



Amazing Android

How We Built Square



Friday, May 14, 2010





8:59 AM



Do you have a Square account?

email

user@domain.com

password

Sign In

Never used Square before?

Create a New Account

Create a New Account

Cancel

New Account

Continue

What is Square?



Accept Payments. Cash or credit.



Lose the paper. Text and email receipts.



Safety. Industry-standard security.

Fees

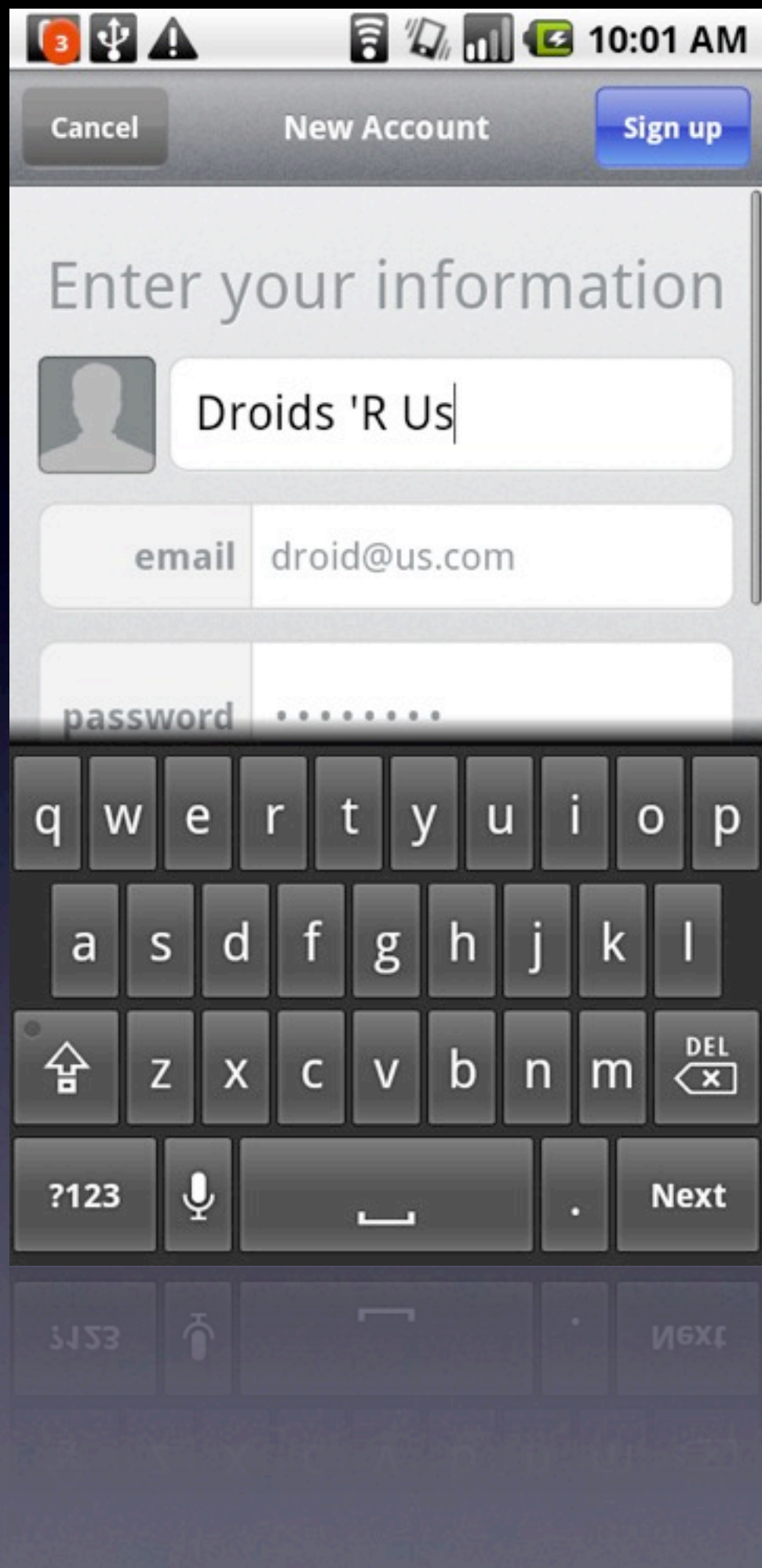
Card-Present (swiped)	2.75% + 15¢
Manual (keyed) Entry	3.50% + 15¢
Card Reader	free
Activation Fee	none
Transaction Fee	none
Monthly Fee	none

Monthly Fee

none

Transaction Fee

none



Settings

Pay
Droids 'R Us

Pay

\$0.00



Enter an optional note



Clear

7

8

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6

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00

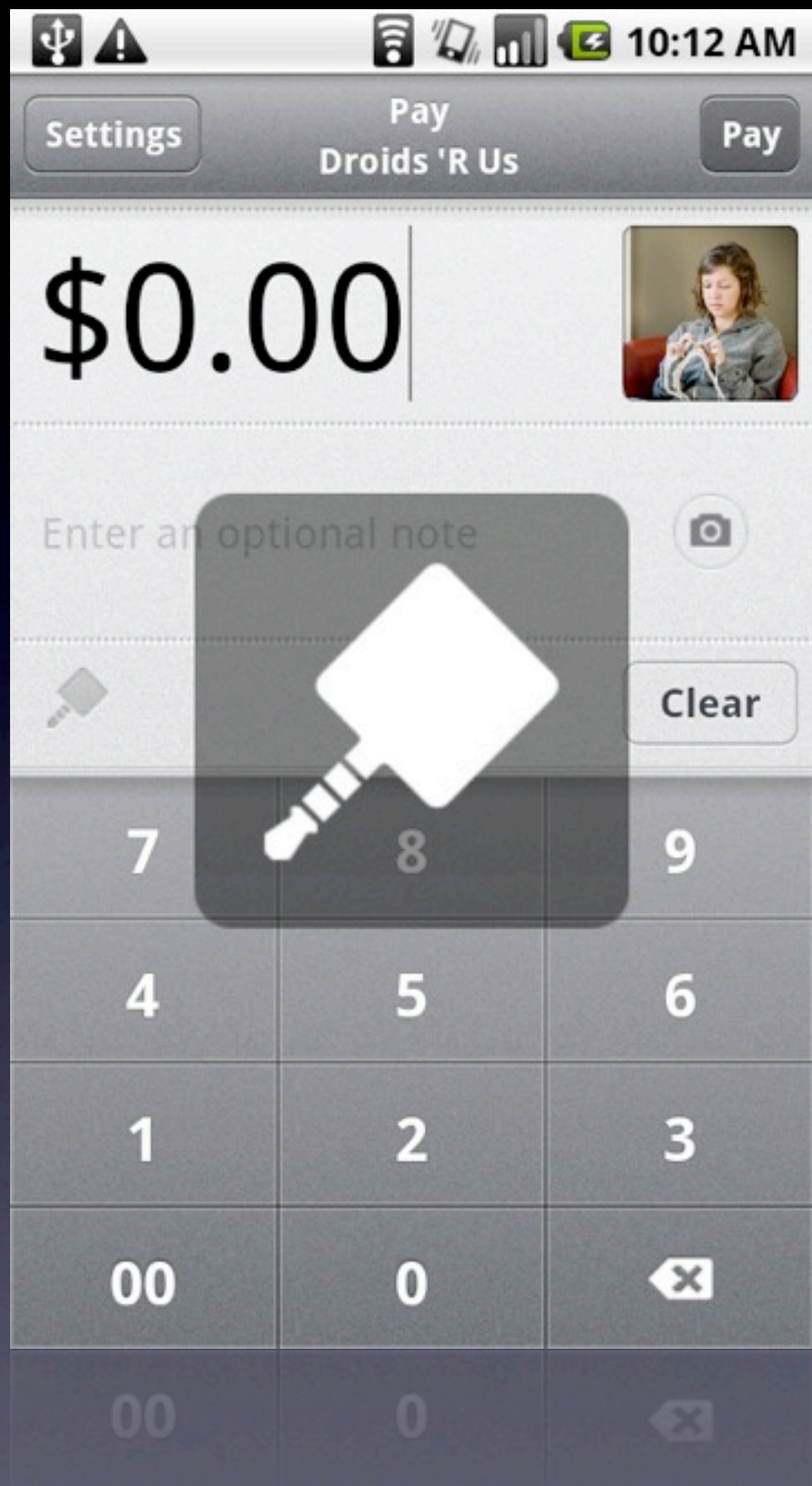
0



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10:15 AM

Settings

Pay
Droids 'R Us

Pay

\$35.00



Amigurumi mascot



1111

Clear

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Photo Verification



Does this look like the payer?

✕ No

✓ Matches

✕ No


✓ Matches

Receipt



Send Yourself a Receipt

A digital receipt of this transaction will be sent to you via email. Your information will not be made available to the merchant.

 **Email Receipt**

× No Receipt

× No Receipt

Pay Droids 'R Us

\$35.00

Emi Barlow



VISA 1111

Sign here.

Cancel

I agree to pay the above total amount
according to my card issuer agreement.

Continue

Cancel

I agree to pay the above total amount
according to my card issuer agreement.

Continue



You paid
\$35.00.
Thank you.

New Payment


How We Did It

Receipt



Send Yourself a Receipt

A digital receipt of this transaction will be sent to you via email. Your information will not be made available to the merchant.

 **Email Receipt**

✕ No Receipt

✕ No Receipt

Paper Textures

```
enum Noise {
    GRAY(0x64676E),
    PAPER(0xDEDFE1),
    BACKGROUND(0xBCBEC2),
    STANDARD_BUTTON(0xc00000),
    TITLE_BAR_EMPHASIZED(0x505356);

    private final Bitmap bitmap;

    Noise(int startingColor) {
        bitmap = Factory.newBitmap(
            Factory.generatePalette(startingColor));
    }

    Bitmap getBitmap() {
        return bitmap;
    }
}
```



```
/** Creates a new bitmap filled with noise. */
private static Bitmap newBitmap(int[] palette) {
    int[] noise = new int[SIZE];
    byte[] paletteIndices = PALETTE_INDICES;

    for (int i = 0; i < SIZE; i++) noise[i] =
        palette[paletteIndices[i]];

    return Bitmap.createBitmap(noise, LENGTH,
        LENGTH, ARGB_8888);
}
```

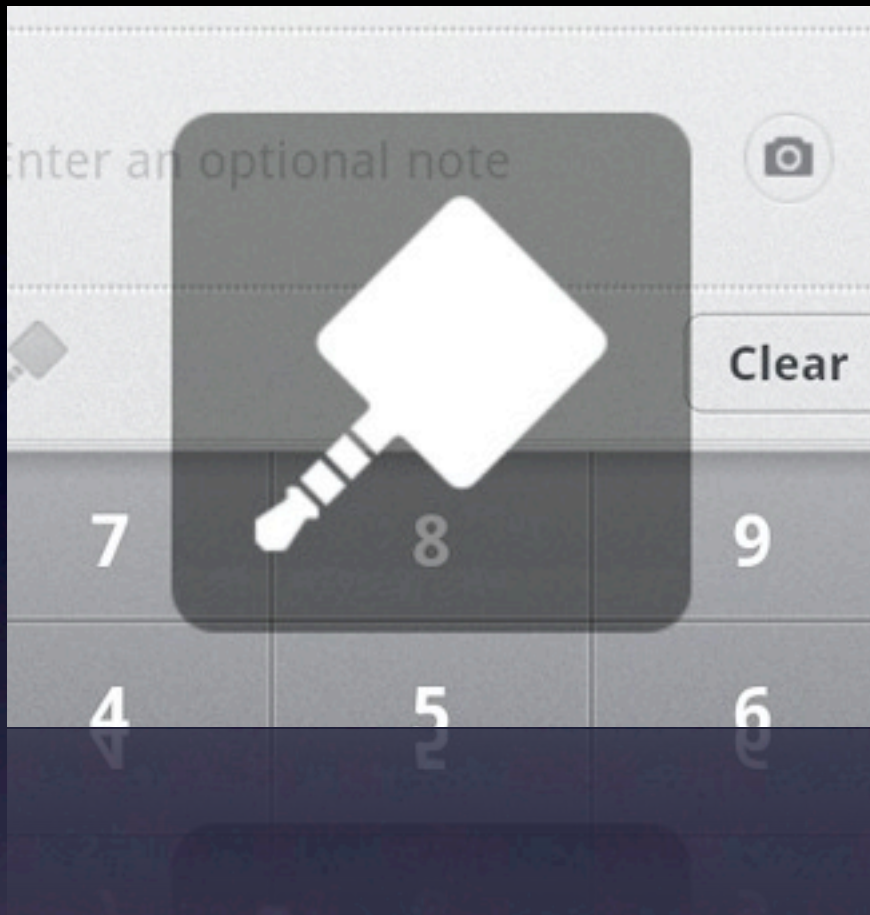
```
class PaperTexture extends Drawable {  
  
    private Paint bitmapPaint = new Paint();  
    private ShapeDrawable.ShaderFactory highlight;  
  
    PaperTexture(PaperColor paperColor,  
                 ShapeDrawable.ShaderFactory highlight) {  
  
        bitmapPaint.setShader(new BitmapShader(  
            paperColor.getNoise().getBitmap(),  
            REPEAT, REPEAT));  
        this.highlight = highlight;  
    }  
}
```



```
public class TitleBar extends RelativeLayout {  
    public TitleBar(Context c, AttributeSet attrs) {  
        setBackgroundDrawable(PaperTextures.color(  
            PaperColor.TITLE_BAR)  
                .highlightPercentage(90).drawable());  
    }  
}
```

Building Blocks

- Bitmap
- Paint
- Drawable
- Shader



Hud

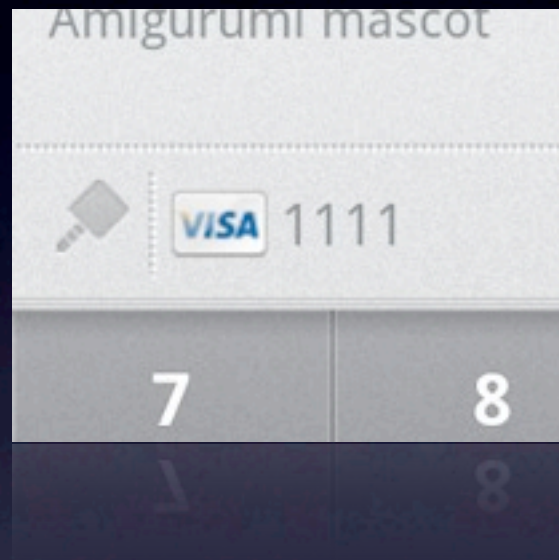
```
public class Hud {  
    public static void showImageToast(  
        Context context, int imageResourceId) {  
  
        ImageView hud = new ImageView(context);  
        hud.setBackgroundResource(R.drawable.hud);  
        hud.setImageResource(imageResourceId);  
  
        Toast toast = new Toast(context);  
        toast.setView(hud);  
        toast.setDuration	Toast.LENGTH_SHORT);  
        toast.setGravity(Gravity.CENTER, 0, 0);  
        toast.show();  
    }  
}
```


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Numeric Keyboard

00	0	⬅️✕
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Show Code



IconFlipper

Using IconFlipper

```
IconFlipper flipper = (IconFlipper) findViewById(  
    R.id.on_off_icon);
```

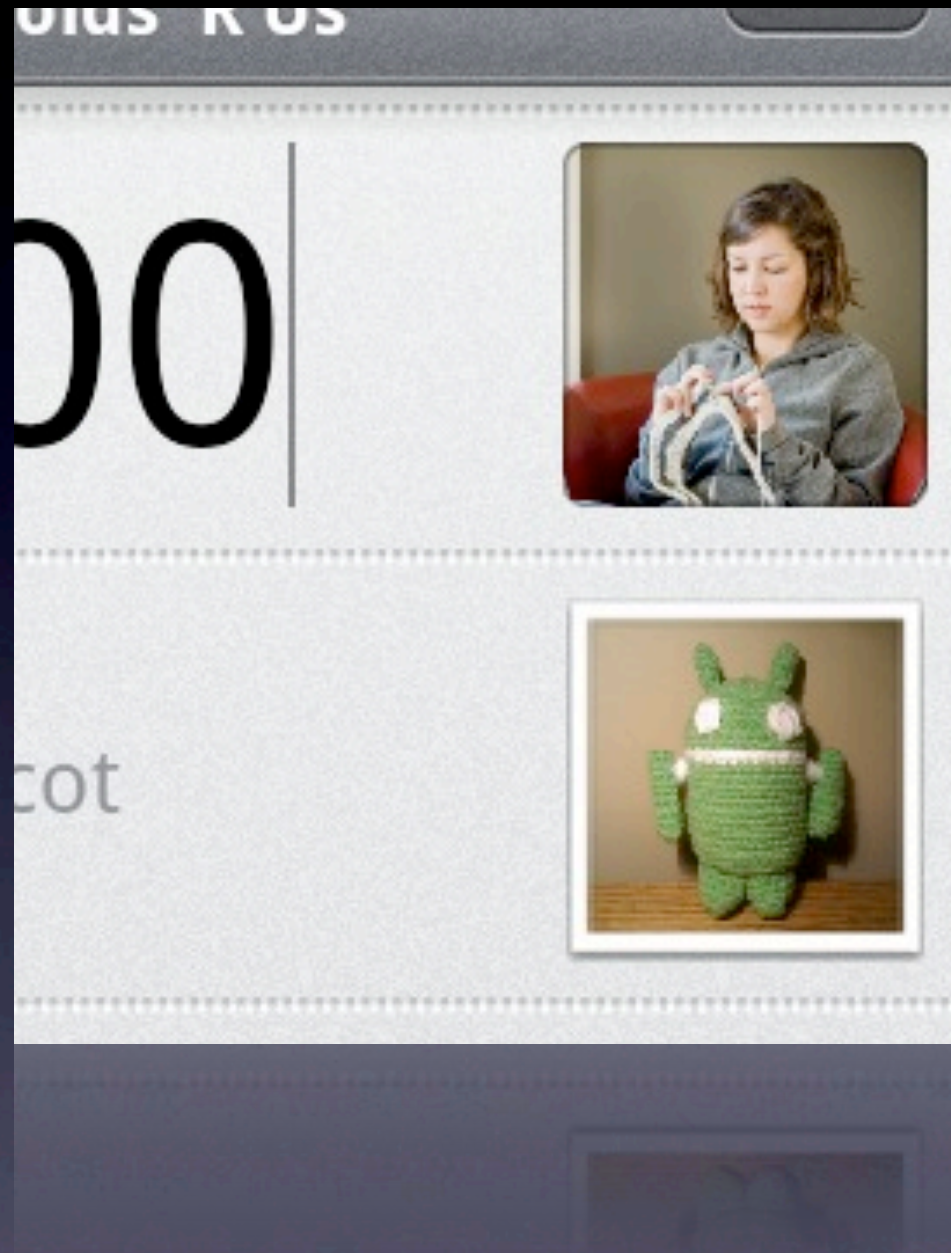
```
IconFlipper.Icon onIcon = flipper.newIcon(  
    R.drawable.on);
```

```
IconFlipper.Icon offIcon = flipper.newIcon(  
    R.drawable.off);
```

```
onIcon.show();
```

```
...
```

```
offIcon.show(Transition.FLIP);
```

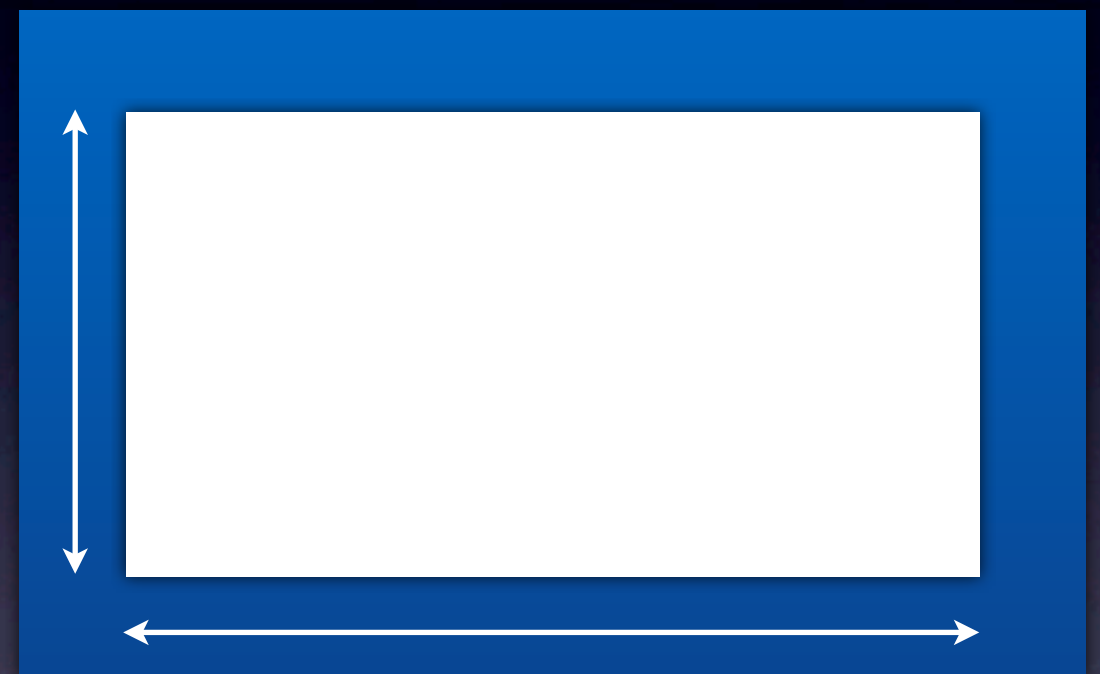
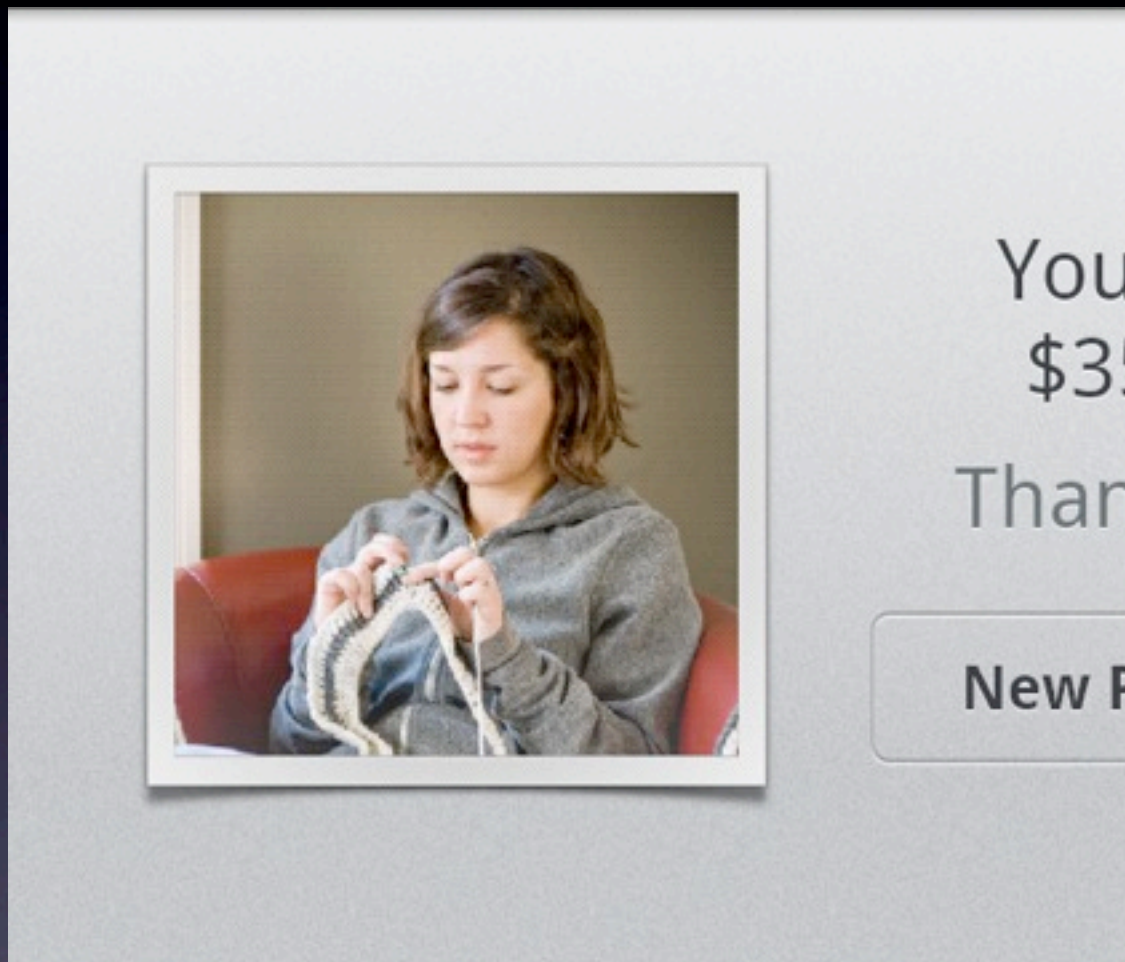



Rounded Corners


Picture Frame

```
Bitmap bitmap = Bitmaps.decode(fromFile(file))  
    .scale(imageSize)  
    .square()  
    .roundCorners(radius, borderWidth, borderColor)  
    .create(resources);
```



PercentageLayout



11:33 AM



\$35.00 Cash

 **\$50.00** | Change **\$15.00**

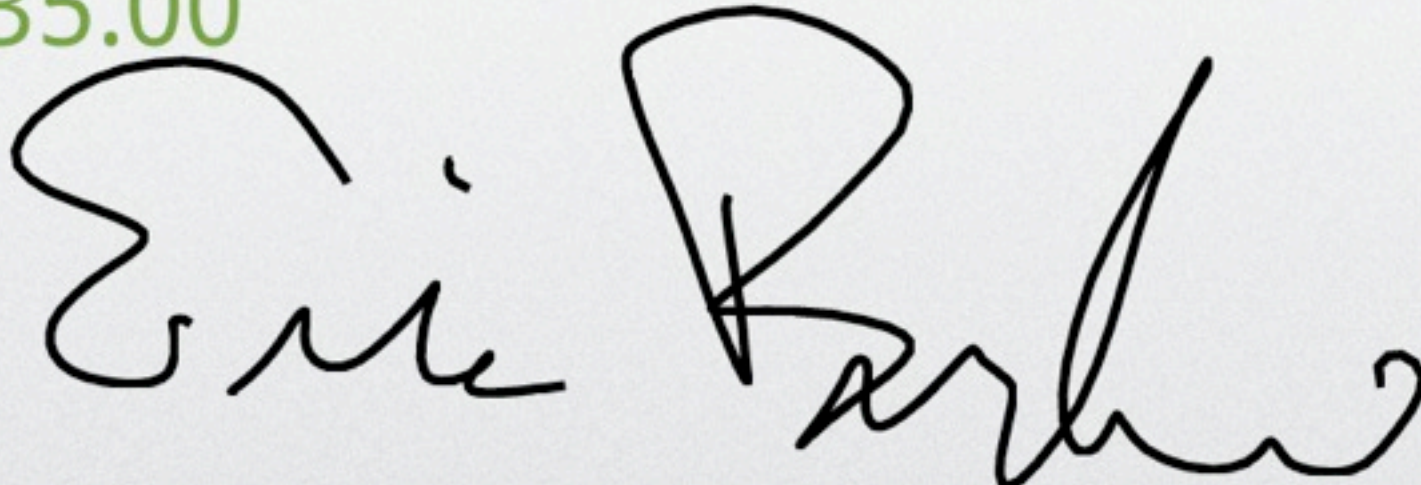
Cancel Paid

7	8	9
4	5	6
1	2	3
00	0	⬅️✕

PaymentBook

SignatureView

Pay Droids 'R Us
\$35.00



✕

VISA 1111 Sign here.

Cancel I agree to pay the above total amount according to my card issuer agreement. Continue

Cancel I agree to pay the above total amount according to my card issuer agreement. Continue

JSON

- PaymentService

QueueFile

- YAFFS filesystem - Atomic segment writes