



Android

View Анимации. Custom Views

Съдържание

- Animation
 - View Animation
 - Property Animation
- Custom Views

view animation

View Animation

- Може да се дефинира и чрез само XML
- По-малко кодене
- По-малко свобода
- Може да се използва и за транзишън през екрани

Demo

Let's animate the  button to become an  button

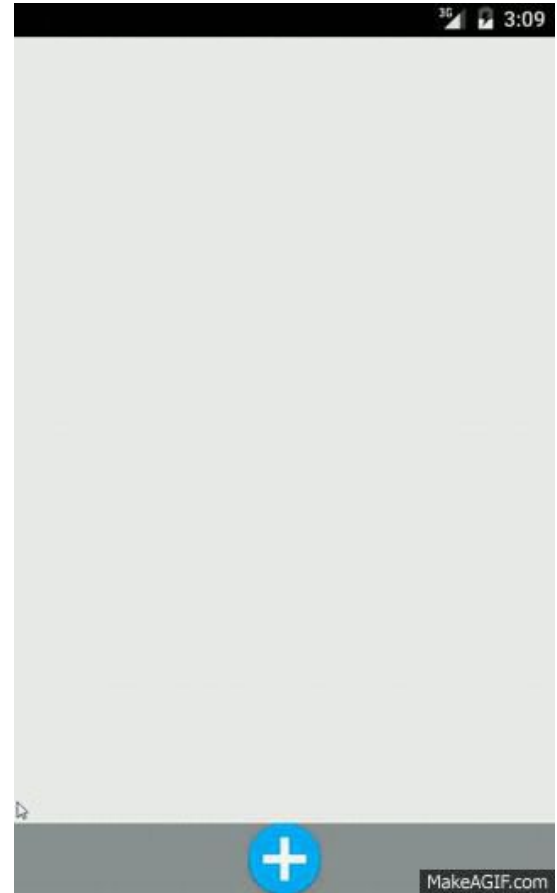
We made it!!



- We should take into account that the activity transition also takes time
- The button animation should start after it

`onResume()`

Called after `onRestoreInstanceState(Bundle)`, `onRestart()`, or `onPause()`, for your activity to start interacting with the user. **This is a good place to begin animations**, open exclusive-access devices (such as the camera), etc



Кога да го използваме?

- Трябва ни проста анимация, която променя стойностите на:

- | | | |
|-------------------|---|-----------------|
| ○ start/end point | → | ● <translate /> |
| ○ size | → | ● <scale /> |
| ○ rotation | → | ● <rotate /> |
| ○ transparency | → | ● <alpha /> |

**View Animation променя САМО
къде се рисува елемента!
Функционалността му остава на
първоначалната позиция.**

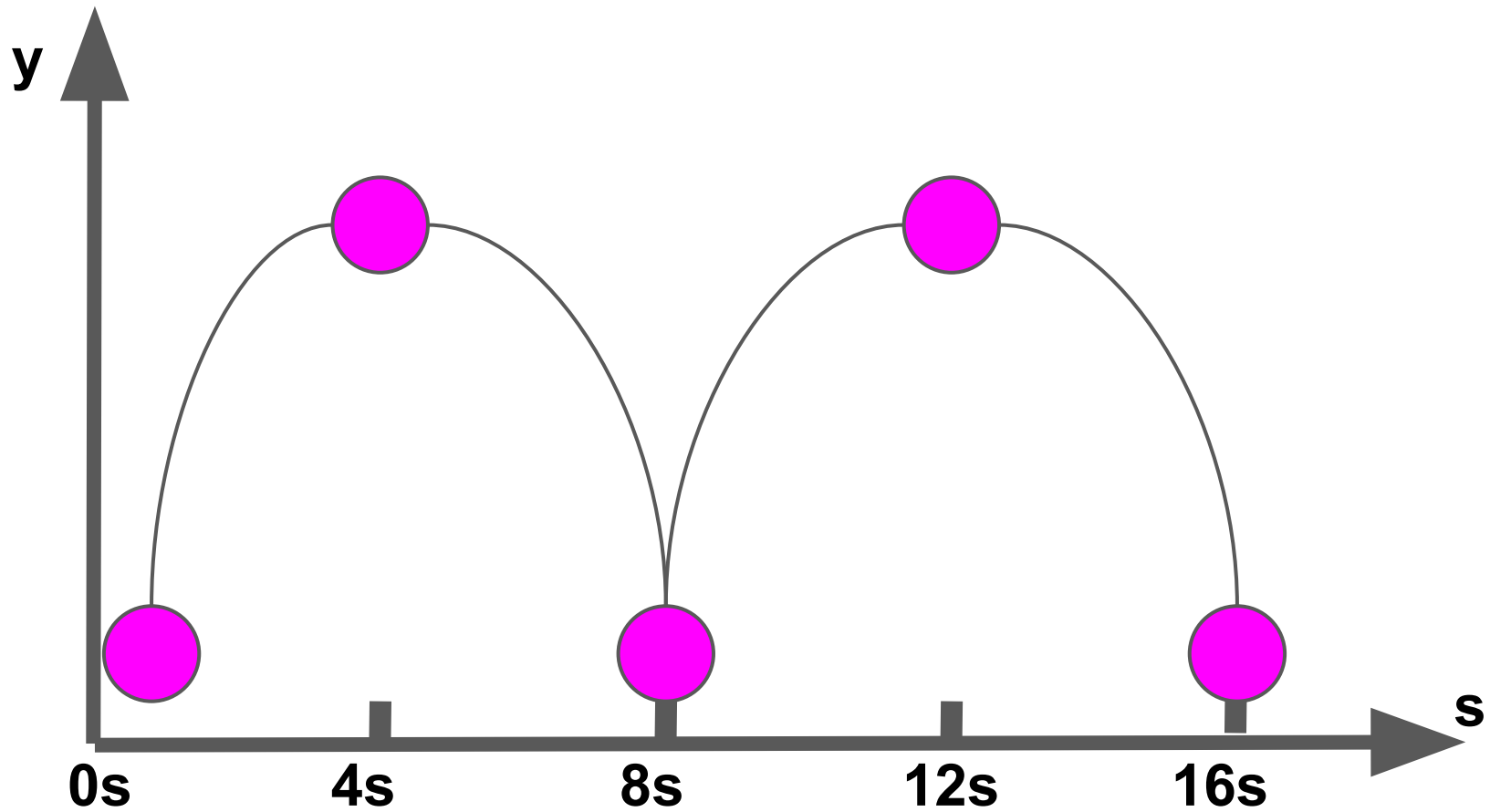
property animation

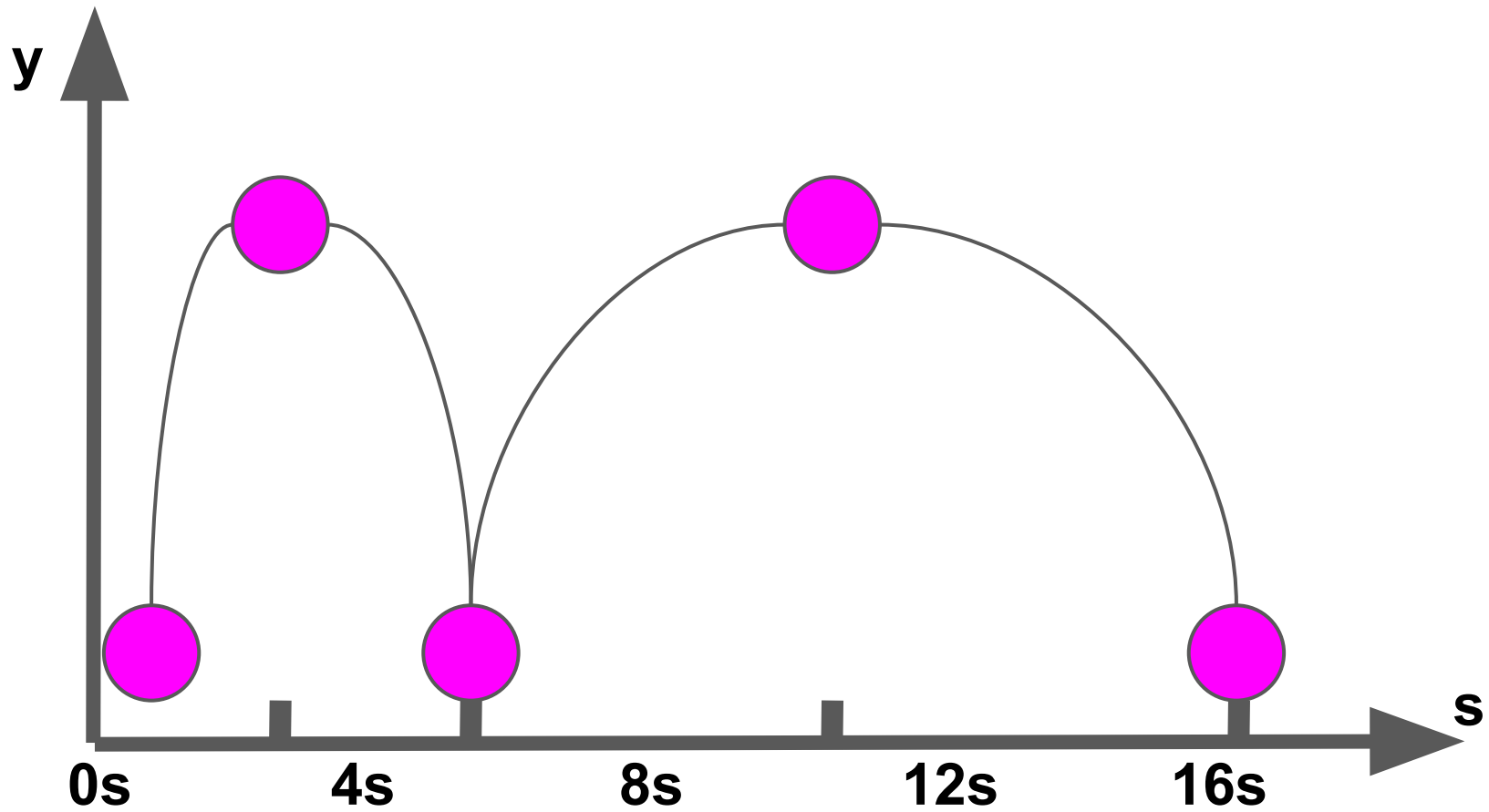
Property Animation

- Анимира определени свойства на обекта
- Нужна е собствен времеви интерполатор
- Нужен е собствен value evaluator

Important classes you should know about:

- Animators
 - ValueAnimator
 - ObjectAnimator
- Evaluators
 - IntEvaluator, FloatEvaluator
 - ArgbEvaluator
 - TypeEvaluator
- Interpolators
 - AccelerateInterpolator
 - BounceInterpolator
 - TimeInterpolator
 - ...






Animators

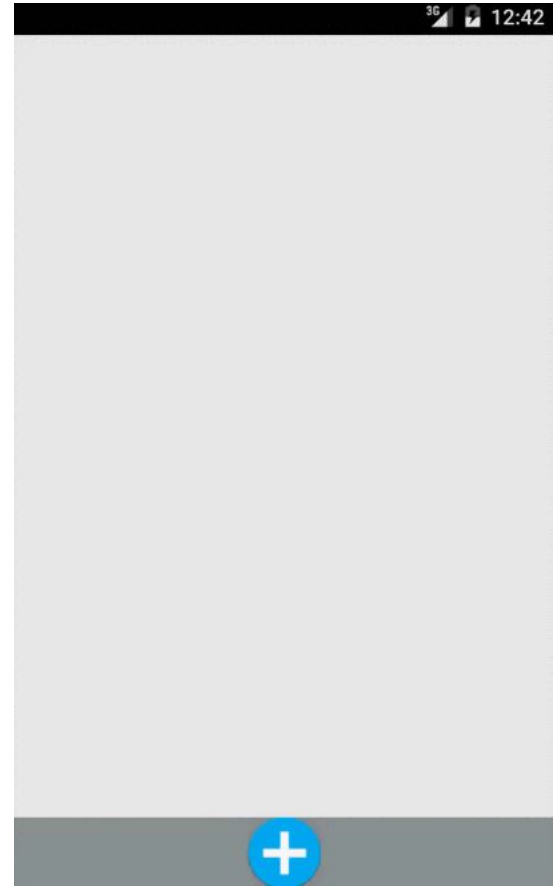
- The Animators manage the TimeInterpolators and TypeEvaluators
- The ValueAnimator only calculates the property. You need to implement a listener, in which you manually change the View's property
- The ObjectAnimator extends ValueAnimator and can automatically change the calculated property of the View

Demo

Let's make the  on move from the lower left side of the screen, draw an arc and land in the lower right of the screen

Result

We move the icon by changing its X and Y coordinates. X changes linearly, while Y changes slowly at the beginning and the end of the animation.



Other solutions:

<http://imgtfy.com/?q=android+arc+menu&l=1>

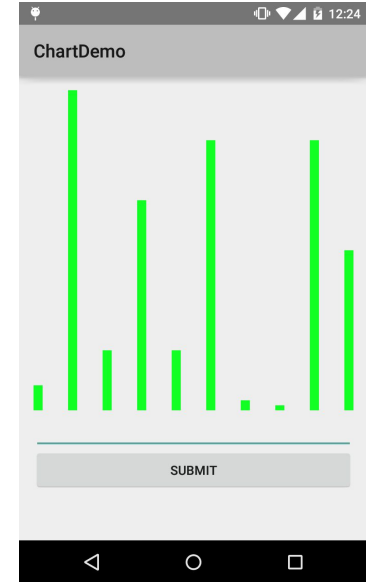
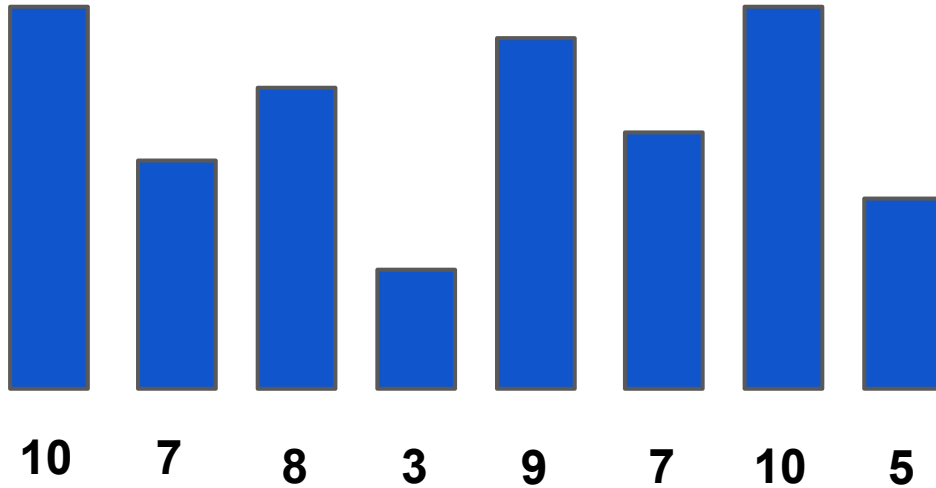
custom views

Custom Views

- Views that are not native for the SDK.
- Extend the View class /or a sub-class of View/
- Have a constructor
 - with Context, mandatory
 - with AttributeSet, if we want to be able to define our View with XML

Demo

Let's make a Custom View that draws a chart on the screen, based on input values



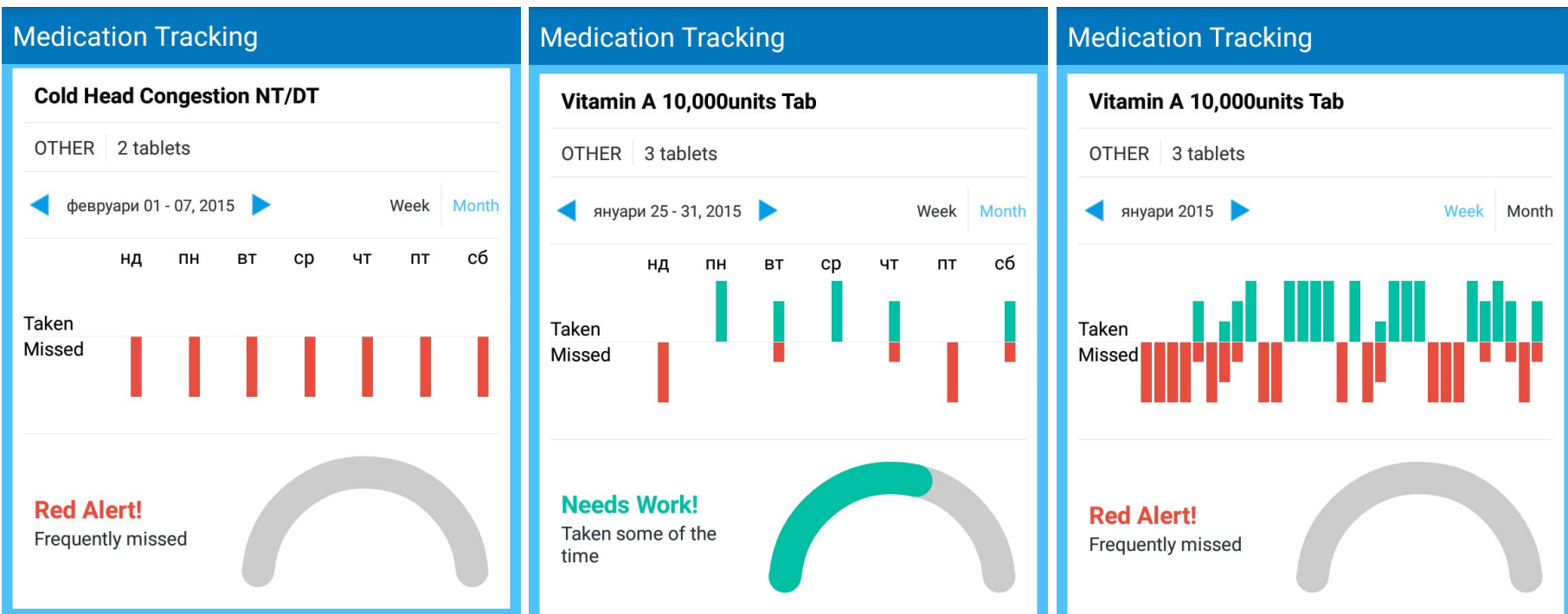
Finally

- We use the constructor to get the attributes from the XML
- We use onMeasure to get width and height of our View, also any other size-related calculations we need
 - should consider padding, it's our responsibility
- We use onDraw to draw /what a surprise/ the components of our View
 - the Canvas object is what we draw on
 - the Paint object specifies how we draw it

onMeasure(int widthMeasureSpec, int heightMeasureSpec)

- The passed values describe the layout constraints based on parent and visibility
- **MeasureSpec.getMode(widthMeasureSpec)**
 - returns `MeasureSpec.EXACTLY` - `layout_width` was set to a specific value or `match_parent`
 - returns `MeasureSpec.AT_MOST` - recommended maximum width
 - returns `MeasureSpec.UNSPECIFIED` - `layout_width` was set to a `wrap_content` with no restrictions
- **MeasureSpec.getSize(widthMeasureSpec)**
 - returns recommended size
- `setMeasuredDimension()` **MUST** be called at the end with the size you

Examples from real apps



ДОМАШНО

Задача 1

Имплементирайте ViewPager, чийто елементи са снимки.

Нека при swipe да се минава на нова снимка, като анимацията да бъде:

- текущия екран се отдалечава
- отива наляво/надясно (в зависимост от посоката на swipe)
- от ляво/дясно идва новия екран, уголемява се и заема целия екран на устройството

Задача 2

Имплементирайте RecyclerView с Card елементи.

На картите да има бутон Delete.

При натискане на бутона, картата изчезва встрани от екрана и празното пространство където е била, плавно се свива.

ВЪПРОСИ

ресурси

Съдържание

- <http://developer.android.com/guide/topics/graphics/view-animation.html>
- <http://developer.android.com/guide/topics/graphics/prop-animation.html>
- <http://developer.android.com/training/custom-views/index.html>