Mobile Application Programming: Android

Listeners
Activities

- Apps are composed of activities
- Activities are self-contained tasks made up of one screen-full of information
- Activities start one another and are destroyed commonly
- Apps can use activities belonging to another app
Creating a Custom Control

- **Create subclass** of View class
- **Override:**
  - `onDraw(Canvas c)`
  - `onMeasure(int wMeasure, int hMeasure)`
- **Add listener interface and listener property** for the interesting events the control generates and **call on... methods** when events occur
PaintActivity
(with LinearLayout content view)

PaintView

PaletteView

Mix Button

Paint Splotch View

Paint Splotch View

Paint Splotch View
PaintActivity
(with LinearLayout content view)

- PaintView
- PaletteView
- Mix Button

Tap
- Paint Splotch View
- Paint Splotch View
- Paint Splotch View
PaintActivity
(with LinearLayout content view)

PaintView

PaletteView

Mix Button

Option 1
View overrides its own onTouchEvent method
In response to click, sets its own selected property
PaintActivity
(with LinearLayout content view)

PaintView

PaletteView

Mix Button

Option 1
View overrides its own onTouchEvent method

In response to click, sets its own selected property

How does the red view’s selected property get unset in this case?
PaintActivity
(with LinearLayout content view)

PaletteView

Mix Button

Option 2
PaletteView sets an onClickListener object for all views

In response to click, palette view sets selected property of tapped view, unsets all others
PaintActivity
(with LinearLayout content view)

PaintView

PaletteView

Mix Button

ActiveColor

Paint Splotch View

Paint Splotch View

Paint Splotch View

Paint Splotch View

Selected
PaintActivity
(with LinearLayout content view)

PaintView

PaletteView

Mix Button

ActiveColor

Paint Splotch View

Paint Splotch View

Paint Splotch View

Paint Splotch View

Selected

Tap
PaintActivity
(with LinearLayout content view)

PaintView

PaletteView

Mix Button

Paint Splotch View
Selected

Paint Splotch View

Paint Splotch View

Paint Splotch View

ActiveColor

?
Option 1
PaletteView has a paintView property that allows it to update the PaintView activeColor
PaintActivity
(with LinearLayout content view)

PaintView
PaletteView
Mix Button

Option 1
PaletteView has a paintView property that allows it to update the PaintView activeColor

This works, but is messy, and does not allow the palette view and paint view to be used and tested separately!
PaintActivity
(with LinearLayout content view)

PaintView

PaletteView

Mix Button

Option 2
PaletteView defines an onColorChangedListener that the PaintActivity sets, calling onColorChanged when the user taps a view
When the paint activity’s listener has `onColorChanged` called, it sets the paint view’s active color.

Option 2: PaletteView defines an `onColorChangedListener` that the PaintActivity sets, calling `onColorChanged` when the user taps a view.
Watch the “ups” and “downs”
PaintActivity
(with LinearLayout content view)

Watch the “ups” and “downs”

PaintView

PaletteView

Mix Button

ActiveColor

Paint Splotch View

Paint Splotch View

Paint Splotch View

Paint Splotch View

Selected
PaintActivity
(with LinearLayout content view)

PaintView

PaletteView

Mix Button

Watch the “ups” and “downs”

onClickListener

ActiveColor

Paint Splotch View

Paint Splotch View

Paint Splotch View

Paint Splotch View
PaintActivity
(with LinearLayout content view)

Watch the “ups” and “downs”

PaintView

PaletteView

Mix Button

PaintView

PaintView

PaintView

PaintView

PaletteView

MouseClicked

ActiveColor

setSelected

Paint Splotch View

Paint Splotch View

Paint Splotch View

Paint Splotch View

Selected
Watch the “ups” and “downs”
Watch the “ups” and “downs”

PaintActivity
(with LinearLayout content view)

Paint
Splotch
View

onClickListener

onColorChangedListener

setActiveColor

PaletteView

Mix Button

PaintView

setSelected

ActiveColor

onClickListener

Paint Splotch View

Paint Splotch View

Paint Splotch View

Paint Splotch View

Selected
PaintActivity (with LinearLayout content view)

"downs" are normal method calls
"ups" are calls on listener methods

PaintView

PaletteView

Mix Button

setActiveColor

setSelected

onClickListener

onColorChangedListener

Paint Sploch View

Paint Sploch View

Paint Sploch View

Paint Sploch View

ActiveColor