Image Processing & GUI Programming with Qt

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User Interaction

- Graphical User Interfaces allow us to interact with programs. The main input devices for interaction are:
  - Mouse
    - Mouse buttons
  - Scroll-wheel
  - Location
  - Keyboard
    - Keys
  - Tablet Pens
    - Like mouse with pressure sensor

Mouse Events

- We are interested in the following mouse and wheel events. A QWidget can be set to listen and process the following events.
  - virtual void mouseDoubleClickEvent (QMouseEvent* event)
  - virtual void mouseMoveEvent (QMouseEvent* event)
  - virtual void mousePressEvent (QMouseEvent* event)
  - virtual void mouseReleaseEvent (QMouseEvent* event)
  - virtual void wheelEvent (QWheelEvent* event)

- Programmer must implement these functions. The ‘event’ parameter contains information regarding the users input.

QMouseEvent

- The primary functions we use are:
  - Qt::MouseButton button () const
  - int x () const
  - int y () const

- We can set QWidget::setMouseTracking(), this will cause mouse events to occur without a user pressing a mouse button.

- Scroll-Wheels are usually found on a mouse, the functions it provides are:
  - Qt::Orientation QWheelEvent::orientation () const
  - int QWheelEvent::delta () const
**Keyboard Events**

- We are interested in the following keyboard events. A QWidget can be set to listen and process the following events.
  - virtual void keyPressEvent (QKeyEvent* event)
  - virtual void keyReleaseEvent (QKeyEvent* event)

- Programmer must implement these functions.

**QKeyEvent**

- The primary functions we use are:
  - int key () const
  - Qt::KeyboardModifiers modifiers () const

- Key events return type int, but should looked up using the Qt::Key enum.

- In addition Key events tell us if two keys are pressed such as CTRL+A.

**Programming with Qt**

CODE WALKTHROUGH
Scribble:
<QtFolder>/examples/widgets/scribble