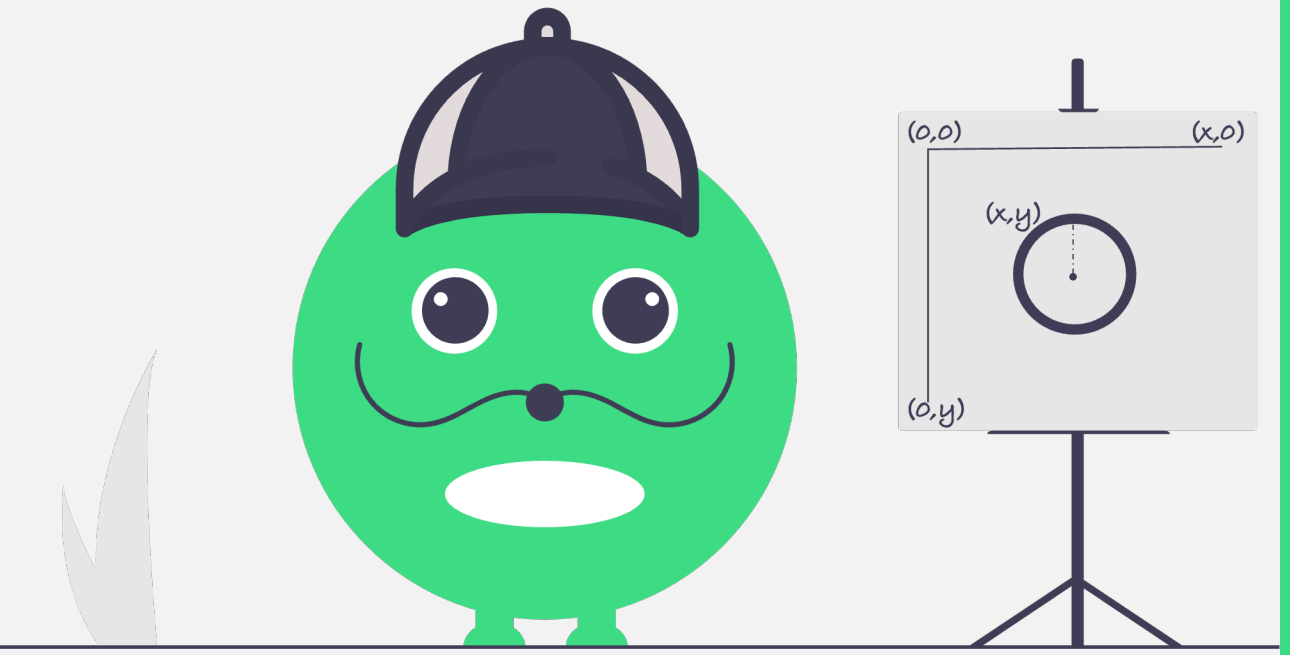
April, 2023

Android Tech Talks

Akın DEMİR

Android Developer

mobillium



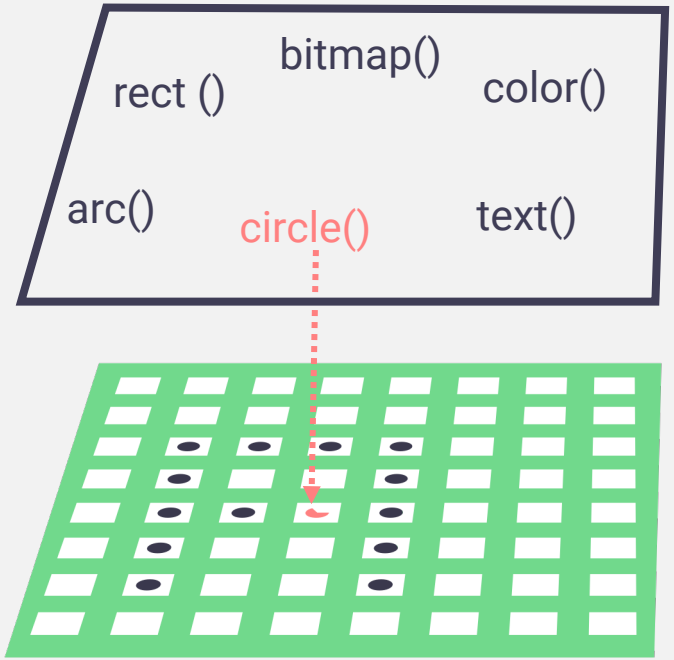
Custom Views

Drawing with Canvas API

Drawing something

A paint
(colors & styles)

A drawing primitive
(Rect, Path, text, Bitmap, ...)



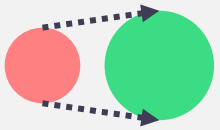
A Canvas
host the draw() calls
to write into bitmap

A Bitmap
to hold the pixels

What Canvas Provides?

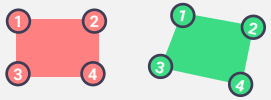
- Drawing
- Clipping

- Scaling



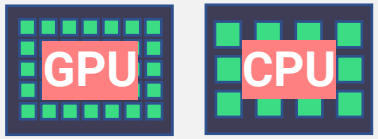
- Rotating

- Skewing



- Translating

- Hardware Acceleration



Drawing

Geometric Shapes

drawPoint()
drawPoints()
drawLine()
drawLines()
drawPath()
drawRect()
drawRoundRect()
drawCircle()
drawOval()
drawArc()
drawVertices()

Colors

drawARGB()
drawRGB()
drawColor()
drawPaint()

Text

drawText()
drawTextOnPath()

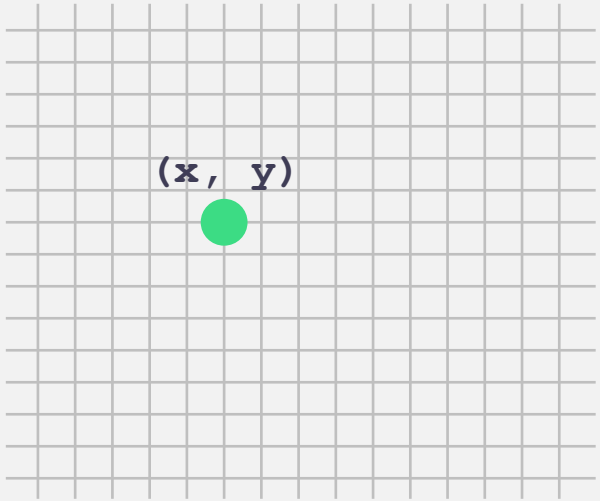
Image

drawBitmap()
drawPicture()

Drawing Geometric Shapes

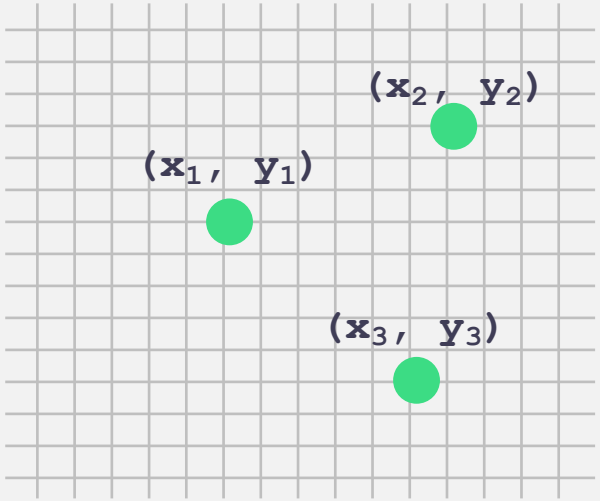
drawPoint( )

```
canvas.drawPoint(
    x,
    y,
    paint
)
```



drawPoints ()

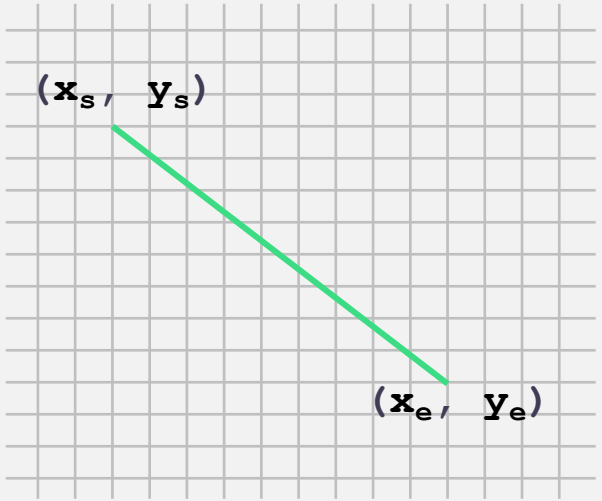
```
val points = floatArrayOf(
    x1, y1,
    x2, y2,
    x3, y3
)
canvas.drawPoints(points, paint)
```



Drawing Geometric Shapes

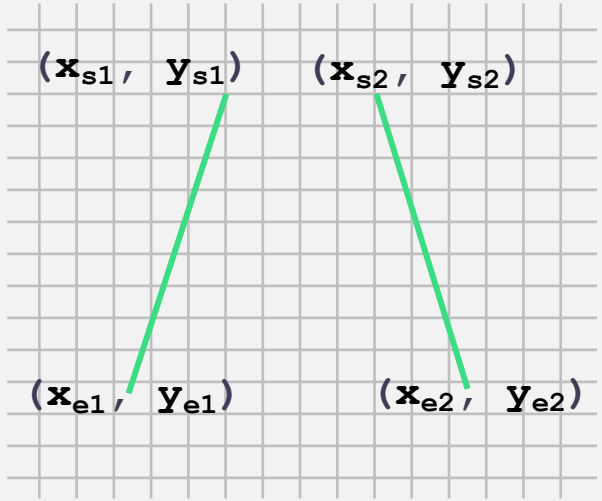
drawLine( )

```
canvas.drawLine(
    xs,ys,
    xe,ye,
    paint
)
```



drawLines ()

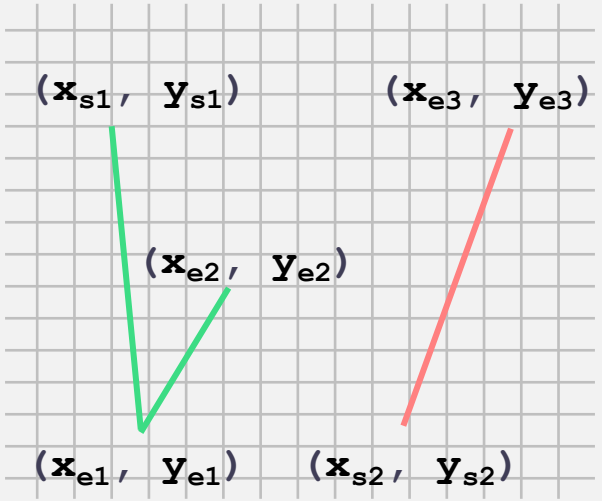
```
val points = floatArrayOf(
        xs1, ys1,
        xe1, ye1,
        xs2, ys2,
        xe2, ye2
)
canvas.drawPoints(points, paint)
```



Drawing Geometric Shapes

drawPath( )

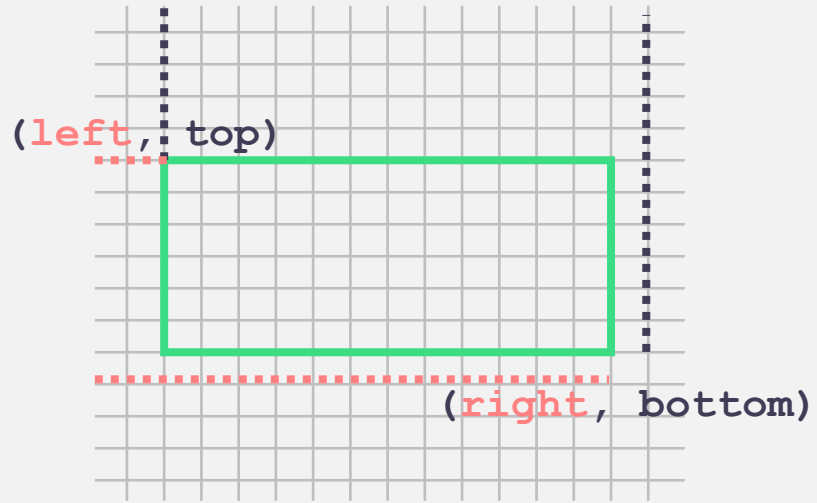
```
val path = Path().apply {
        moveTo(xs1, ys1)
        lineTo(xe1, ye1)
        lineTo(xe2, ye2)
        moveTo(xs2, ys2)
        lineTo(xe3, ye3)
}
canvas.drawPath(path, paint)
```



Drawing Geometric Shapes

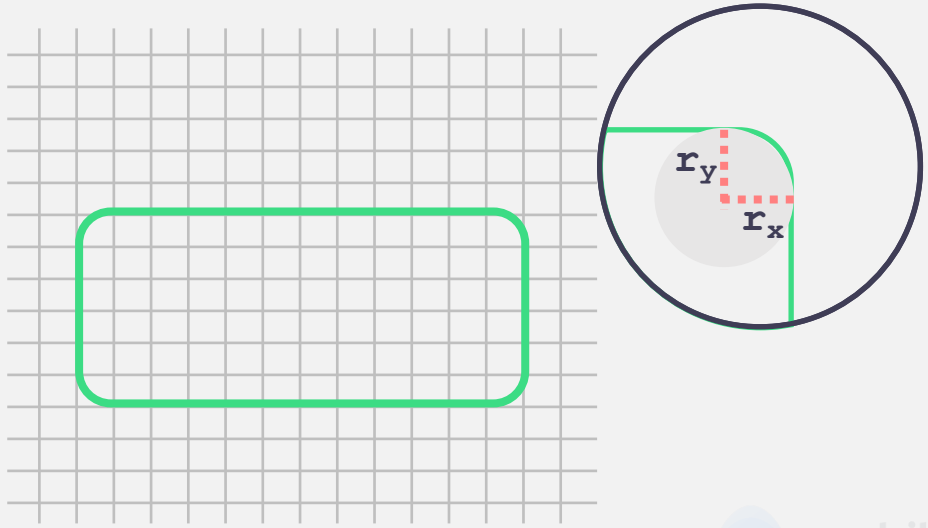
drawRect( )

```
canvas.drawRect(
    Rect(left, top, right, bottom),
    paint
)
```



drawRoundRect ()

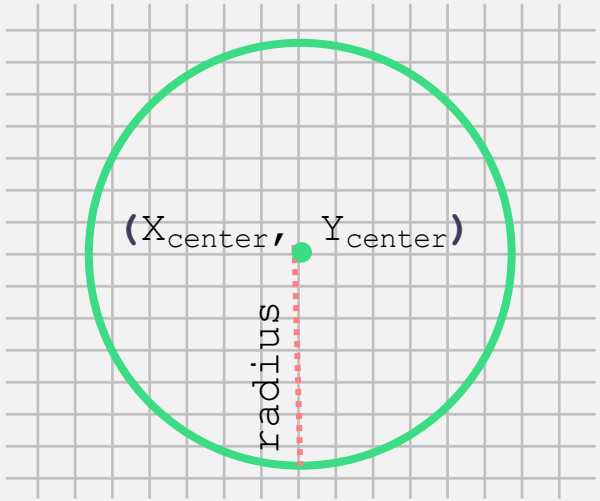
```
canvas.drawRoundRect(
    RectF(left, top, right, bottom),
    rx,ry,
    paint
)
```



Drawing Geometric Shapes

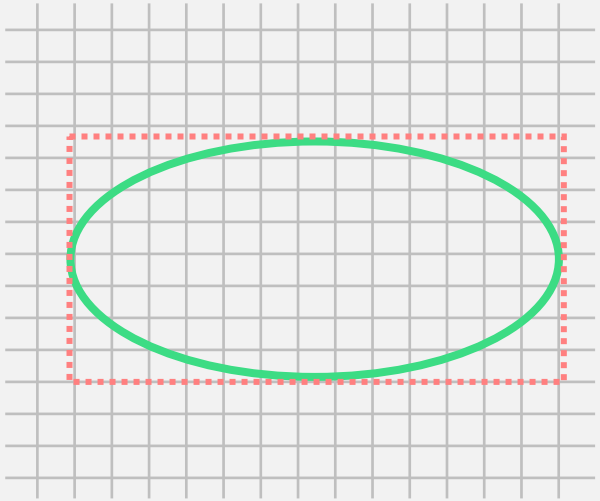
drawCircle( )

```
canvas.drawCircle(
        Xcenter, Ycenter,
        radius,
        paint
)
```



drawOval( )

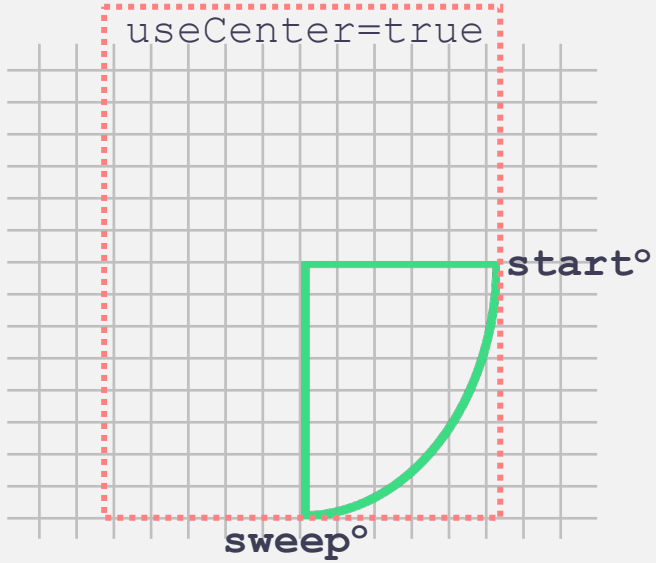
```
canvas.drawOval(
        rectF,
        paint
)
```

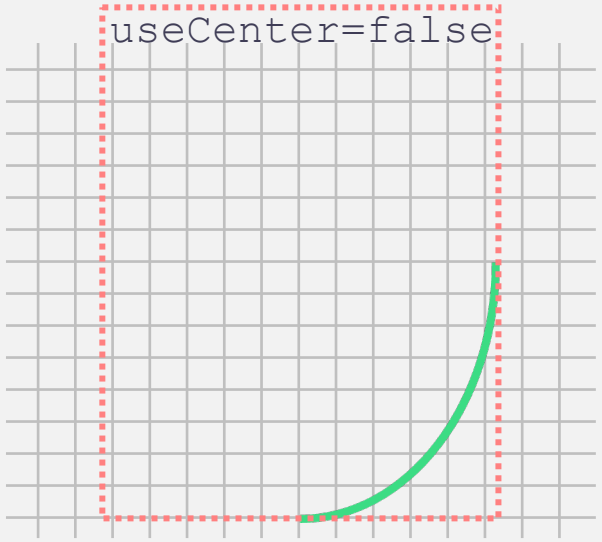


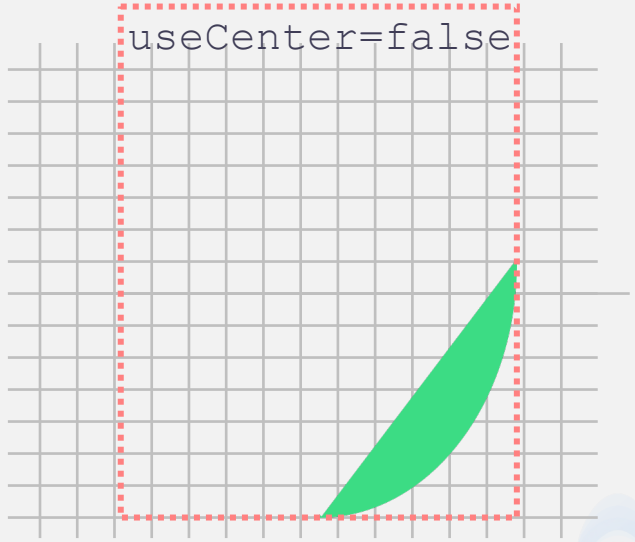
Drawing Geometric Shapes

drawArc( )

```
canvas.drawArc(
        rect,
        startAngle,
        sweepAngle,
        useCenter,
        paint
)
```







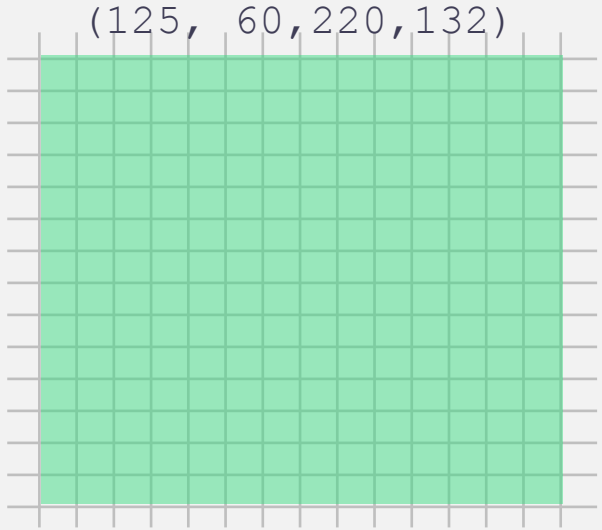
Drawing Colors

drawColor( )

```
canvas.drawColor(
      context.getColor(R.color.color1)
)
```

drawARGB( )

```
canvas.drawARGB(
   alpha, red, green, blue
)
```



Drawing Colors

drawRGB( )

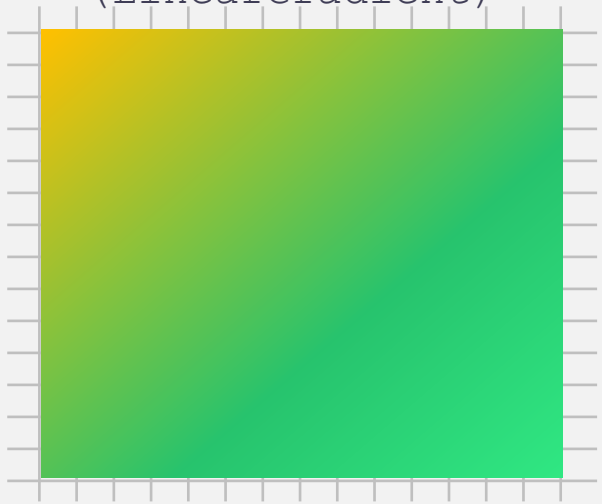
```
canvas.drawRGB(
     red, green, blue
)
```

(60,220,132)

drawPaint( )

```
canvas.drawPaint(
   paint
)
```

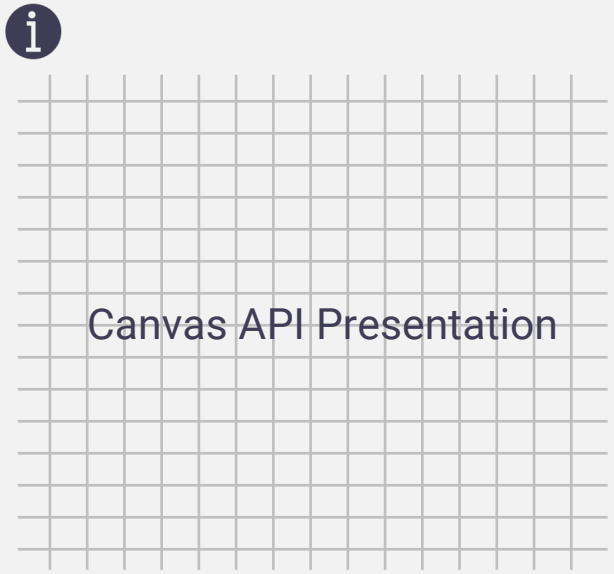
(LinearGradient)



Drawing Texts

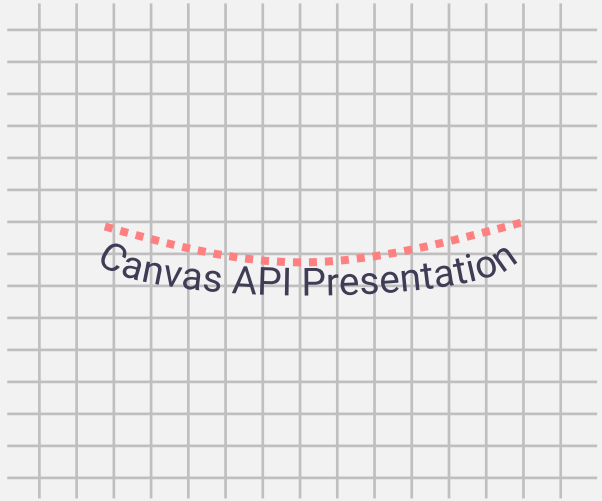
drawText( )

```
canvas.drawText(
    text, x, y, paint
)
```



drawTextOnPath( )

```
canvas.drawTextOnPath(
    text, path hoffset, yoffset, paint
)
```

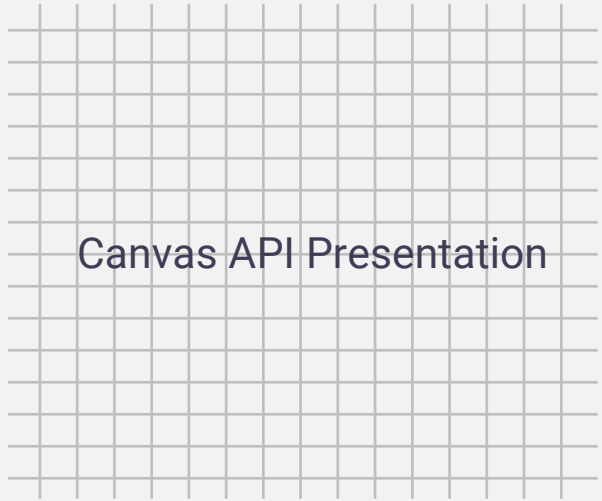


Drawing Texts

drawText( )

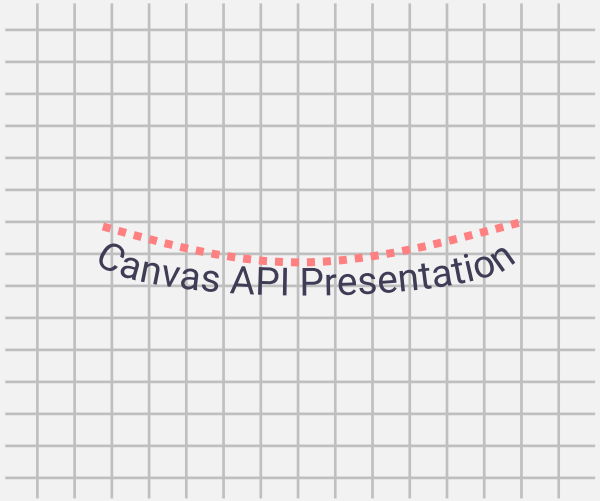
```
canvas.drawText(
    text, x, y, paint
)
```

Use StaticLayout to wrap texts.



drawTextOnPath( )

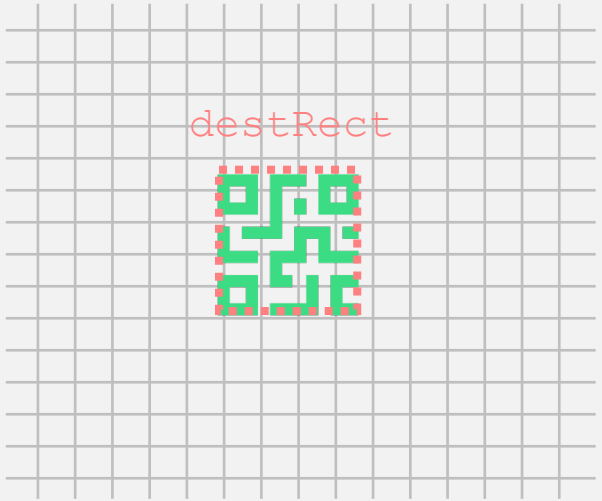
```
canvas.drawTextOnPath(
    text, path hoffset, yoffset, paint
)
```



Drawing Image

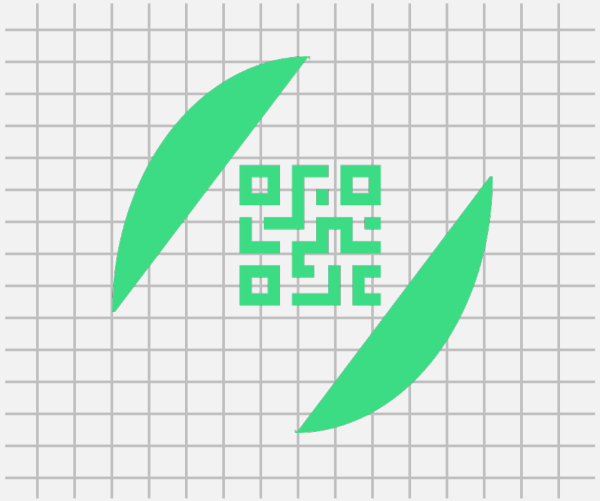
drawBitmap( )

```
canvas.drawBitmap(
    bitmap, sourceRect, destRect, paint
)
```



drawPicture( )

```
canvas.drawPicture(
    picture
)
```



To be continued