

Project1: Graphical User Interface in Java

Purdue University
Nik Tuzov, Ed Dudek

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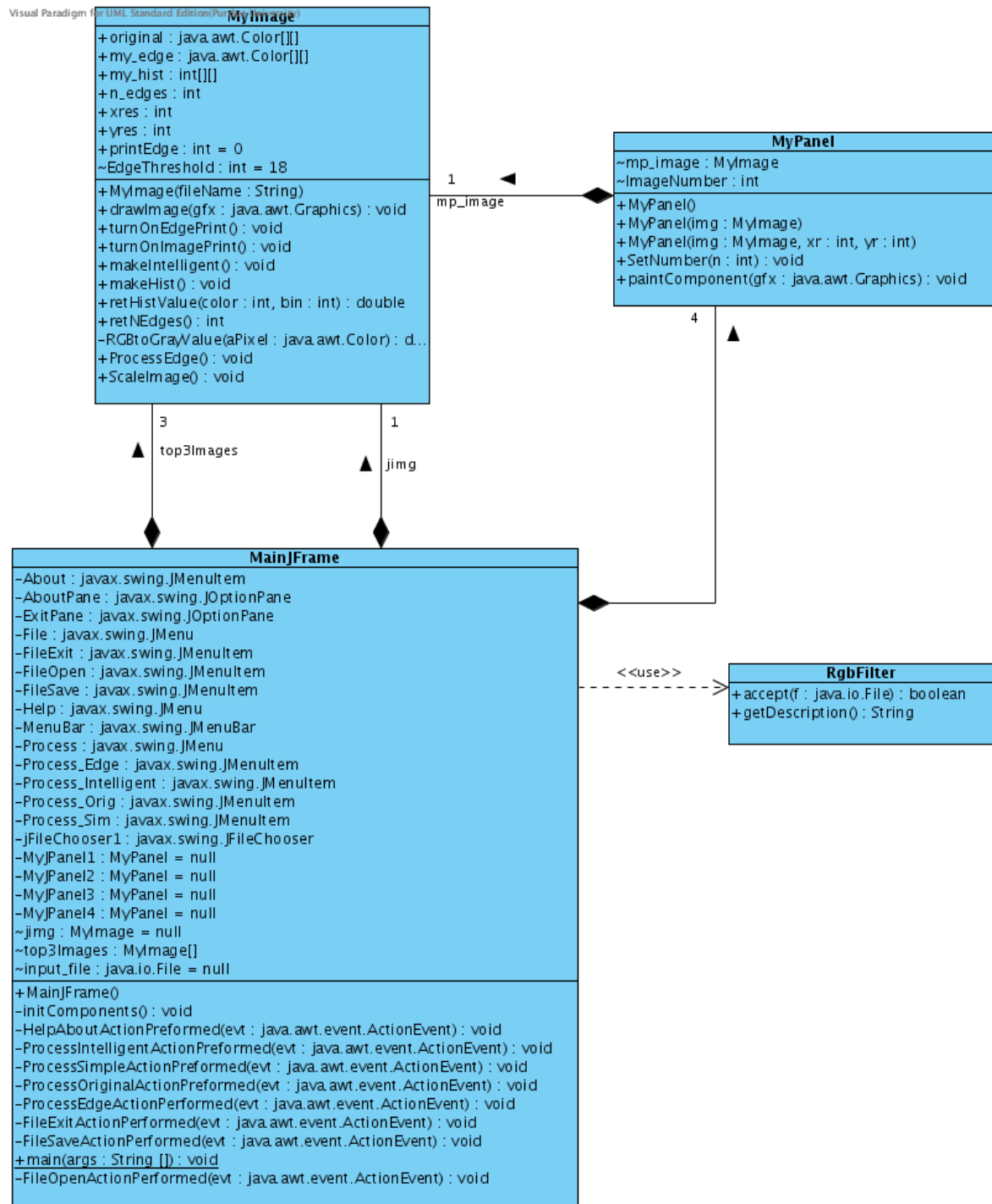
Overall class diagram3

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Overall class diagram3

Class Diagram

Overall class diagram



Summary

Name	Documentation
 MainJFrame	The topmost container derived from JFrame. Represents the project window. It contains a few instances of MyPanel to show images and also a few instances of MyImage for internal purposes.
 MyImage	Represent an image as a Color[][] array and the associated image operations.
 MyPanel	Extends JPanel. Four instances of MyPanel are contained in MainJFrame. Each of them contains a separate image of type MyImage.
 RgbFilter	Extends FileFilter and is used by FileOpenActionPerformed in MainJFrame to choose only *.rgb files.

Details

MainJFrame

Name	Value
Active	false
Visibility	public
Leaf	false
Root	false
Documentation	The topmost container derived from JFrame. Represents the project window. It contains a few instances of MyPanel to show images and also a few instances of MyImage for internal purposes.

Attributes

private About : javax.swing.JMenuItem			
Getter	false	Setter	false
Documentation	Menu item "About"		

private AboutPane : javax.swing.JOptionPane			
Getter	false	Setter	false
Documentation	Pane shown when "About" item is chosen		

private ExitPane : javax.swing.JOptionPane			
Getter	false	Setter	false
Documentation	Pane shown when "Exit" is chosen.		

private File : javax.swing.JMenu			
Getter	false	Setter	false
Documentation	"File" menu item.		

private FileExit : javax.swing.JMenuItem			
Getter	false	Setter	false
Documentation	"Exit" menu item.		

private FileOpen : javax.swing.JMenuItem			
Getter	false	Setter	false
Documentation	"Open" menu item.		

private FileSave : javax.swing.JMenuItem			
Getter	false	Setter	false
Documentation	"Save" menu item.		

private Help : javax.swing.JMenu			
Getter	false	Setter	false
Documentation	"Help" menu item.		

private MenuBar : javax.swing.JMenuBar			
Getter	false	Setter	false
Documentation	Menu bar.		

private Process : javax.swing.JMenu			
Getter	false	Setter	false
Documentation	"Process" menu item.		

private Process_Edge : javax.swing.JMenuItem			
Getter	false	Setter	false
Documentation	"Edge" menu item.		

private Process_Intelligent : javax.swing.JMenuItemem			
Getter	false	Setter	false
Documentation	"Intelligent Analysis" menu item.		

private Process_Orig : javax.swing.JMenuItemem			
Getter	false	Setter	false
Documentation	"Original" menu item.		

private Process_Sim : javax.swing.JMenuItemem			
Getter	false	Setter	false
Documentation	"Simple Analysis" menu item.		

private jFileChooser1 : javax.swing.JFileChooser			
Getter	false	Setter	false
Documentation	JFileChooser object to open *.rgb files.		

private MyJPanel1 : MyPanel			
Getter	false	Setter	false
Documentation	Contains an image.		

private MyJPanel2 : MyPanel			
Getter	false	Setter	false
Documentation	Contains an image.		

private MyJPanel3 : MyPanel			
Getter	false	Setter	false
Documentation	Contains an image.		

private MyJPanel4 : MyPanel			
Getter	false	Setter	false
Documentation	Contains an image.		

package jimg : MyImage			
Getter	false	Setter	false
Documentation	Current image.		

package top3Images : MyImage			
Getter	false	Setter	false
Documentation	Top three images after comparison is done.		

package input_file : java.io.File			
Getter	false	Setter	false
Documentation	.rgb image file.		

Operations

public MainJFrame ()	
Query	false
Documentation	Creates new form NewJFrame - NewJFrame constructor

private initComponents () : void	
Query	false
Documentation	This method is called from within the constructor to initialize the form. WARNING: Do NOT modify this code. The content of this method is always regenerated by the Form Editor.

private HelpAboutActionPreformed (evt : java.awt.event.ActionEvent) : void			
Parameters	evt		
	Type	java.awt.event.ActionEvent	
	Direction	inout	
Query	false		
Documentation	Event handler for "About" menu item.		

private ProcessIntelligentActionPreformed (evt : java.awt.event.ActionEvent) : void			
Parameters	evt		
	Type	java.awt.event.ActionEvent	
	Direction	inout	
Query	false		
Documentation	Event handler for "Intelligent Analysis" menu item.		

private ProcessSimpleActionPreformed (evt : java.awt.event.ActionEvent) : void	
Parameters	evt
	Type java.awt.event.ActionEvent
	Direction inout
Query	false
Documentation	Event handler for "Simple Analysis" menu item.

private ProcessOriginalActionPreformed (evt : java.awt.event.ActionEvent) : void	
Parameters	evt
	Type java.awt.event.ActionEvent
	Direction inout
Query	false
Documentation	Event handler for "Original" menu item.

private ProcessEdgeActionPerformed (evt : java.awt.event.ActionEvent) : void	
Parameters	evt
	Type java.awt.event.ActionEvent
	Direction inout
Query	false
Documentation	Event Handler for "Edge" menu item.


private FileExitActionPerformed (evt : java.awt.event.ActionEvent) : void	
Parameters	evt
	Type java.awt.event.ActionEvent
	Direction inout
Query	false
Documentation	Event handler for "Exit" menu item.


private FileSaveActionPerformed (evt : java.awt.event.ActionEvent) : void	
Parameters	evt
	Type java.awt.event.ActionEvent
	Direction inout
Query	false
Documentation	Event handler for "Save" menu item.


public main (args : String) : void		
Parameters	args	
	Type Modifier	[]
	Type	String
	Direction	inout
Query	false	
Documentation	Called first when the program is run.	


private FileOpenActionPerformed (evt : java.awt.event.ActionEvent) : void		
Parameters	evt	
	Type	java.awt.event.ActionEvent
	Direction	inout
Query	false	
Documentation	Event handler for "Open" menu item.	

Relationships

Unnamed Usage	
To	 RgbFilter
Stereotypes	use
Documentation	Method MainJFrame.FileOpenActionPerformed uses RgbFilter to select *.rgb files.

Unnamed Association		
To	Name	
	End Model Element	 MyPanel
	Multiplicity	4
	Visibility	private
	Aggregation Kind	None
	Navigable	true
Documentation	MainJFrame contains for instance of MyPanel	

jimg : Association		
To	Name	Value
	End Model Element	 MyImage
	Multiplicity	1
	Visibility	private
	Aggregation Kind	None
	Navigable	true
Documentation	MainJFrame contains MyImage jimg.	

top3Images : Association		
To	Name	Value
	End Model Element	 MyImage
	Multiplicity	3
	Visibility	private
	Aggregation Kind	None
	Navigable	true
Documentation	MainJFrame contains an array MyImage top3images[3].	

MyImage

Name	Value
Active	false
Visibility	public
Leaf	false
Root	false
Documentation	Represent an image as a Color[][] array and the associated image operations.

Attributes

public original : java.awt.Color			
Getter	false	Setter	false
Documentation	Original image		

public my_edge : java.awt.Color			
Getter	false	Setter	false
Documentation	"Edged" image.		

public my_hist : int			
Getter	false	Setter	false
Documentation	Represents the histogram of the image.		

public n_edges : int			
Getter	false	Setter	false
Documentation	The number of edges in the image.		

public xres : int			
Getter	false	Setter	false
Documentation	x-resolution		

public yres : int			
Getter	false	Setter	false
Documentation	y-resolution		

public printEdge : int			
Getter	false	Setter	false
Documentation	Equals to 1 if the edged image is displayed.		

package EdgeThreshold : int			
Getter	false	Setter	false
Documentation	Represents threshold for image processing		

Operations

public MyImage (fileName : String)		
Parameters	fileName	
	Type	String
	Direction	inout
Query	false	
Documentation	Creates a new instance of MyImage	

public drawImage (gfx : java.awt.Graphics) : void	
Parameters	gfx
	Type java.awt.Graphics
	Direction inout
Query	false
Documentation	Displays the image

public turnOnEdgePrint () : void	
Query	false
Documentation	Sets printEdge to 1

public turnOnImagePrint () : void	
Query	false
Documentation	Sets printEdge to 0.

public makeIntelligent () : void	
Query	false
Documentation	Creates the "intelligent" image histogram.

public makeHist () : void	
Query	false
Documentation	Creates the image histogram.

public retHistValue (color : int, bin : int) : double	
Parameters	color
	Type int
	Direction inout
	bin
	Type int
Direction inout	
Query	false
Documentation	Returns a normalized histogram to calculate distance between images.


public retNEdges () : int	
Query	false
Documentation	Returns the number of edges


private RGBtoGrayValue (aPixel : java.awt.Color) : double		
Parameters	aPixel	
	Type	java.awt.Color
	Direction	inout
Query	false	
Documentation	Converts a colored pixel into a corresponding gray value	


public ProcessEdge () : void	
Query	false
Documentation	Does the edge processing on the image.

public ScaleImage () : void	
Query	false
Documentation	Scales the image.

Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 MyPanel
	Multiplicity	Unspecified
	Visibility	private
	Aggregation Kind	Composited
	Navigable	true
Documentation	MyPanel contains MyImage mp_image that represents the displayed image.	

jimg : Association		
From	Name	Value
	End Model Element	 MainJFrame
	Multiplicity	Unspecified
	Visibility	private
	Aggregation Kind	Composited
	Navigable	true
Documentation	MainJFrame contains MyImage jimg.	

top3Images : Association		
From	Name	Value
	End Model Element	 MainJFrame
	Multiplicity	Unspecified
	Visibility	private
	Aggregation Kind	Composited
	Navigable	true
Documentation	MainJFrame contains an array MyImage top3images[3].	

MyPanel

Name	Value
Active	false
Visibility	package
Leaf	false
Root	false
Documentation	Extends JPanel. Four instances of MyPanel are contained in MainJFrame. Each of them contains a separate image of type MyImage.


Attributes


package mp_image : MyImage			
Getter	false	Setter	false
Documentation	Represents an image.		

package ImageNumber : int			
Getter	false	Setter	false
Documentation	Image number (rank).		

Operations

public MyPanel ()	
Query	false
Documentation	default constructor


public MyPanel (img : MyImage)	
Parameters	img
	Type  MyImage
	Direction inout
Query	false
Documentation	MyPanel constructor takes an instance of MyImage to initialize MyPanel


public MyPanel (img : MyImage, xr : int, yr : int)	
Parameters	img
	Type  MyImage
	Direction inout
	xr
	Type int
	Direction inout
	yr
	Type int
	Direction inout
Query	false
Documentation	Used to test scroll bars.

public SetNumber (n : int) : void	
Parameters	n
	Type int
	Direction inout
Query	false
Documentation	Sets the image number (rank).

public paintComponent (gfx : java.awt.Graphics) : void	
Parameters	gfx
	Type java.awt.Graphics
	Direction inout
Query	false
Documentation	The MyImage.drawImage method is called indirectly through paintComponent:

Relationships

Unnamed Association		
To (mp_image)	Name	Value
	End Model Element	 MyImage
	Multiplicity	1
	Visibility	private
	Aggregation Kind	None
	Navigable	true
Documentation	MyPanel contains MyImage mp_image that represents the displayed image.	

Unnamed Association		
From	Name	Value
	End Model Element	 MainJFrame
	Multiplicity	Unspecified
	Visibility	private
	Aggregation Kind	Composited
	Navigable	true
Documentation	MainJFrame contains for instance of MyPanel	

RgbFilter


Name	Value
Active	false
Visibility	public
Leaf	false
Root	false
Documentation	Extends FileFilter and is used by FileOpenActionPerformed in MainJFrame to choose only *.rgb files.

Operations

public accept (f : java.io.File) : boolean		
Parameters	f	
	Type	java.io.File
	Direction	inout
Query	false	
Documentation	Returns true if it's either a directory or an .rgb file.	

public getDescription () : String	
Query	false
Documentation	Displays "Only *.rgb files" in FileChooser.

Relationships

Unnamed Usage	
From	 MainJFrame
Stereotypes	use
Documentation	Method MainJFrame.FileOpenActionPerformed uses RgbFilter to select *.rgb files.