All Classes

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Package packageForL7L8

Interface Summary	
DotModelListener	

Class Summary	
DotPanel	The class encapsulates a view of a SimpleThreeDotModel (where a "view" is a visual representation of data).
DrawVersion1	
DrawVersion2	
DrawVersion3	
DrawVersion4	
DrawVersion5	
DrawVersion6	
SimpleThreeDotModel	The class encapsulates a data model that consists of an ordered list of three dots (the first, second and third dot).

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SUMMARY: NESTED | FIELD | CONSTR | METHOD   DETAIL: FIELD | CONSTR | METHOD

packageForL7L8
Class DotPanel

```
java.lang.Object
  └java.awt.Component
      └java.awt.Container
          └javax.swing.JComponent
              └javax.swing.JPanel
                  └packageForL7L8.DotPanel
```

All Implemented Interfaces:
> java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable, javax.accessibility.
> Accessible, DotModelListener

```
public class DotPanel
```

extends javax.swing.JPanel
implements DotModelListener

The class encapsulates a view of a SimpleThreeDotModel (where a "view" is a visual representation of data). This view needs to be added to a widget container.

The view consists of a bounded two-dimensional plane. The dots in the data model are each drawn on the plane in their specified location and with their specified size. The user space is mapped directly to the device space.

The only constructor this class has is one that requires a SimpleThreeDotModel object. It doesn't make sense to create this view without its data model.

This view is capable of listening to data models and will install itself on the passed data model. Any time the data model changes, this view will repaint itself.

Author:
> mb
See Also:

void	**paintComponent**(java.awt.Graphics g) This method renders the graphics of this view.

[Serialized Form](#)

Methods inherited from class javax.swing.JPanel

getAccessibleContext, getUI, getUIClassID, setUI, updateUI

Nested Class Summary

Nested classes/interfaces inherited from class javax.swing.JComponent

javax.swing.JComponent.AccessibleJComponent

Field Summary

Fields inherited from class javax.swing.JComponent

TOOL_TIP_TEXT_KEY, UNDEFINED_CONDITION,
WHEN_ANCESTOR_OF_FOCUSED_COMPONENT, WHEN_FOCUSED,
WHEN_IN_FOCUSED_WINDOW

Fields inherited from class java.awt.Component

BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT,
TOP_ALIGNMENT

Fields inherited from interface java.awt.image.ImageObserver

ABORT, ALLBITS, ERROR, FRAMEBITS, HEIGHT, PROPERTIES, SOMEBITS, WIDTH

Constructor Summary

DotPanel([SimpleThreeDotModel](#) model)
    Constructs a view as specified in the class description.

Method Summary

void	**changed**() Method that changes this view in response to any change in the data model.
java. awt. Dimension	**getPreferredSize**()

Methods inherited from class javax.swing.JComponent

addAncestorListener, addNotify, addVetoableChangeListener,
computeVisibleRect, contains, createToolTip, disable, enable,
firePropertyChange, firePropertyChange, firePropertyChange,
getActionForKeyStroke, getActionMap, getAlignmentX, getAlignmentY,
getAncestorListeners, getAutoscrolls, getBorder, getBounds,
getClientProperty, getComponentPopupMenu, getConditionForKeyStroke,
getDebugGraphicsOptions, getDefaultLocale, getFontMetrics,
getGraphics, getHeight, getInheritsPopupMenu, getInputMap,
getInputMap, getInputVerifier, getInsets, getInsets, getListeners,
getLocation, getMaximumSize, getMinimumSize,
getNextFocusableComponent, getPopupLocation, getRegisteredKeyStrokes,
getRootPane, getSize, getToolTipLocation, getToolTipText,
getToolTipText, getTopLevelAncestor, getTransferHandler,
getVerifyInputWhenFocusTarget, getVetoableChangeListeners,
getVisibleRect, getWidth, getX, getY, grabFocus, isDoubleBuffered,
isLightweightComponent, isManagingFocus, isOpaque,
isOptimizedDrawingEnabled, isPaintingTile, isRequestFocusEnabled,
isValidateRoot, paint, paintImmediately, paintImmediately, print,
printAll, putClientProperty, registerKeyboardAction,
registerKeyboardAction, removeAncestorListener, removeNotify,
removeVetoableChangeListener, repaint, repaint, requestDefaultFocus,
requestFocus, requestFocus, requestFocusInWindow,
resetKeyboardActions, reshape, revalidate, scrollRectToVisible,
setActionMap, setAlignmentX, setAlignmentY, setAutoscrolls,
setBackground, setBorder, setComponentPopupMenu,
setDebugGraphicsOptions, setDefaultLocale, setDoubleBuffered,
setEnabled, setFocusTraversalKeys, setFont, setForeground,
setInheritsPopupMenu, setInputMap, setInputVerifier, setMaximumSize,
setMinimumSize, setNextFocusableComponent, setOpaque,
setPreferredSize, setRequestFocusEnabled, setToolTipText,
setTransferHandler, setVerifyInputWhenFocusTarget, setVisible,
unregisterKeyboardAction, update

Methods inherited from class java.awt.Container

```
add, add, add, add, add, addContainerListener,
addPropertyChangeListener, addPropertyChangeListener,
applyComponentOrientation, areFocusTraversalKeysSet, countComponents,
deliverEvent, doLayout, findComponentAt, findComponentAt,
getComponent, getComponentAt, getComponentAt, getComponentCount,
getComponents, getComponentZOrder, getContainerListeners,
getFocusTraversalKeys, getFocusTraversalPolicy, getLayout,
getMousePosition, insets, invalidate, isAncestorOf, isFocusCycleRoot,
isFocusCycleRoot, isFocusTraversalPolicyProvider,
isFocusTraversalPolicySet, layout, list, list, locate, minimumSize,
paintComponents, preferredSize, printComponents, remove, remove,
removeAll, removeContainerListener, setComponentZOrder,
setFocusCycleRoot, setFocusTraversalPolicy,
setFocusTraversalPolicyProvider, setLayout, transferFocusBackward,
transferFocusDownCycle, validate
```

Methods inherited from class java.awt.Component

```
action, add, addComponentListener, addFocusListener,
addHierarchyBoundsListener, addHierarchyListener,
addInputMethodListener, addKeyListener, addMouseListener,
addMouseMotionListener, addMouseWheelListener, bounds, checkImage,
checkImage, contains, createImage, createImage, createVolatileImage,
createVolatileImage, dispatchEvent, enable, enableInputMethods,
firePropertyChange, firePropertyChange, firePropertyChange,
firePropertyChange, firePropertyChange, getBackground, getBounds,
getColorModel, getComponentListeners, getComponentOrientation,
getCursor, getDropTarget, getFocusCycleRootAncestor,
getFocusListeners, getFocusTraversalKeysEnabled, getFont,
getForeground, getGraphicsConfiguration, getHierarchyBoundsListeners,
getHierarchyListeners, getIgnoreRepaint, getInputContext,
getInputMethodListeners, getInputMethodRequests, getKeyListeners,
getLocale, getLocation, getLocationOnScreen, getMouseListeners,
getMouseMotionListeners, getMousePosition, getMouseWheelListeners,
getName, getParent, getPeer, getPropertyChangeListeners,
getPropertyChangeListeners, getSize, getToolkit, getTreeLock,
gotFocus, handleEvent, hasFocus, hide, imageUpdate, inside,
isBackgroundSet, isCursorSet, isDisplayable, isEnabled, isFocusable,
isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet,
isLightweight, isMaximumSizeSet, isMinimumSizeSet,
isPreferredSizeSet, isShowing, isValid, isVisible, keyDown, keyUp,
list, list, list, location, lostFocus, mouseDown, mouseDrag,
mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll,
postEvent, prepareImage, prepareImage, remove,
```

```
removeComponentListener, removeFocusListener,
removeHierarchyBoundsListener, removeHierarchyListener,
removeInputMethodListener, removeKeyListener, removeMouseListener,
removeMouseMotionListener, removeMouseWheelListener,
removePropertyChangeListener, removePropertyChangeListener, repaint,
repaint, repaint, resize, resize, setBounds, setBounds,
setComponentOrientation, setCursor, setDropTarget, setFocusable,
setFocusTraversalKeysEnabled, setIgnoreRepaint, setLocale,
setLocation, setLocation, setName, setSize, setSize, show, show,
size, toString, transferFocus, transferFocusUpCycle
```

Methods inherited from class java.lang.Object

```
equals, getClass, hashCode, notify, notifyAll, wait, wait, wait
```

Constructor Detail

DotPanel

public **DotPanel**([SimpleThreeDotModel](#) model)

Constructs a view as specified in the class description. The view gets installed upon the passed model.

Parameters:
    model -

Method Detail

paintComponent

public void **paintComponent**(java.awt.Graphics g)

This method renders the graphics of this view. The method is invoked any time the view is repainted. Here is what the method actually does. We can see that it causes the whole view to be drawn anew. (Obviously, this is breaking the encapsulation, but is included for pedagogical reasons).

```
Graphics2D g2 = (Graphics2D) g;
g2.clearRect(0, 0, width, height);
g2.setColor(theModel.getColor1());
```

```
    g2.draw(theModel.getDot1());
    g2.setColor(theModel.getColour1());
    g2.draw(theModel.getDot2());
    g2.setColor(theModel.getColor3());
    g2.draw(theModel.getDot3());
```

Overrides:
> paintComponent in class javax.swing.JComponent

---

getPreferredSize

public java.awt.Dimension **getPreferredSize**()

> **Overrides:**
> > getPreferredSize in class javax.swing.JComponent

---

changed

public void **changed**()

> Method that changes this view in response to any change in the data model. If the data model changes, the view repaints itself anew.
>
> This method is invoked to signal to this listener that the model (upon which this listener has been installed) has been changed. This provides an opportunity for the listener to something in response to any change to the model.
>
> **Who invokes this method?** Think of who has been given access to this view... The documentation for the constructor specifies that this view has been installed upon the specified data model. So the data model is able to invoke this method within its inner workings.
>
> **Specified by:**
> > changed in interface DotModelListener

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SUMMARY: NESTED | FIELD | CONSTR | METHOD   DETAIL: FIELD | CONSTR | METHOD

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packageForL7L8
Class SimpleThreeDotModel

```
java.lang.Object
  └ packageForL7L8.SimpleThreeDotModel
```

---

public class **SimpleThreeDotModel**

extends java.lang.Object

The class encapsulates a data model that consists of an ordered list of three dots (the first, second and third dot).

Each dot is understood to have a diameter (of a certain number of units, where the actual physical size of the unit is left unspecified and is abstracted away). Each dot is understood to have a location, which is specified as an x, y coordinate in a two-dimensional plane that has its origin in the upper left corner. Each dot is understood to be associated with a color (the first with red, the second with blue, and the third with green).

This model is capable of having listeners installed upon it. Anytime this model changes, the listener's changed() method will be invoked.

Author:
> mb

Constructor Summary

SimpleThreeDotModel()
> Creates a default version of this data model in which the first dot is in location (20, 20), the second in location (30, 30), and the third in location (40, 40).

Method Summary

void	**addListener**([DotModelListener](#) listener) Installs the passed listener on this model.
void	**changeDiameterofDot2**(int newDiameter) Causes the second dot to have a new diameter as specified by the passed value.
java. awt.Color	**getColour1**() Returns the colour associated with the first dot.
java. awt.Color	**getColour2**() Returns the colour associated with the second dot.
java. awt.Color	**getColour3**() Returns the colour associated with the third dot.
java. awt.geom. Ellipse2D	**getDot1**() Returns the circular shape that is associated with the first dot.
java. awt.geom. Ellipse2D	**getDot2**() Returns the circular shape that is associated with the second dot.
java. awt.geom. Ellipse2D	**getDot3**() Returns the circular shape that is associated with the third dot.
void	**nudgeToRightDot1**() Causes the first dot to be nudged to the right by a small amount.

Methods inherited from class java.lang.Object

equals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

Constructor Detail

SimpleThreeDotModel

public **SimpleThreeDotModel**()

> Creates a default version of this data model in which the first dot is in location $(20, 20)$, the second in location $(30, 30)$, and the third in location $(40, 40)$. All dots are given diameter of size 100.

Method Detail

getColour1

public java.awt.Color **getColour1**()

> Returns the colour associated with the first dot.
>
> **Returns:**

---

getColour2

public java.awt.Color **getColour2**()

> Returns the colour associated with the second dot.
>
> **Returns:**

---

getColour3

public java.awt.Color **getColour3**()

> Returns the colour associated with the third dot.
>
> **Returns:**

---

getDot1

public java.awt.geom.Ellipse2D **getDot1**()

> Returns the circular shape that is associated with the first dot.
>
> **Returns:**

getDot2

`public java.awt.geom.Ellipse2D **getDot2()**`

Returns the circular shape that is associated with the second dot.

Returns:

---

getDot3

`public java.awt.geom.Ellipse2D **getDot3()**`

Returns the circular shape that is associated with the third dot.

Returns:

---

nudgeToRightDot1

`public void **nudgeToRightDot1()**`

Causes the first dot to be nudged to the right by a small amount. If any listeners are installed on this model, they will be informed that the model has changed.

---

changeDiameterofDot2

`public void **changeDiameterofDot2**(int newDiameter)`

Causes the second dot to have a new diameter as specified by the passed value. If any listeners are installed on this model, they will be informed that the model has changed.

---

addLressener

addListener

`public void **addListener**(DotModelListener listener)`

Installs the passed listener on this model.

Parameters:
    listener -

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SUMMARY: NESTED | FIELD | CONSTR | METHOD   DETAIL: FIELD | CONSTR | METHOD

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