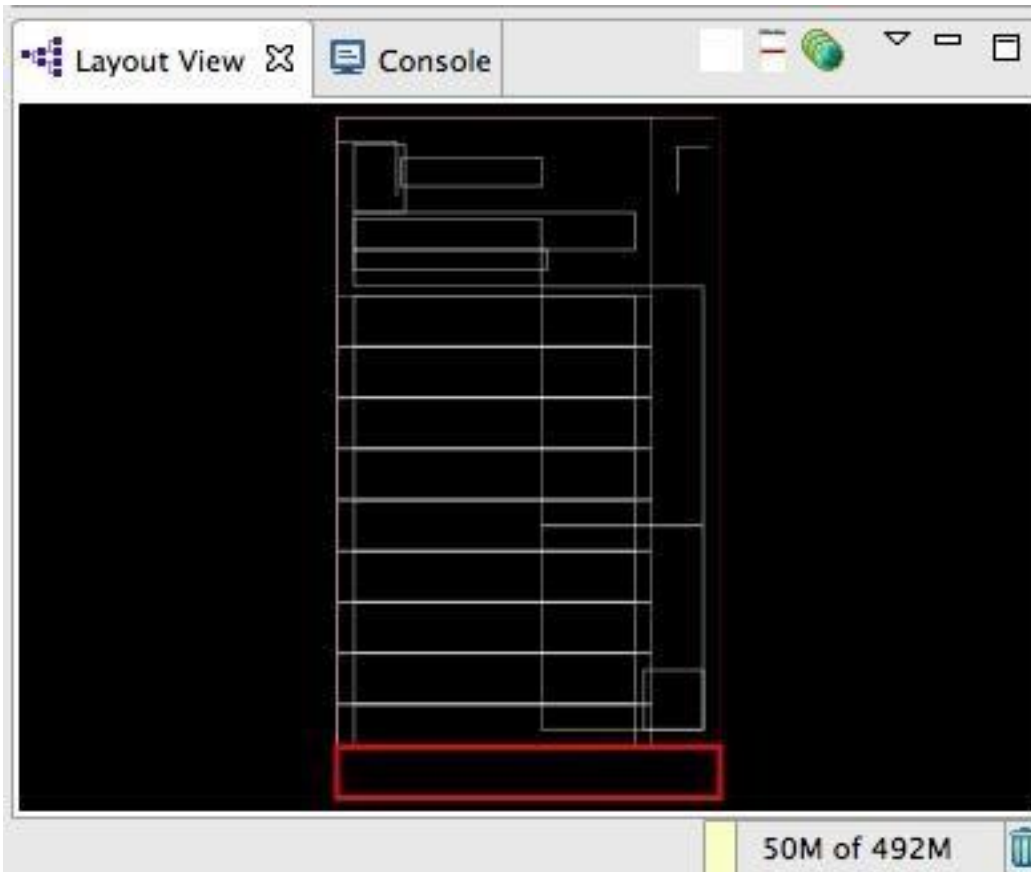
1 view  
Measure: n/a  
Layout: n/a  
Draw: n/a  
0


AppCompatActivity  
@2957607  
id/imageView2  
0

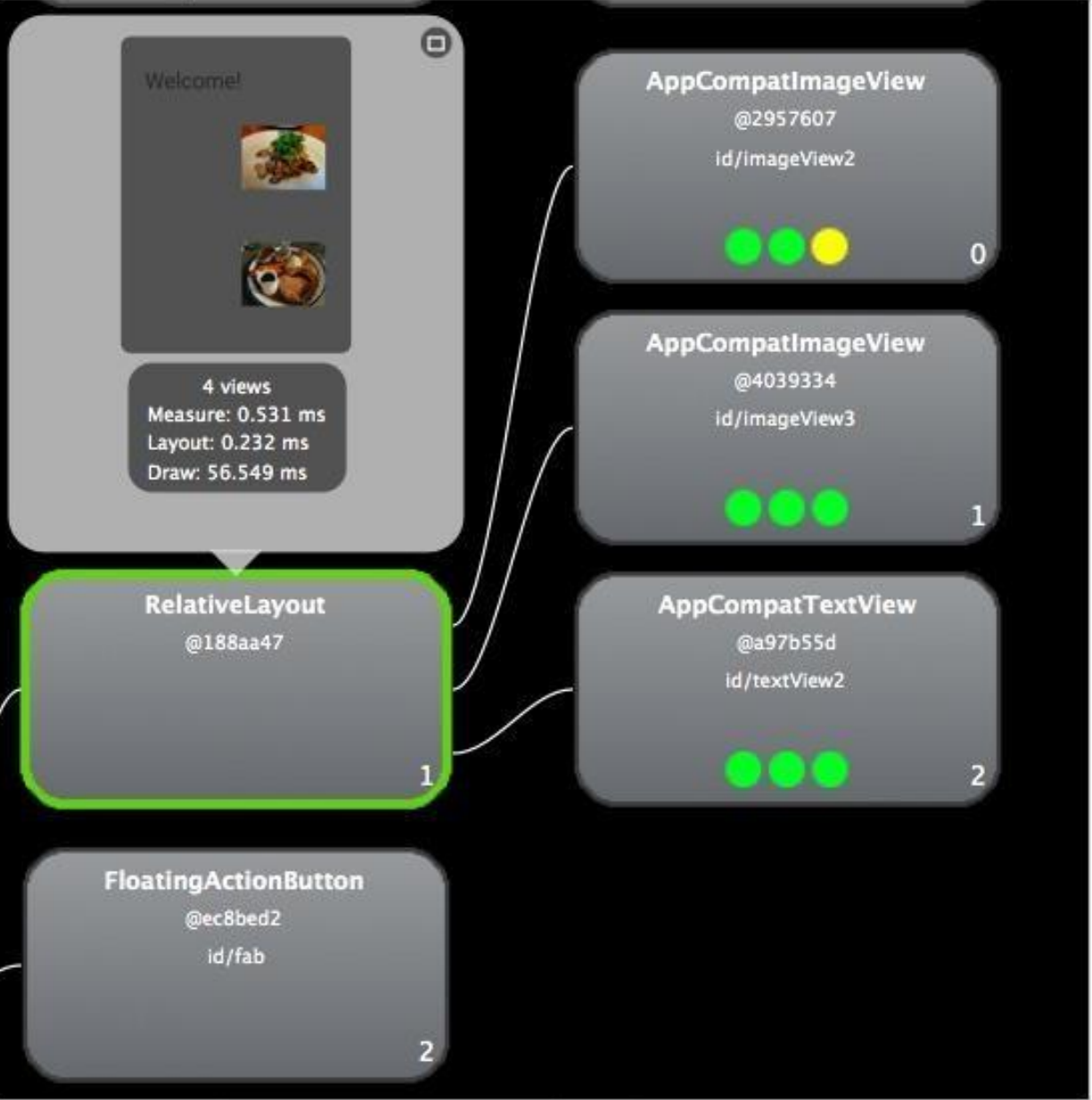
Filter by class or id: 20% 200%

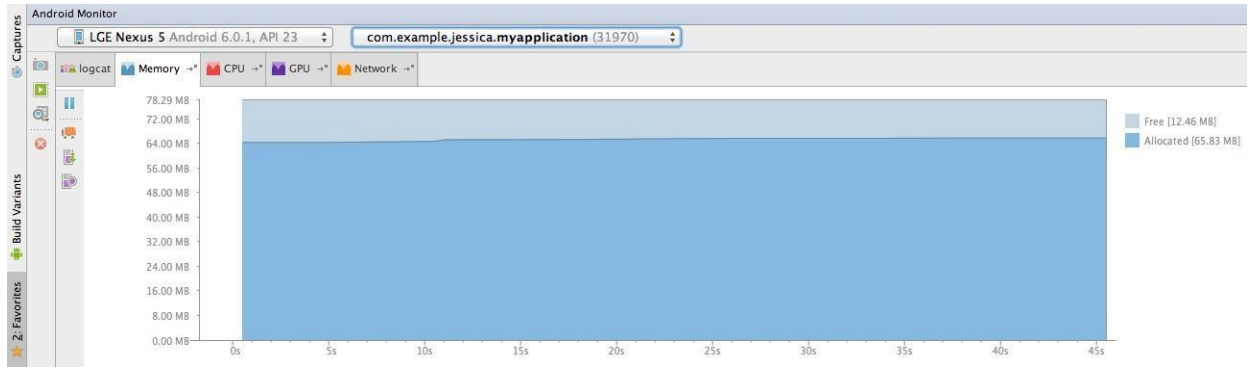


Layout View  Console  



50M of 492M 





Devices

nexus\_5-034a91b1215ea101

- com.android.nfc
- com.google.android.gms
- com.android.settings
- com.google.android.gms.persistent
- com.cyanogenmod.filemanager
- com.google.android.apps.maps
- com.redbend.vdmc
- com.google.android.apps.fitness
- com.microsoft.cortana
- android.process.acore
- com.example.jessica.myapplication**
- com.android.email
- com.google.android.gm
- com.qualcomm.qcrilmsgtunnel
- com.cyanogenmod.trebuchet
- com.google.android.apps.photos
- com.cyanogenmod.lockclock

Android Device Monitor

Quick Access



Heap Allocation Tracker Network Statistics File Explorer Emulator Control

Heap updates will happen after every GC for this client

ID	Heap Size	Allocated	Free	% Used	# Objects
1	79.528 MB	63.528 MB	16.000 MB	79.88%	49,338

Cause GC

Display: Stats

Type	Count	Total Size	Smallest	Largest	Median	Average
free	3,827	2.884 MB	16 B	70.266 KB	96 B	790 B
data object	10,861	809.383 KB	16 B	37.453 KB	32 B	76 B
class object	551	422.312 KB	144 B	8.000 KB	464 B	784 B
1-byte array (byte[], boolean[])	325	13.049 MB	16 B	340.883 KB	36.008 KB	41.114 KB
2-byte array (short[], char[])	7	90.000 KB	32 B	51.156 KB	80 B	12.856 KB
4-byte array (object[], int[], float[])	2,514	528.266 KB	16 B	89.906 KB	32 B	215 B
8-byte array (long[], double[])	360	14.219 KB	16 B	144 B	32 B	40 B
non-Java object	2	504 B	24 B	480 B	480 B	252 B

com.example.jessica.myapplication.hprof

App heap Class List View

Class Name	Total...	Heap...	Sizeof	Shall...	Re...	Instance	Depth	Shallow...	Dominat...
byte[]	2328	144	0	50060	500604	0 = (java.util.HashMap\$HashMapEntry@315014432 (0)	3	24	36
FinalizerReference (java.lang.ref)	1934	634	36	22824	251752	1 = (java.util.HashMap\$HashMapEntry@315310912 (0)	3	24	112
DexCache (java.lang)	16	1	40	40	206535	2 = (java.util.HashMap\$HashMapEntry@315014368 (0)	3	24	36
int[]	6499	787	0	16277	162776	3 = (java.util.HashMap\$HashMapEntry@315014336 (0)	3	24	36
String (java.lang)	55554	705	16	11280	97166	4 = (java.util.HashMap\$HashMapEntry@315014304 (0)	4	24	36
char[]	55620	714	0	92860	92860	5 = (java.util.HashMap\$HashMapEntry@315014272 (0)	3	24	36
Object[] (java.lang)	2829	603	0	13136	90277	6 = (java.util.HashMap\$HashMapEntry@315014240 (0)	3	24	36
HashMap\$HashMapEntry[] (java.util)	1169	33	0	4496	88119	7 = (java.util.HashMap\$HashMapEntry@315014208 (0)	3	24	24
HashMap\$HashMapEntry (java.util)	6475	320	24	7680	84271	8 = (java.util.HashMap\$HashMapEntry@315014176 (0)	4	24	72
HashMap (java.util)	1171	25	48	1200	79621	9 = (java.util.HashMap\$HashMapEntry@315014144 (0)	4	24	36
String[] (java.lang)	2094	3	0	79052	79312	10 = (java.util.HashMap\$HashMapEntry@315298976 (0)	13	24	48
ArrayList (java.util)	474	172	20	3440	65437	11 = (java.util.HashMap\$HashMapEntry@315014112 (0)	5	24	24
View[] (android.view)	38	38	0	1720	58731	12 = (java.util.HashMap\$HashMapEntry@315014080 (0)	3	24	24

Reference Tree

- java.util.HashMap\$HashMapEntry@315014336 (0x12c6bcc0)
  - Index 155 in java.util.HashMap\$HashMapEntry(256)@316227584 (0x12d94000)
    - table in java.util.HashMap@315794624 (0x12d2a4c0)
      - value\_to\_get\_map in android.util.SeempLog

Android Device Monitor

Quick Access

DDMS Hierarchy View

Heap Allocation Tracker Network Statistics File Explorer Emulator Control

Start Tracking Get Allocations Filter:   Inc. trace

Alloc Order	Allocated Class	Thru	Alloca	Allocated in
7409	2... char[]	1	jav...	enlargeBuffer
7410	1... char[]	1	jav...	enlargeBuffer
7408	1... java.lang.String	1	jav...	newStringFromChars
7411	1... char[]	1	jav...	enlargeBuffer
4878	1... char[]	1	jav...	enlargeBuffer
4859	1... java.lang.String	1	jav...	newStringFromChars
8501	8... char[]	1	jav...	enlargeBuffer
7954	8... char[]	1	jav...	enlargeBuffer
7953	8... char[]	1	jav...	enlargeBuffer
7952	8... java.lang.String	1	jav...	newStringFromChars
7413	8... char[]	1	jav...	enlargeBuffer
7412	8... char[]	1	jav...	enlargeBuffer
4967	8... char[]	1	jav...	enlargeBuffer
4938	8... char[]	1	jav...	enlargeBuffer
9544	4... char[]	1	co...	<init>
8994	4... char[]	1	co...	<init>
8502	4... char[]	1	jav...	enlargeBuffer
8500	4... java.lang.String	1	jav...	newStringFromChars
8447	4... char[]	1	co...	<init>
7955	4... char[]	1	jav...	enlargeBuffer
7906	4... char[]	1	co...	<init>
7414	4... char[]	1	jav...	enlargeBuffer

```

at java.lang.AbstractStringBuilder.enlargeBuffer(AbstractStringBuilder.java:95)
at java.lang.AbstractStringBuilder.append0(AbstractStringBuilder.java:125)
at java.lang.StringBuilder.append(StringBuilder.java:271)
at com.google.gson.stream.JsonReader.b()
at com.google.gson.stream.JsonReader.h()
at com.google.gson.internal.bind.TypeAdapters$13.a()
at com.google.gson.internal.bind.TypeAdapters$13.b()
at com.google.gson.internal.bind.ReflectiveTypeAdapterFactory$1.a()
at com.google.gson.internal.bind.ReflectiveTypeAdapterFactory$Adapter.b()

```

Android Monitor

LGE Nexus 5 Android 6.0.1, API 23

com.example.jessica.myapplication (6497)

logcat Memory CPU GPU Network

Log level: Verbose

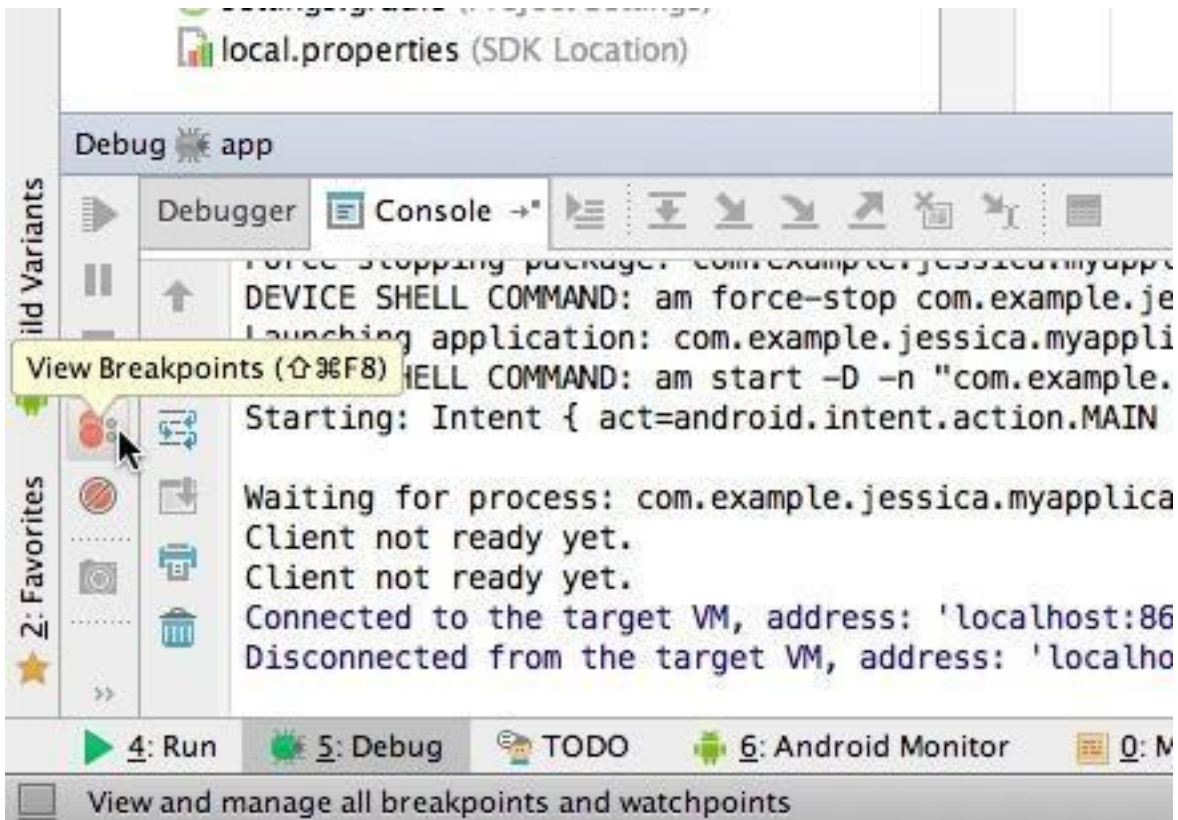
```

02-22 18:41:42.049 6497-6503/com.example.jessica.myapplication I/art: Ignoring second debugger -- accepting and dropping
02-22 18:41:42.222 6497-6497/com.example.jessica.myapplication I/System.out: waiting for debugger to settle...
02-22 18:41:42.422 6497-6497/com.example.jessica.myapplication I/System.out: waiting for debugger to settle...
02-22 18:41:42.550 6497-6503/com.example.jessica.myapplication I/art: Ignoring second debugger -- accepting and dropping
02-22 18:41:42.622 6497-6497/com.example.jessica.myapplication I/System.out: waiting for debugger to settle...
02-22 18:41:42.823 6497-6497/com.example.jessica.myapplication I/System.out: waiting for debugger to settle...
02-22 18:41:43.023 6497-6497/com.example.jessica.myapplication I/System.out: waiting for debugger to settle...
02-22 18:41:43.224 6497-6497/com.example.jessica.myapplication I/System.out: waiting for debugger to settle...
02-22 18:41:43.424 6497-6497/com.example.jessica.myapplication I/System.out: waiting for debugger to settle...
02-22 18:41:43.625 6497-6497/com.example.jessica.myapplication I/System.out: debugger has settled (1422)
02-22 18:41:44.305 6497-6589/com.example.jessica.myapplication D/OpenGLESRenderer: Use EGL_SWAP_BEHAVIOR_PRESERVED: true
02-22 18:41:44.386 6497-6589/com.example.jessica.myapplication I/DevicePreparer: DevicePreparerTest: java.io.IOException: Broken pipe

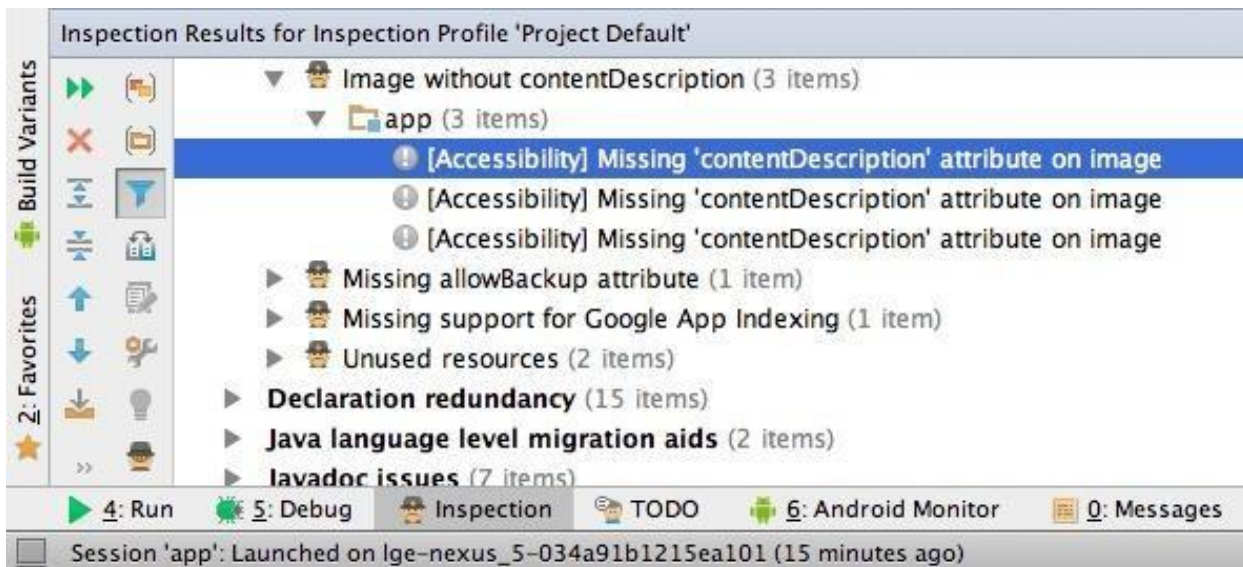
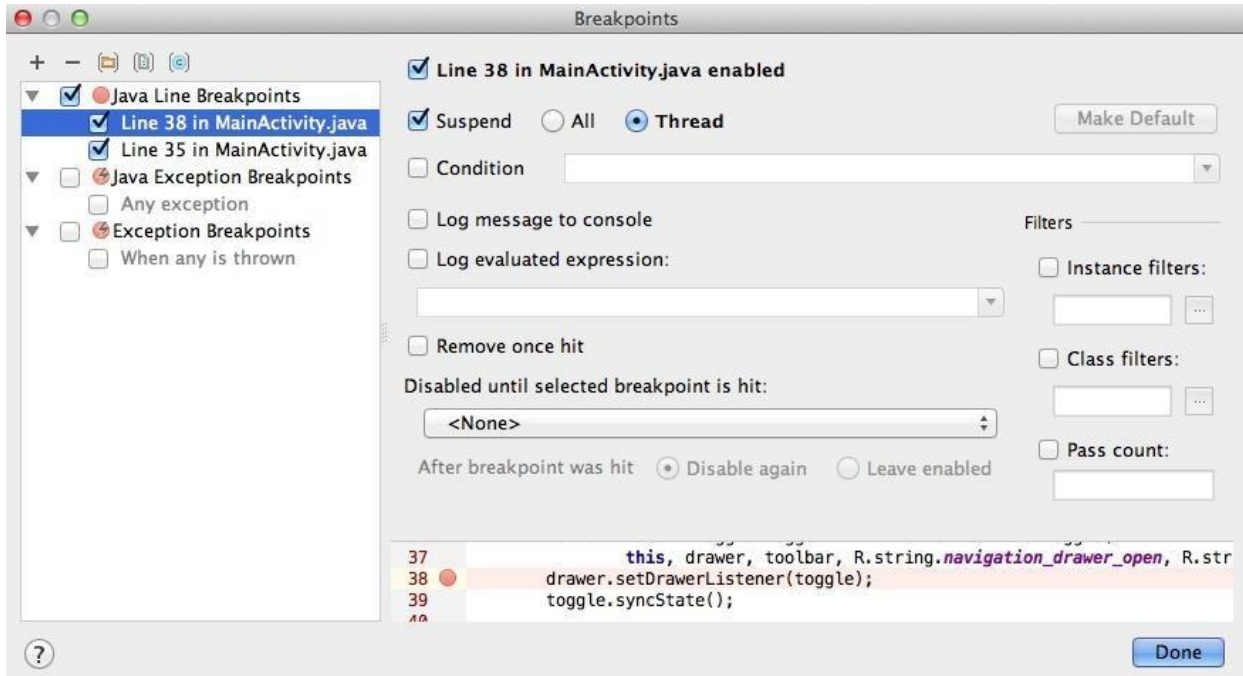
```

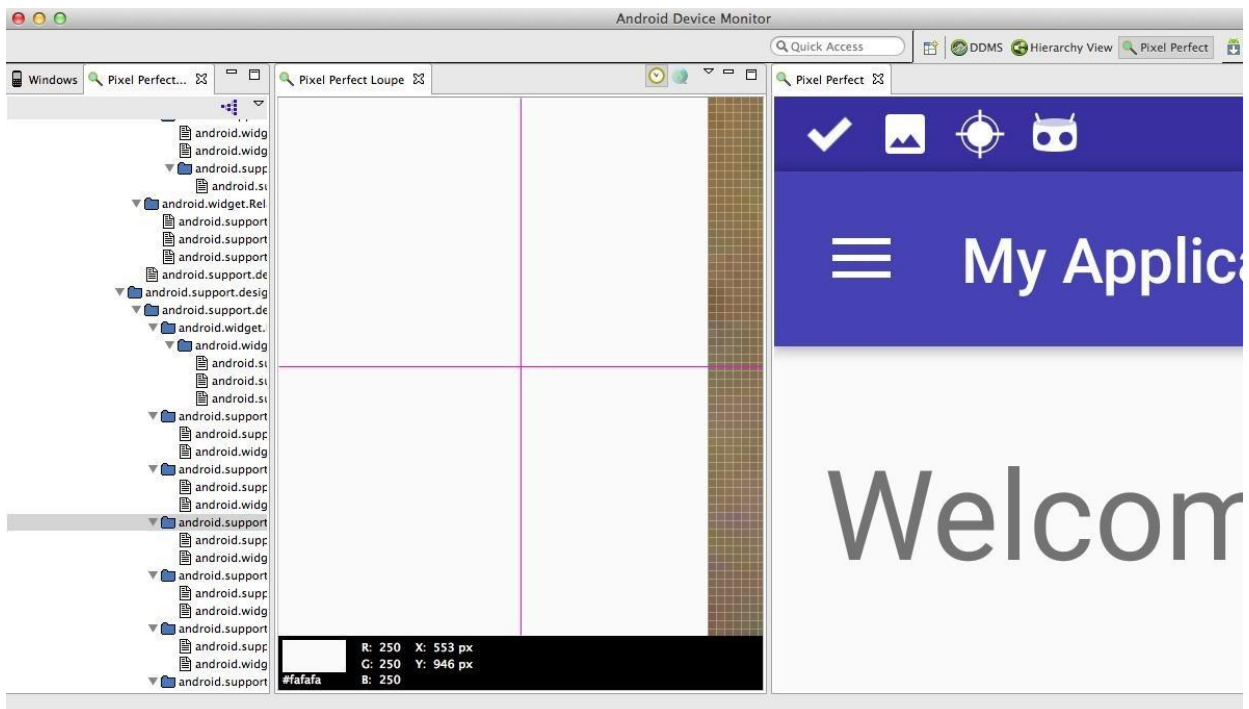
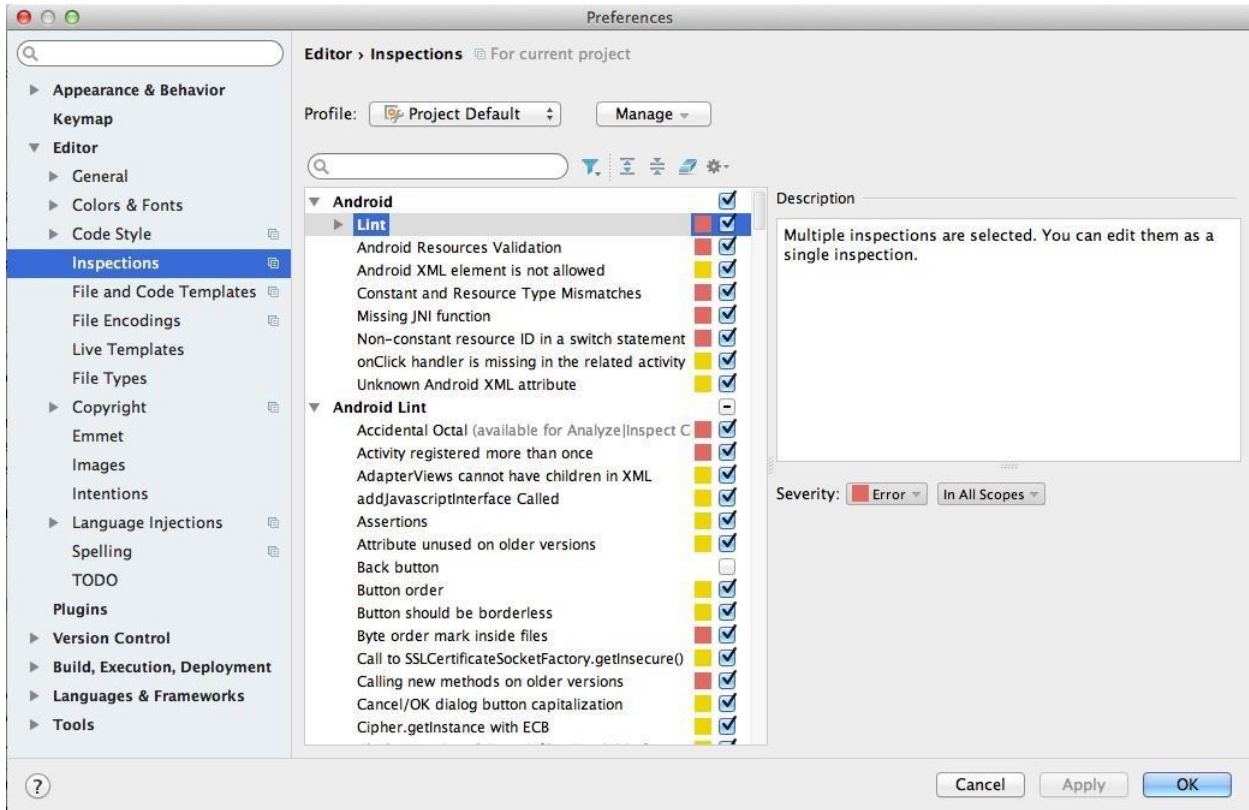
Broken pipe java.io.IOException: Broken pipe at sun.nio.ch.FileDispatcher.write0(Native Method) at sun.nio.ch.SocketDispatcher.write(SocketDispatcher.java:29) at sun.nio.ch... (6 min

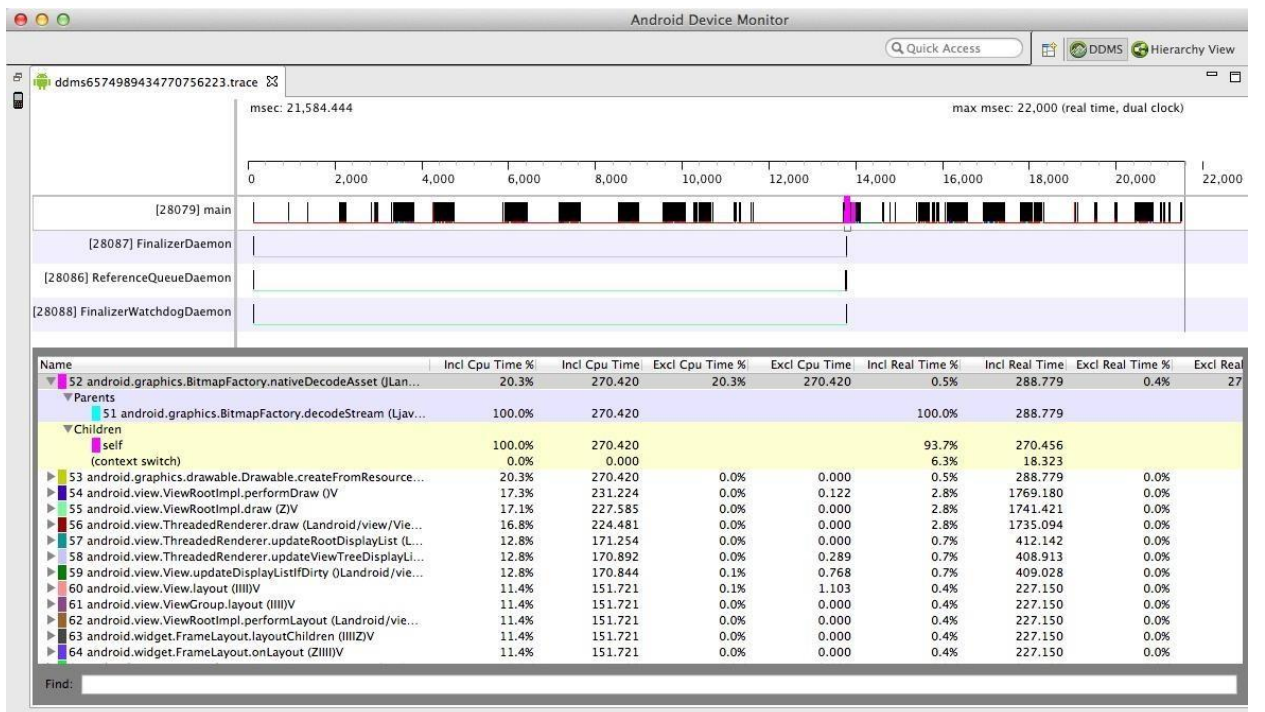
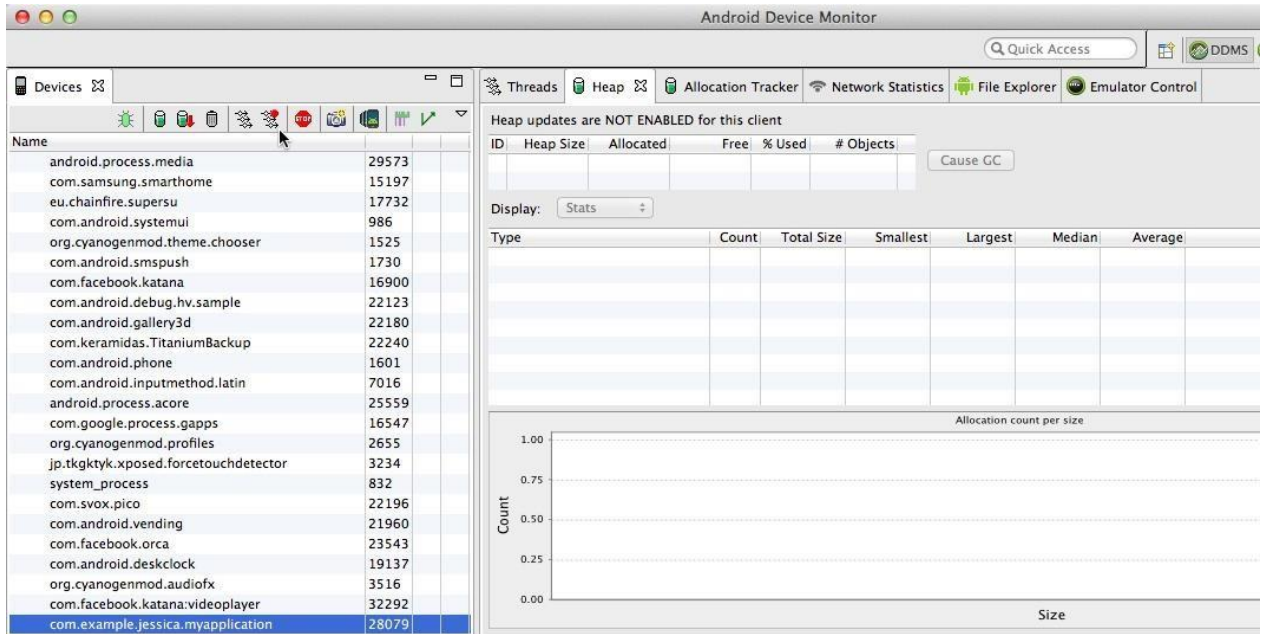
```
MainActivity.java - MyApplication20 - [~/Downloads/MyApplication20]
com > example > jessica > myapplication > MainActivity >
MainActivity.java x
Snackbar.make(view, "Replace with your own action", Snackbar.LENGTH_LONG)
    .setAction("Action", null).show();
});
DrawerLayout drawer = (DrawerLayout) findViewById(R.id.drawer_layout);
ActionBarDrawerToggle toggle = new ActionBarDrawerToggle(
    this, drawer, toolbar, "Open navigation drawer", "Close navigation drawer");
drawer.setDrawerListener(toggle);
toggle.syncState();
NavigationView navigationView = (NavigationView) findViewById(R.id.nav_view);
navigationView.setNavigationItemSelectedListener(this);
}
@Override
public void onBackPressed() {
    DrawerLayout drawer = (DrawerLayout) findViewById(R.id.drawer_layout);
    if (drawer.isDrawerOpen(GravityCompat.START)) {
```













15:34



## Developer options

On



### Hardware accelerated rendering

Force GPU rendering

Force use of GPU for 2D drawing



Show GPU view updates

Flash views inside windows when drawn with the GPU



Show hardware layers updates

Flash hardware layers green when they update



Debug GPU overdraw

Off

Debug non-rectangular clip operations

Off





15:35



Android Studio  
android.studio@android.com



Breakfast



Lunch



Dinners



Healthy



Light meals and snacks



Vegetarian and vegan



Budget friendly



My Scrapbook



Search for recipes



Android Device Monitor

Quick Access

DDMS Hierarchy View

Windows View Properties Tree View Tree Overview

lge-nexus\_5-034a91b1215ea101  
NavigationBar  
StatusBar  
KeyguardScrim  
com.android.systemui.ImageWallpaper  
AssistPreviewPanel  
InputMethod  
com.example.jessica.myapplication/com.exai  
com.android.debug.hv.sample/com.android.c  
com.android.settings/com.android.settings.S  
com.android.settings/com.android.settings.S  
com.facebook.katana/com.facebook.katana.a  
com.google.android.apps.fitness/com.google  
com.google.android.gm/com.google.android  
com.android.browser/com.android.browser.B  
com.cyanogenmod.trebuchet/com.android.la  
com.android.systemui/com.android.systemui

Layout View Console

Hierarchy Viewer  
[2016-02-21 15:06:17 - hierarchyviewer]Unable to

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## Chapter 10: Best Practices and Securing Your Application

