

Class Main

```
java.lang.Object
  java.awt.Component
    java.awt.Container
      java.awt.Window
        java.awt.Frame
          javax.swing.JFrame
            JProcessing.Processing
              Main
```

All Implemented Interfaces:

```
java.awt.image.ImageObserver, java.awt.MenuContainer, java.io.Serializable,
javax.accessibility.Accessible, javax.swing.RootPaneContainer, javax.swing.WindowConstants
```

```
public class Main
extends JProcessing.Processing
```

----- This is A Template of JProcessing Implementation in Java -----

Processing is a Application Programming Interface for Processing Coding Language to function in Java IDE, It is Designed to implement Processing Running Environment into Java.

Class Processing Allows most Processing Codes to Run in Java Environment. It is an SubClass of JFrame and Contains the following nested Classes: PImage, PFont, PGraphics, PVector, color.

Note: This Class runs as A Processing Code Library that Allows Processing Codes to Run directly in Java Environment with minimal Modifications. You Can Paste Your Processing Code Down Bellow and Make it Run in Java.

Note: Processing Functions like: P3D Graphics, Table, Array Functions, XML, PDF, Noise, PShape etc. are Not yet Available.

Debug: Java Use double As its Default Decimal Precision, while Processing Use float on Default, If Error Occurs when Dealing with Decimal Numbers, Add f After Numbers to Make it A float. For Example: float n=0.5; will cause an Error in Java, and Needs to be Converted to: float n=0.5f;

Debug: If Variable Casting in Processing are Achieved Using Methods such as: n=int(1.5), m=float(PI/2.5) They Have to be Converted to Java's Variable Casting Methods: n=floor(1.5), m=(float)(PI/2.5)

Debug: The Default Encoded Character Set used in JProcessing is "GB18030", not "UTF-8". If problem Occurs in Character Encoding, Use Processing.charset = "Name_of_the_Charset" To change the Global Default Charset for JProcessing

Known Issue: Always call loadPixels() before Accessing pixels[] Array is Strictly Required, otherwise NullPointerException will be Thrown. (This was not Mandatory in Processing IDE)

Known Issue: PImage.resize() will Not Change the Size of the specified Image directly. Instead, the Resized Image will be in the Return value. The Correct way to Resize is yourImage = imageToResize.resize(x,y)

Detail: The Return Type of requestImage() is Future<PImage>, not PImage.

Detail: Theoretically, External Libraries Designed for Processing IDE should also Work with JProcessing after Manually Download and Include them in your Java Project. However, this is largely Untested. The Sound

Library `ddf.minim` is Tested to Work.

Important: Unlike Processing IDE, Every Event Method in JProcessing including `setup()` and `draw()` has protected Access Privilege. Refer to the Format Listed Below when using them.

----- Overridable Functions are Listed Below -----

```
protected void setup(){ } //
protected void draw(){ } //
protected void mousePressed(MouseEvent e){ } //Mouse Button Pressed Event
protected void mousePressed(){ } //
protected void mouseReleased(MouseEvent e){ } //Mouse Button Released Event
protected void mouseReleased(){ } //
protected void mouseClicked(MouseEvent e){ } //Mouse Button Clicked Event
protected void mouseClicked(){ } //
protected void mouseMoved(MouseEvent e){ } //Mouse Move Event
protected void mouseMoved(){ } //
protected void mouseDragged(MouseEvent e){ } //Mouse Drag Event
protected void mouseDragged(){ } //
protected void mouseWheel(MouseWheelEvent e){ } //Mouse Wheel Event
protected void keyPressed(KeyEvent e){ } //
protected void keyPressed(){ } //Key Pressed Event
protected void keyReleased(KeyEvent e){ } //
protected void keyReleased(){ } //Key Released Event
protected void keyTyped(KeyEvent e){ } //
protected void keyTyped(){ } //Key Typed Event
protected void windowResized(){ } //Window Resize Event
protected void windowMoved(){ } //Window Move Event
protected void windowClosing(){ } //Window Closing Event
protected void focusGained(){ } //Window Gain Focus Event
protected void focusLost(){ } //Window Lose Focus Event
protected void iconified(){ } //Window Iconify Event
protected void deiconified(){ } //Window Deiconify Event
```

----- Default Key Functions (for Debugging), Override `keyPressed()` to Disable -----

Exit Program: ESC , END

Pause and Resume: PAUSE

Frame Rate Presets: F1 (10fps) , F2 (30fps) , F3 (60fps) , F4 (96fps) , F5 (160fps)

Based on JProcessing Version: 1.0 (initial release)

See Also:

[Detailed Documentation on Processing Methods](#), [Examples Tested to Work with JProcessing](#), [Processing External Libraries](#), [JFrame](#), [Processing](#), [Serialized Form](#)

Nested Class Summary

Nested classes/interfaces inherited from class JProcessing.Processing

JProcessing.Processing.color, JProcessing.Processing.PFont,
JProcessing.Processing.PGraphics, JProcessing.Processing.PImage,
JProcessing.Processing.PVector

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

`javax.swing.JFrame.AccessibleJFrame`

Nested classes/interfaces inherited from class java.awt.Frame

`java.awt.Frame.AccessibleAWTFrame`

Nested classes/interfaces inherited from class java.awt.Window

`java.awt.Window.AccessibleAWTWindow, java.awt.Window.Type`

Nested classes/interfaces inherited from class java.awt.Container

`java.awt.Container.AccessibleAWTContainer`

Nested classes/interfaces inherited from class java.awt.Component

`java.awt.Component.AccessibleAWTComponent, java.awt.Component.BaselineResizeBehavior, java.awt.Component.BltBufferStrategy, java.awt.Component.FlipBufferStrategy`

Field Summary

Fields inherited from class JProcessing.Processing

ALPHA, ALT, ARGB, ARROW, BACKSPACE, BASELINE, BEVEL, borderHeight, borderWidth, BOTTOM, CENTER, charset, CHORD, CLOSE, CLOSED, CONTROL, CORNER, CORNERS, CROSS, DELETE, DOWN, E, ENTER, ESC, focused, frameCount, frameRate, HALF_PI, HAND, height, HSB, key, keyCode, keyPressed, LEFT, LINES, MITER, mouseButton, mousePressed, mouseX, mouseY, MOVE, OPEN, OPENED, PI, PIE, pixels, pmouseX, pmouseY, POINTS, PROJECT, QUAD_STRIP, QUADS, QUARTER_PI, RADIUS, RETURN, RGB, RIGHT, ROUND, screenHeight, screenWidth, SHIFT, SQUARE, TAB, TAU, TEXT, TOP, TRIANGLE_FAN, TRIANGLE_STRIP, TRIANGLES, TWO_PI, UP, WAIT, width

Fields inherited from class javax.swing.JFrame

`accessibleContext, EXIT_ON_CLOSE, rootPane, rootPaneCheckingEnabled`

Fields inherited from class java.awt.Frame

CROSSHAIR_CURSOR, DEFAULT_CURSOR, E_RESIZE_CURSOR, HAND_CURSOR, ICONIFIED, MAXIMIZED_BOTH, MAXIMIZED_HORIZ, MAXIMIZED_VERT, MOVE_CURSOR, N_RESIZE_CURSOR, NE_RESIZE_CURSOR, NORMAL, NW_RESIZE_CURSOR, S_RESIZE_CURSOR, SE_RESIZE_CURSOR, SW_RESIZE_CURSOR, TEXT_CURSOR, W_RESIZE_CURSOR, WAIT_CURSOR

Fields inherited from class java.awt.Component

BOTTOM_ALIGNMENT, CENTER_ALIGNMENT, LEFT_ALIGNMENT, RIGHT_ALIGNMENT, TOP_ALIGNMENT

Fields inherited from interface javax.swing.WindowConstants

DISPOSE_ON_CLOSE, DO_NOTHING_ON_CLOSE, HIDE_ON_CLOSE

Fields inherited from interface java.awt.image.ImageObserver

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

Method Summary

All Methods	Static Methods	Instance Methods	Concrete Methods
Modifier and Type	Method and Description		
void	draw() Processing void draw() function, invoked before the update of every frame.		
static void	main (java.lang.String[] args)		
void	setup() Processing void setup() function, invoked 100ms after JProcessing being initialized.		

Methods inherited from class JProcessing.Processing

abs, abs, abs, abs, acos, alpha, alpha, applyMatrix, applyMatrix, arc, arc, arc, arc, arrayCopy, arrayCopy, asin, atan, atan2, background, background, background, background, background, beginShape, beginShape, bezier, bezier, bezier, bezierVertex, binary, binary, binary, binary, blue, blue, brightness, brightness, ceil, ceil, clear, color, color, color, color, color, colorMode, colorMode, colorMode, colorMode, constrain, constrain, constrain, constrain, copy, copy, cos, cot, createFont, createGraphics, createImage, createImage, createInput, createOutput, createReader, createWriter, csc, cursor, cursor, cursor, cursor, day, degrees, deiconified, delay, dist, dist, ellipse, ellipse, ellipseMode, endShape, endShape, exit, exit, exp, fill, fill, fill, fill, fill, fill, floor, floor, focusGained, focusLost, frameRate, frameTime, fullScreen, get, get, get, green, green, hex, hex, hex, hex, hour, hue, hue, iconified, image, image, image, image, image, image, image, imageMode, join, join, keyPressed, keyPressed, keyReleased, keyReleased, keyTyped, keyTyped, launch, lerp, lerp, lerpColor, line, line, link, linspace, linspace, ln, loadBytes, loadFont, loadImage, loadPixels, loadStrings, loadStrings, location, log, log, loop, mag, mag, map, map, max, max, max, max, max, max, max, max, max, max, max, max, millis, min, min, min, min, min, min, min, min, min, min, minute, month, mouseClicked, mouseClicked, mouseDragged, mouseDragged, mouseMoved, mouseMoved, mousePressed, mousePressed, mouseReleased, mouseReleased, mouseWheel, noCursor, noFill, noLoop, norm, norm, noSmooth, noStroke, noTint, point, point, popMatrix, popStyle, pow, print, printArray, printArray,

```
printArray, printArray, printArray, printArray, printArray, printArray, printArray,  
printArray, printArray, println, printMatrix, pushMatrix, pushStyle, quad, quad,  
radians, random, random, random, randomGaussian, randomSeed, rect, rect, rectMode,  
red, red, redraw, repaint, repaint, repaint, repaint, requestImage, resetMatrix,  
root, rotate, round, round, roundRect, roundRect, saturation, saturation, saveBytes,  
saveStrings, saveStrings, scale, scale, sec, second, set, set, set, setBackground,  
setBounds, setBounds, setLocation, setSize, shear, shearX, shearY, sin, size,  
sketchPath, sketchPath, smooth, split, splitTokens, splitTokens, sq, sqrt, stroke,  
stroke, stroke, stroke, stroke, stroke, strokeCap, strokeJoin, strokeWeight, tan,  
text, text, text, text, text, text, text, text, text, text, textAlign, textAlign,  
textAscent, textDescent, textFont, textFont, textHeight, textHeight, textHeight,  
textLeading, textSize, textWidth, textWidth, textWidth, thread, tint, tint, tint,  
tint, tint, tint, translate, triangle, triangle, trim, trim, unary, unhex, update,  
updatePixels, vertex, windowClosing, windowMoved, windowResized, year
```

Methods inherited from class javax.swing.JFrame

```
addImpl, createRootPane, frameInit, getAccessibleContext, getContentPane,
getDefaultCloseOperation, getGlassPane, getGraphics, getJMenuBar, getLayeredPane,
getRootPane, getTransferHandler, isDefaultLookAndFeelDecorated,
isRootPaneCheckingEnabled, paramString, processWindowEvent, remove, setContentPane,
setDefaultCloseOperation, setDefaultLookAndFeelDecorated, setGlassPane, setIconImage,
setJMenuBar, setLayeredPane, setLayout, setRootPane, setRootPaneCheckingEnabled,
setTransferHandler
```

Methods inherited from class `java.awt.Frame`

addNotify, getCursorType, getExtendedState, getFrames, getIconImage, getMaximizedBounds, getMenuBar, getState, getTitle, isResizable, isUndecorated, remove, removeNotify, setCursor, setExtendedState, setMaximizedBounds, setMenuBar, setOpacity, setResizable, setShape, setState, setTitle, setUndecorated

Methods inherited from class `java.awt.Window`

addChangeListener, addChangeListener, addWindowFocusListener, addWindowListener, addWindowStateListener, applyResourceBundle, applyResourceBundle, createBufferStrategy, createBufferStrategy, dispose, getBackground, getBufferStrategy, getFocusableWindowState, getFocusCycleRootAncestor, getFocusOwner, getFocusTraversalKeys, getIconImages, getInputContext, getListeners, getLocale, getModalExclusionType, getMostRecentFocusOwner, getOpacity, getOwnedWindows, getOwner, getOwnerlessWindows, getShape, getToolkit, getType, getWarningString, getWindowFocusListeners, getWindowListeners, getWindows, getWindowStateListeners, hide, isActive, isAlwaysOnTop, isAlwaysOnTopSupported, isAutoRequestFocus, isFocusableWindow, isFocusCycleRoot, isFocused, isLocationByPlatform, isOpaque, isShowing, isValidRoot, pack, paint, postEvent, processEvent, processWindowFocusEvent, processWindowStateEvent, removeWindowFocusListener, removeWindowListener, removeWindowStateListener, reshape, setAlwaysOnTop, setAutoRequestFocus, setCursor, setFocusableWindowState, setFocusCycleRoot, setIconImages, setLocation, setLocationByPlatform, setLocationRelativeTo,

setMinimumSize, setModalExclusionType, setSize, setType, setVisible, show, toBack, toFront

Methods inherited from class java.awt.Container

add, add, add, add, add, addContainerListener, applyComponentOrientation, areFocusTraversalKeysSet, countComponents, deliverEvent, doLayout, findComponentAt, findComponentAt, getAlignmentX, getAlignmentY, getComponent, getComponentAt, getComponentAt, getComponentCount, getComponents, getComponentZOrder, getContainerListeners, getFocusTraversalPolicy, getInsets, getLayout, getMaximumSize, getMinimumSize, getMousePosition, getPreferredSize, insets, invalidate, isAncestorOf, isFocusCycleRoot, isFocusTraversalPolicyProvider, isFocusTraversalPolicySet, layout, list, list, locate, minimumSize, paintComponents, preferredSize, print, printComponents, processContainerEvent, remove, removeAll, removeContainerListener, setComponentZOrder, setFocusTraversalKeys, setFocusTraversalPolicy, setFocusTraversalPolicyProvider, setFont, transferFocusDownCycle, validate, validateTree

Methods inherited from class java.awt.Component

action, add, addComponentListener, addFocusListener, addHierarchyBoundsListener, addHierarchyListener, addInputMethodListener, addKeyListener, addMouseListener, addMouseMotionListener, addMouseWheelListener, bounds, checkImage, checkImage, coalesceEvents, contains, contains, createImage, createVolatileImage, createVolatileImage, disable, disableEvents, dispatchEvent, enable, enable, enableEvents, enableInputMethods, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, firePropertyChange, getBaseline, getBaselineResizeBehavior, getBounds, getBounds, getColorModel, getComponentListeners, getComponentOrientation, getCursor, getDropTarget, getFocusListeners, getFocusTraversalKeysEnabled, getFont, getFontMetrics, getForeground, getGraphicsConfiguration, getHeight, getHierarchyBoundsListeners, getHierarchyListeners, getIgnoreRepaint, getInputMethodListeners, getInputMethodRequests, getListeners, getLocation, getLocation, getLocationOnScreen, getMouseListeners, getMouseMotionListeners, getMousePosition, getMouseWheelListeners, getName, getParent, getPeer, getPropertyChangeListeners, getPropertyChangeListeners, getSize, getSize, getTreeLock, getWidth, getX, getY, gotFocus, handleEvent, hasFocus, imageUpdate, inside, isBackgroundSet, isCursorSet, isDisplayable, isDoubleBuffered, isEnabled, isFocusable, isFocusOwner, isFocusTraversable, isFontSet, isForegroundSet, isLightweight, isMaximumSizeSet, isMinimumSizeSet, isPreferredSizeSet, isValid, isVisible, keyDown, keyUp, list, list, list, location, lostFocus, mouseDown, mouseDrag, mouseEnter, mouseExit, mouseMove, mouseUp, move, nextFocus, paintAll, prepareImage, prepareImage, printAll, processComponentEvent, processFocusEvent, processHierarchyBoundsEvent, processHierarchyEvent, processInputMethodEvent, processKeyEvent, processMouseEvent, processMouseMotionEvent, processMouseWheelEvent, removeComponentListener, removeFocusListener, removeHierarchyBoundsListener, removeHierarchyListener, removeInputMethodListener, removeKeyListener, removeMouseListener, removeMouseMotionListener, removeMouseWheelListener, removePropertyChangeListener, removePropertyChangeListener, requestFocus, requestFocus, requestFocusInWindow,

requestFocusInWindow, resize, resize, revalidate, setComponentOrientation, setDropTarget, setEnabled, setFocusable, setFocusTraversalKeysEnabled, setForeground, setIgnoreRepaint, setLocale, setMaximumSize, setName, setPreferredSize, show, size, toString, transferFocus, transferFocusBackward, transferFocusUpCycle

Methods inherited from class java.lang.Object

clone, equals, finalize, getClass, hashCode, notify, notifyAll, wait, wait, wait

Methods inherited from interface java.awt.MenuContainer

getFont, postEvent

Method Detail

draw

```
public void draw()
```

Processing void `draw()` function, invoked before the update of every frame.

`draw()` will be invoked repeatedly at the frequency at the GUI's target frame rate. if the task in `draw()` takes too long to finish, the frame rate will drop down respectively.

Overrides:

`draw` in class `JProcessing.Processing`

See Also:

[<void draw\(\)> in Processing IDE](#)

main

```
public static void main(java.lang.String[] args)
```

setup

```
public void setup()
```

Processing void `setup()` function, invoked 100ms after `JProcessing` being initialized.

`setup()` will be invoked only once. After its completion, method `draw()` will then be invoked.

Overrides:

`setup` in class `JProcessing.Processing`

See Also:

[<void setup\(\)> in Processing IDE](#)