Screen Sizes & Densities

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WESLEY
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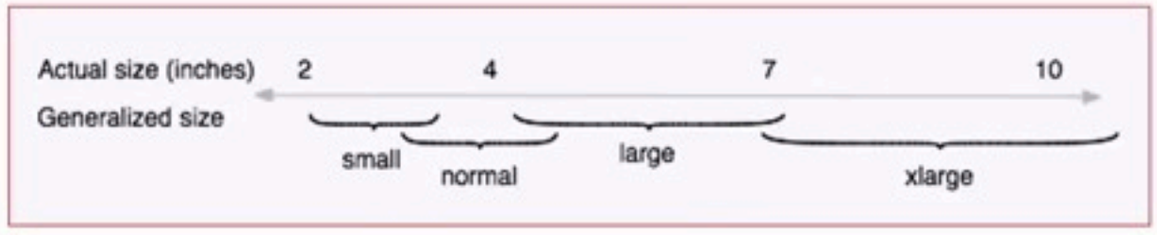
FEW TERMINOLOGIES

1. **Screen Size** – 4 Categories of android devices
   1. Small 2” to 3.7”
   2. Normal 3.7” to 4.3”
   3. Large 4.0” to 7.1”
   4. Extra Large 7.0” to 10.0”



Smartherd

https://www.youtube.com/watch?v=GTd7QVv7lzg

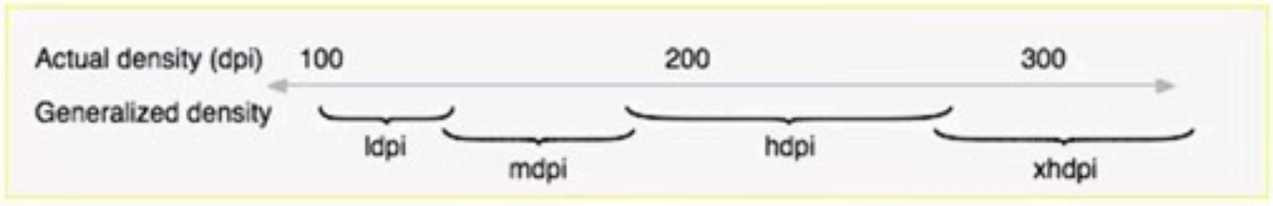
FEW TERMINOLOGIES

2. Screen Density – 4 Categories of android devices

1. Low density — 100 dpi to 130 dpi
2. Medium Density — 120 dpi to 180 dpi
3. High Density — 180 dpi to 280 dpi
4. Extra High Density — 280 dpi to 360 dpi

Number of pixels in a physical area.

Simply, **dots per inch (dpi)**



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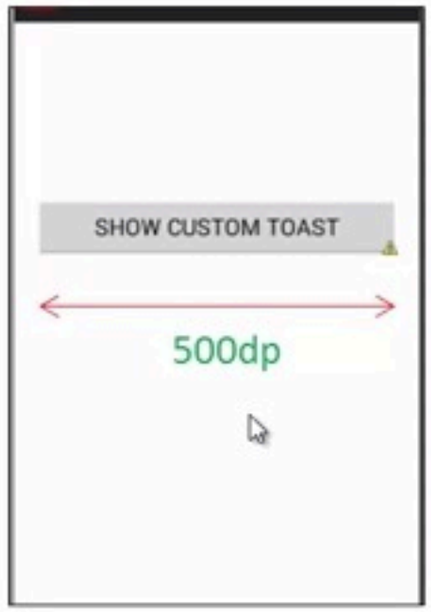
DENSITY INDEPENDENT PIXELS - DP

Unit of dimension.
At runtime, dp is converted into pixels

Number of pixels in a physical area.
Simply, **dots per inch (dpi)**

For text size use **sp**



For any widgets or view use **dp**

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At runtime, dp is converted into pixels

px = dp * (dpi / 160)

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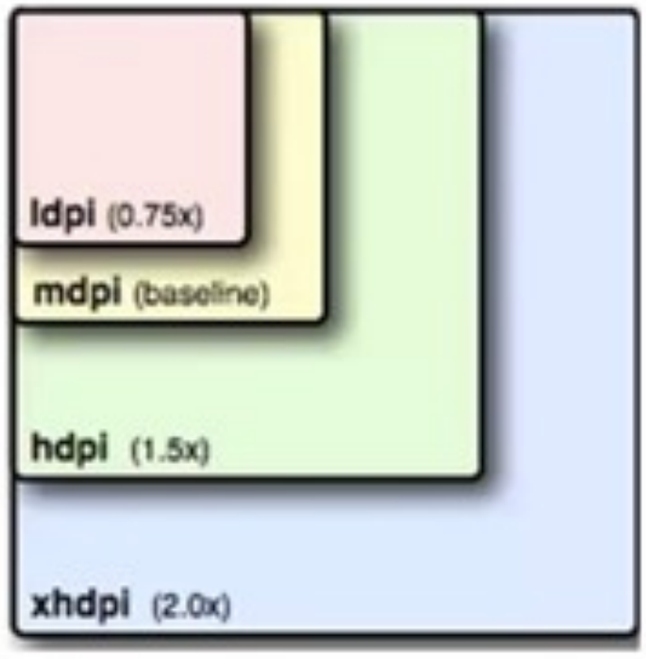
Thursday, September 25, 14



1dp = 0.75 dp in ldpi
1.0 dp in mdpi
1.5 dp in hdpi
2.0 dp in xhdpi

- Do a In Class Demo of Different Densities with Rock, Paper, Scissors

App Icon Dimensions

ldpi = 36*36 pixels

mdpi = 48 * 48 pixels

hdpi= 72 * 72 pixels

x-hdpi = 96 * 96 pixels

xx-hdpi = 144 * 144 pixels

ldpi : mdpi : hdpi : xhdpi

3 : 4 : 6 : 8

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Background Dimensions

ldpi: 240x320 px

mdpi: 320x480 px

hdpi: 480x800 px

xhdpi: 720x1280 px

ldpi : mdpi : hdpi : xhdpi

3 : 4 : 6 : 8

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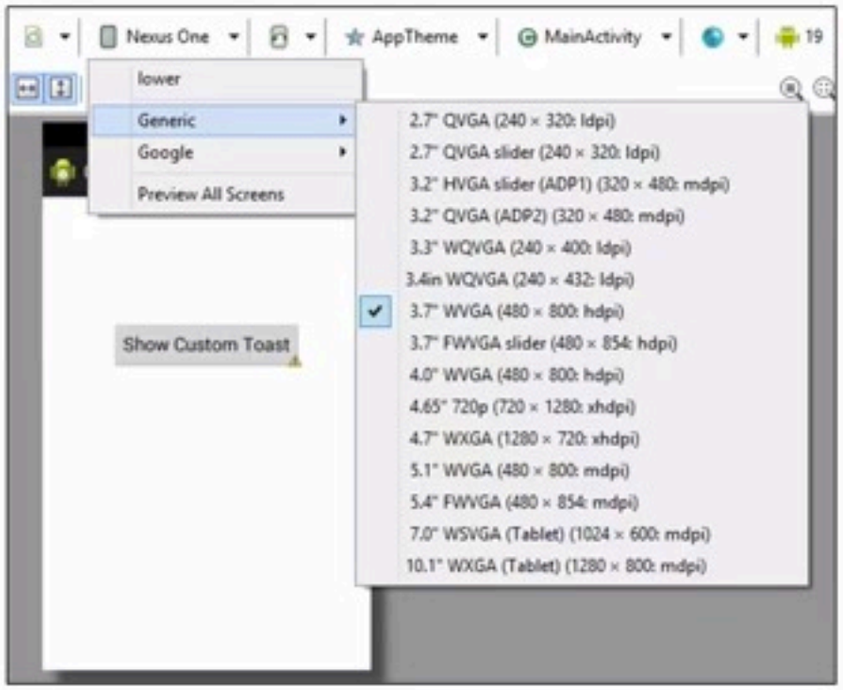
Multiple Layout devices

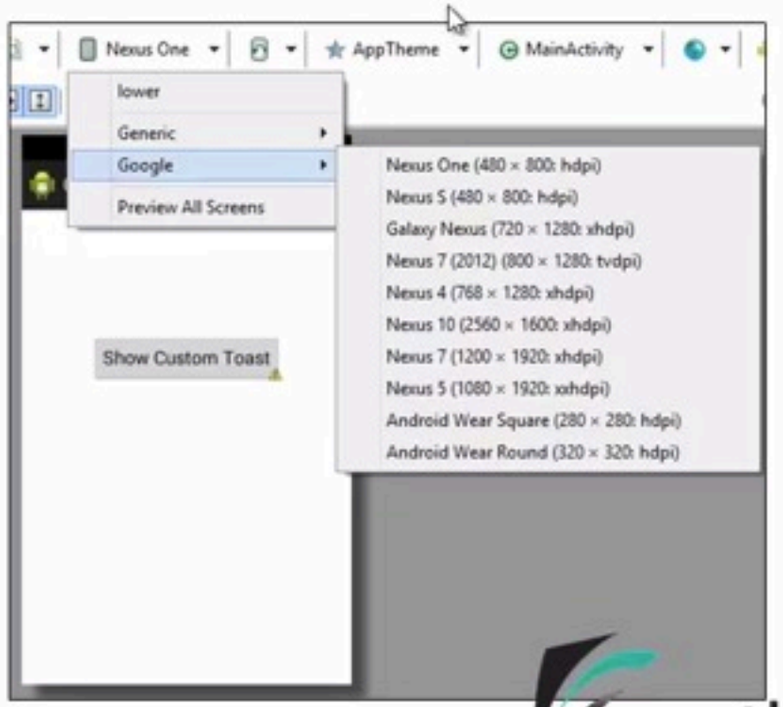
GENERIC Version 2.2 onwards

API level 8 onwards



GOOGLE Version 3.2 onwards

API level 13 onwards



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List of known device definitions. This can later be used to create Android Virtual Devices.

Device
Nexus S by Google Screen: 5.0", 1080 × 1920, Normal xxhdpi RAM: 2 GiB Used by: Demo
Nexus 7 by Google Screen: 7.0", 1200 × 1920, Large xhdpi RAM: 2 GiB
Nexus 7 (2012) by Google Screen: 7.0", 800 × 1280, Large tvdpi RAM: 1024 MiB
Nexus One by Google Screen: 3.7", 480 × 800, Normal hdpi RAM: 512 MiB
Nexus S by Google Screen: 4.0", 480 × 800, Normal hdpi RAM: 343 MiB
2.7" QVGA by Generic Screen: 2.7", 240 × 320, Small ldpi RAM: 512 MiB
2.7" QVGA slider by Generic Screen: 2.7", 240 × 320, Small ldpi RAM: 512 MiB
3.2" HVGA slider (ADP1) by Generic Screen: 3.2", 320 × 480, Normal mdpi RAM: 512 MiB
3.2" QVGA (ADP2) by Generic Screen: 3.2", 320 × 480, Normal mdpi RAM: 512 MiB
3.3" WQVGA by Generic Screen: 3.3", 240 × 400, Normal ldpi RAM: 512 MiB
3.4" WQVGA by Generic Screen: 3.4", 240 × 432, Normal ldpi RAM: 512 MiB

Multiple Layout devices

GENERIC

Version **2.2** onwards

API level **8** onwards

PORTRAIT

res/ **layout** /my_layout.xml
res/ **layout-small** /my_layout.xml 2" to 3.7"
res/ **layout-normal** /my_layout.xml 3.7" to 4.3"
res/ **layout-large** /my_layout.xml 4.0" to 7.1"
res/ **layout-xlarge** /my_layout.xml 7.0" to 10.0"

LANDSCAPE

res/**layout-land**/my_layout.xml
res/**layout-small-land**/my_layout.xml
res/**layout-normal-land**/my_layout.xml
res/**layout-large-land**/my_layout.xml
res/**layout-xlarge-land**/my_layout.xml

GOOGLE

Version **3.2** onwards

API level **13** onwards

PORTRAIT and LANDSCAPE

res/ **layout** /my_layout.xml
res/ **layout-sw320dp** /my_layout.xml
res/ **layout-sw480dp** /my_layout.xml
res/ **layout-sw600dp** /my_layout.xml
res/ **layout-sw720dp** /my_layout.xml

Used in mainly TABLETS

Layouts are designed using FRAGMENTS
For both dual pane and single pane.

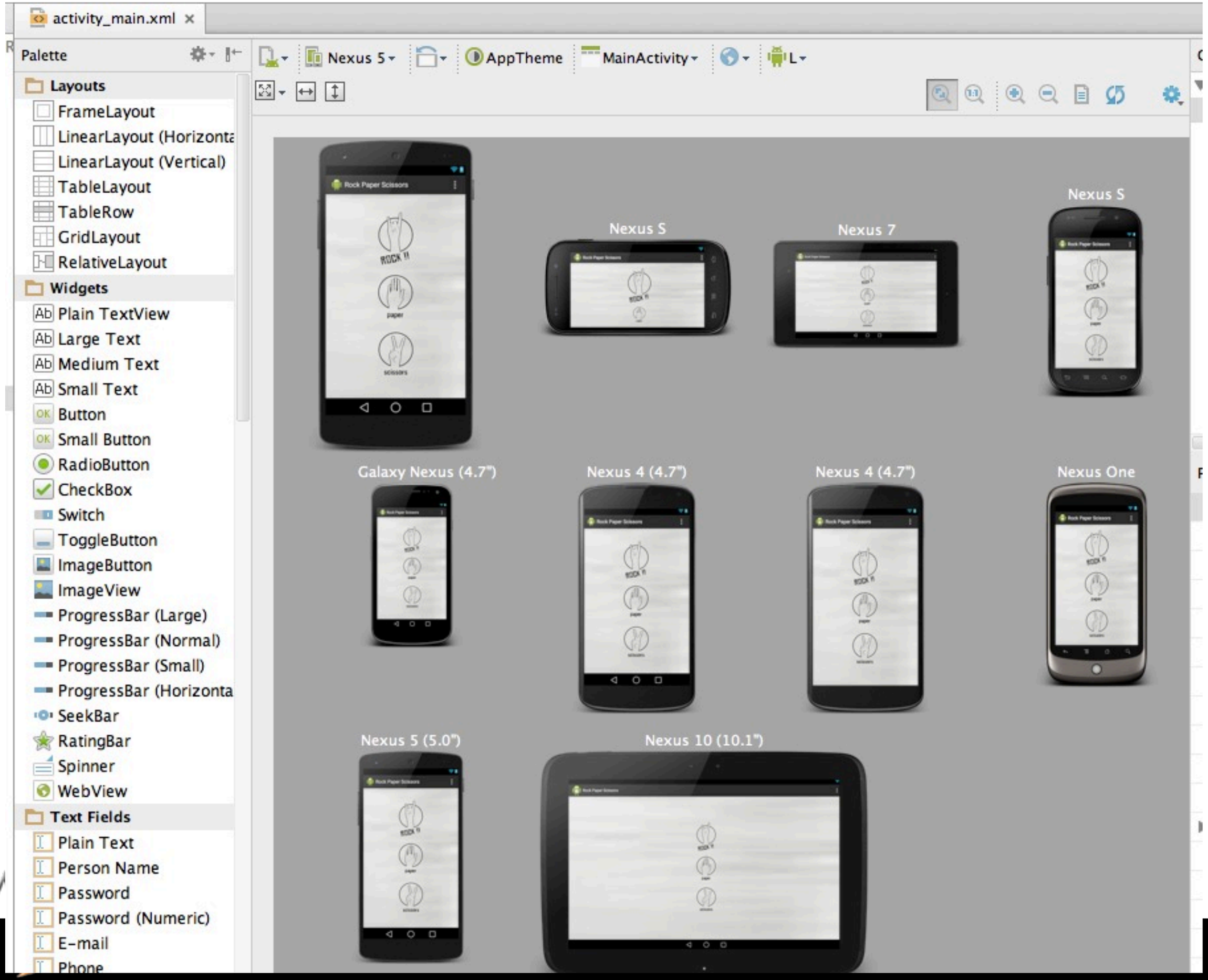
Deprecated for solo use in 3.2 and above versions

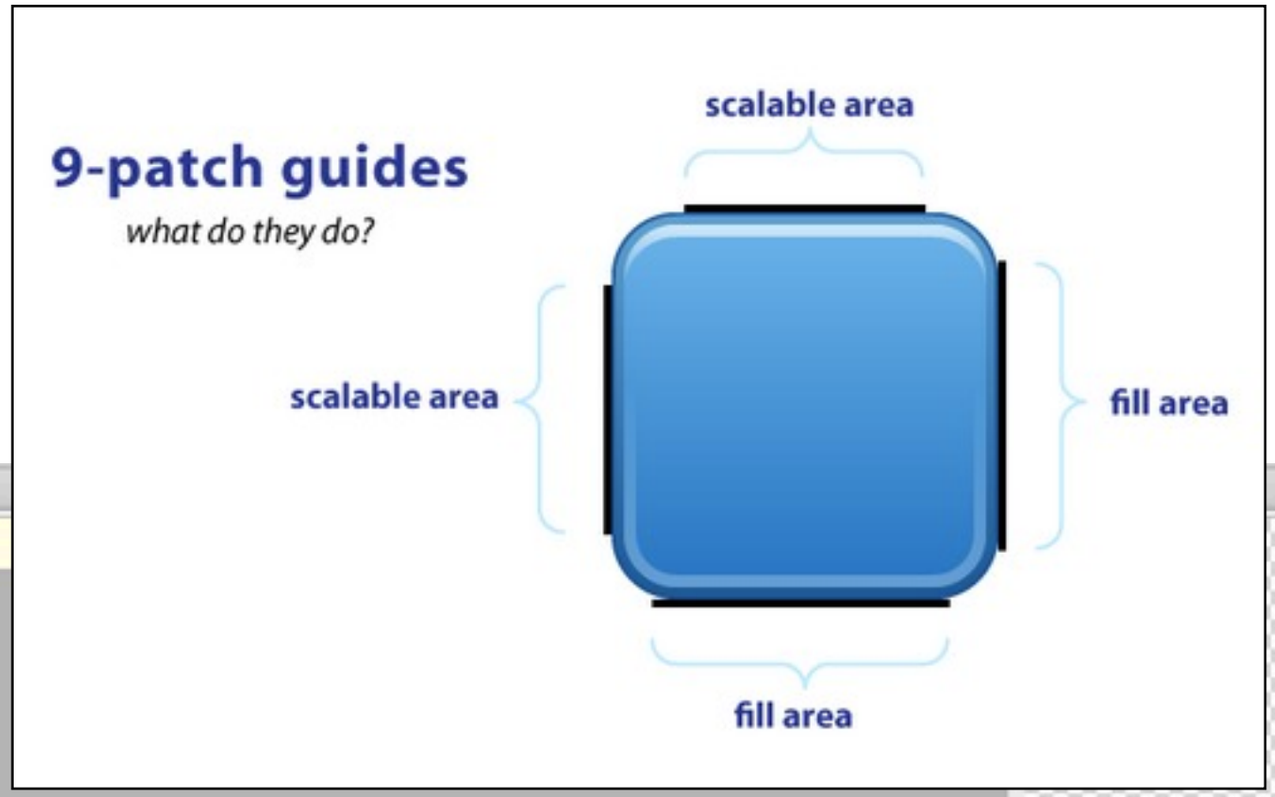
- Demo: Add Background Image to our Rock Paper Scissors

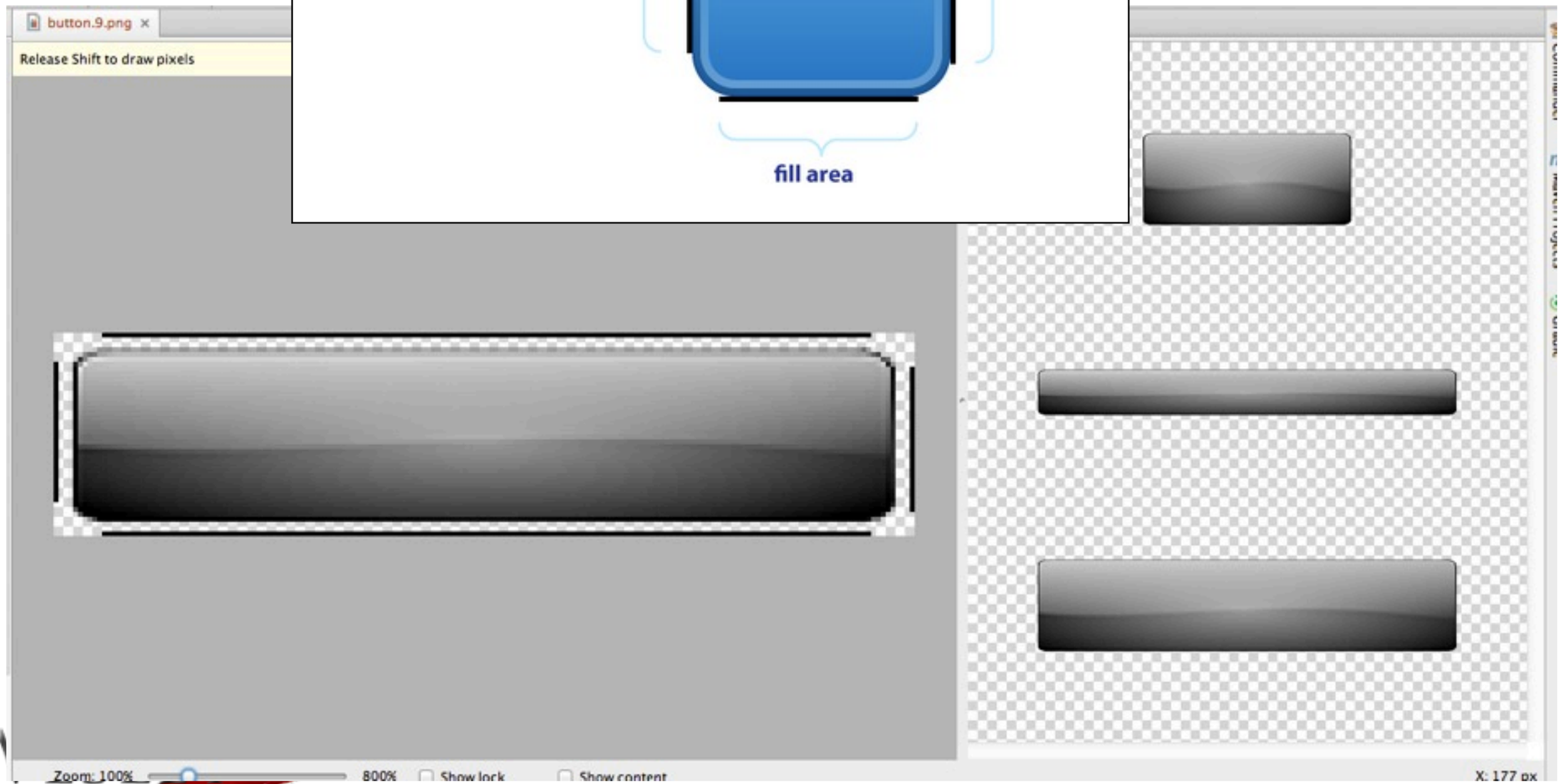
Sizes (px)	Format and naming	Notes
Launcher icons		
48 × 48 (mdpi) 72 × 72 (hdpi) 96 × 96 (xhdpi) 144 × 144 (xxhdpi) 192 × 192 (xxxhdpi) 512 × 512 (Google Play store)	.png	Three-dimensional, front view, with a slight perspective as if viewed from above, so that users perceive some depth.

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/r
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/frontpage_layout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/lg" >

    <Button
        android:id="@+id/bsq"
        android:layout_width="200dp"
        android:layout_height="50dp"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="64dp"
        android:background="@drawable/button_custom"
        android:text="@string/sq"
        android:textColor="#ffffff"
        android:textSize="20sp" />

    <Button
        android:id="@+id/bseeotherapps"
        android:layout_width="200dp"
        android:layout_height="50dp"
```

- Use wrap_content and match_parent for width and height.


activity_main.xml
Palette
Layouts
FrameLayout
LinearLayout (Horizonta
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 (Horizonta
SeekBar
RatingBar
Spinner
WebView
Text Fields
Plain Text
Person Name
Password
Password (Numeric)
E-mail
Phone
Nexus 5
AppTheme
MainActivity
L
Rock Paper Scissors
ROCK !!
paper
scissors
Nexus S
Nexus 7
Nexus S
Galaxy Nexus (4.7")
Nexus 4 (4.7")
Nexus 4 (4.7")
Nexus One
Nexus 5 (5.0")
Nexus 10 (10.1")


9-patch guides
what do they do?
scalable area
scalable area
fill area
fill area


button.9.png
Release Shift to draw pixels
Zoom: 100%
800%
Show lock
Show content
X: 177 px