



# Week 11

Pemrograman Visual





# Outline

- ❏ Assignment Review
- ❏ Draw API
- ❏ QClipboard
- ❏ QDockWidget

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# Assignment Review

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# Drawing API

All the QWidget classes in PyQt are sub classed from QPaintDevice class. A QPaintDevice is an abstraction of two dimensional space that can be drawn upon using a QPainter. Dimensions of paint device are measured in pixels starting from the top-left corner.

QPainter class performs low level painting on widgets and other paintable devices such as printer. Normally, it is used in widget's paint event. The QPaintEvent occurs whenever the widget's appearance is updated.

The painter is activated by calling the `begin()` method, while the `end()` method deactivates it. In between, the desired pattern is painted by suitable methods as listed in the following table.

<code>begin()</code>	Starts painting on the target device
<code>drawArc()</code>	Draws an arc between the starting and the end angle
<code>drawEllipse()</code>	Draws an ellipse inside a rectangle
<code>drawLine()</code>	Draws a line with endpoint coordinates specified
<code>drawPixmap()</code>	Extracts pixmap from the image file and displays it at the specified position

The painter is activated by calling the `begin()` method, while the `end()` method deactivates it. In between, the desired pattern is painted by suitable methods as listed in the following table.

<code>drawPolygon()</code>	Draws a polygon using an array of coordinates
<code>drawRect()</code>	Draws a rectangle starting at the top-left coordinate with the given width and height
<code>drawText()</code>	Displays the text at given coordinates
<code>fillRect()</code>	Fills the rectangle with the QColor parameter
<code>setBrush()</code>	Sets a brush style for painting
<code>setPen()</code>	Sets the color, size and style of pen to be used for drawing

## Predefined QColor Styles

Qt.NoBrush	No brush pattern
Qt.SolidPattern	Uniform color
Qt.Dense1Pattern	Extremely dense brush pattern
Qt.HorPattern	Horizontal lines
Qt.VerPattern	Vertical lines
Qt.CrossPattern	Crossing horizontal and vertical lines
Qt.BDiagPattern	Backward diagonal lines
Qt.FDiagPattern	Forward diagonal lines
Qt.DiagCrossPattern	Crossing diagonal lines

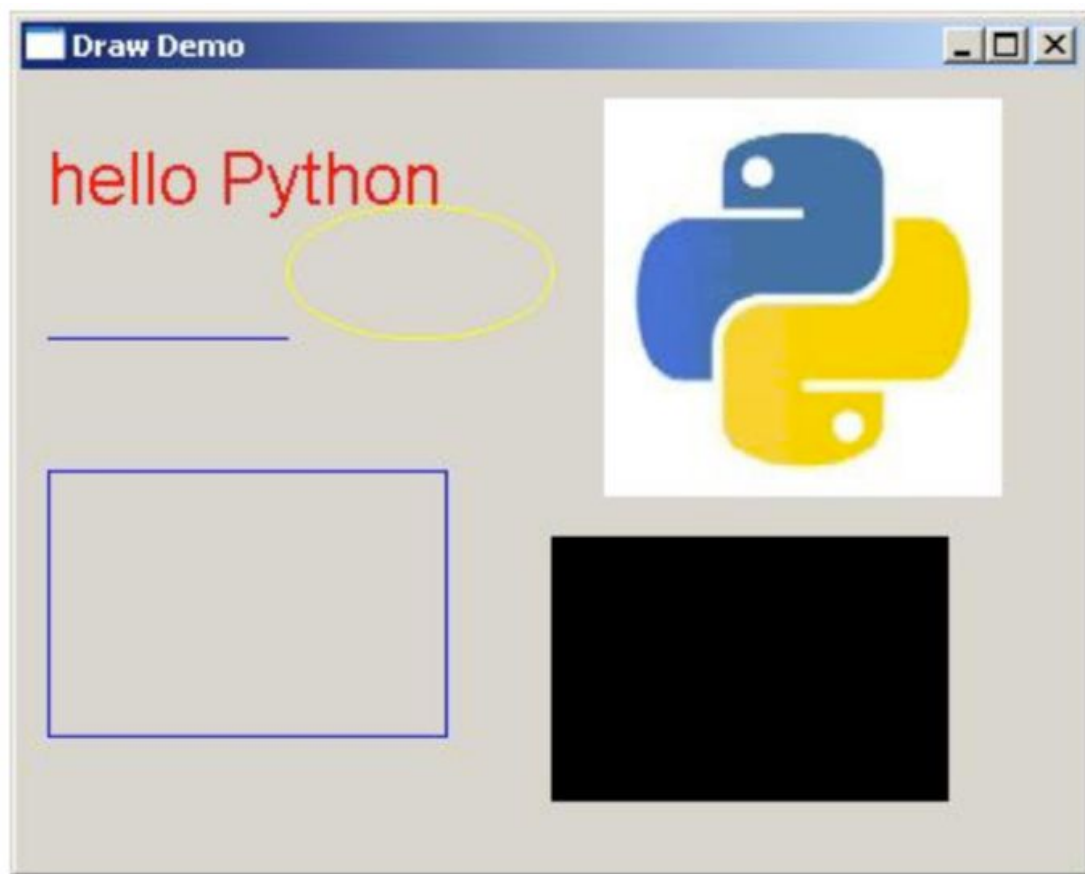


## Predefined QColor Objects

Qt.white
Qt.black
Qt.red
Qt.darkRed
Qt.green
Qt.darkGreen
Qt.blue
Qt.cyan
Qt.magenta
Qt.yellow
Qt.darkYellow
Qt.gray

# Example

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# QClipboard

The QClipboard class provides access to system-wide clipboard that offers a simple mechanism to copy and paste data between applications. Its action is similar to QDrag class and uses similar data types.

QApplication class has a static method clipboard() which returns reference to clipboard object. Any type of MimeType can be copied to or pasted from the clipboard.

Following are the clipboard class methods that are commonly used:

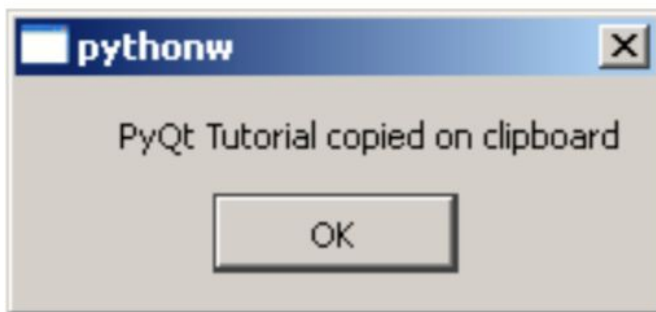
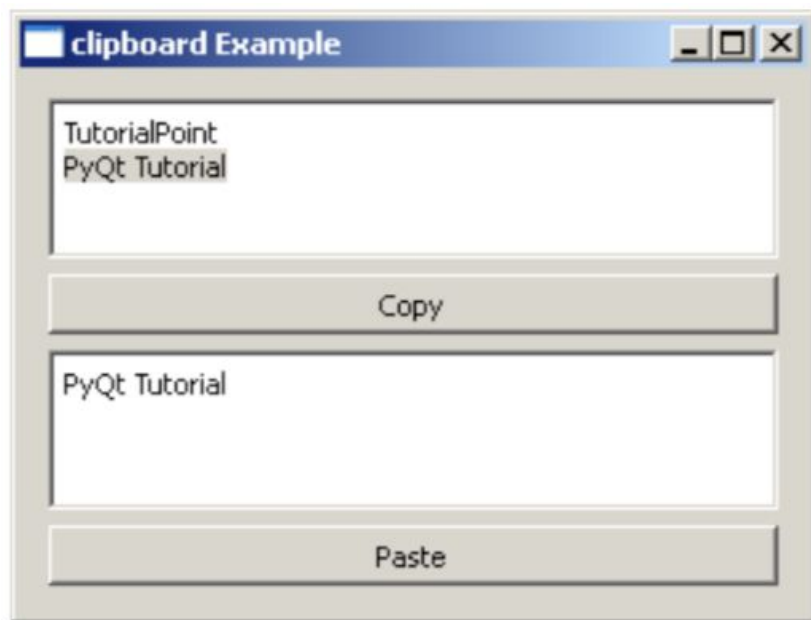
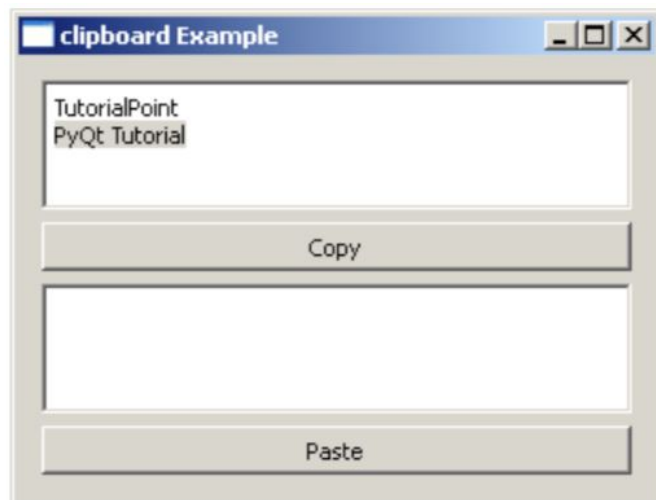
<code>clear()</code>	Clears clipboard contents
<code>setImage()</code>	Copies QImage into clipboard
<code>setMimeData()</code>	Sets MIME data into clipboard
<code>setPixmap()</code>	Copies QPixmap object in clipboard
<code>setText()</code>	Copies QString in clipboard
<code>text()</code>	Retrieves text from clipboard

Signal associated with clipboard object is:

<code>dataChanged()</code>	Whenever clipboard data changes
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# Example

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# QDockWidget

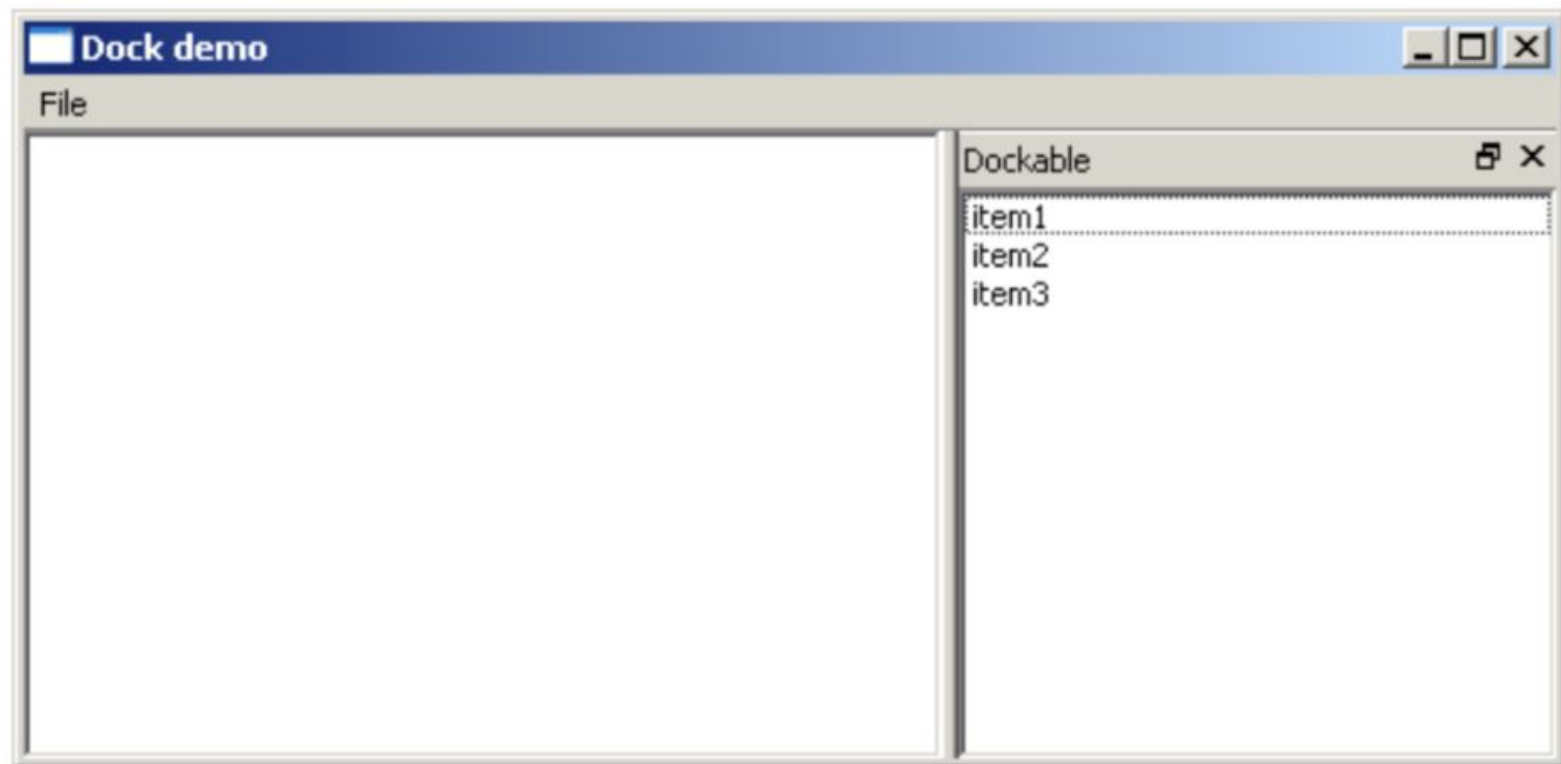
A dockable window is a subwindow that can remain in floating state or can be attached to the main window at a specified position. Main window object of QMainWindow class has an area reserved for dockable windows. This area is around the central widget.

A dock window can be moved inside the main window, or they can be undocked to be moved into a new area by the user. These properties are controlled by the following QDockWidget class methods:

setWidget()	Sets any QWidget in the dock window's area
setFloating()	If set to true, the dock window can float
setAllowedAreas()	Sets the areas to which the window can be docked
	LeftDockWidgetArea
	RightDockWidgetArea
	TopDockWidgetArea
	BottomDockWidgetArea
	NoDockWidgetArea
setFeatures()	Sets the features of dock window
	DockWidgetClosable
	DockWidgetMovable
	DockWidgetFloatable
	DockWidgetVerticalTitleBar
	NoDockWidgetFeatures

# Example

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# Thanks