GUI Programming, Part 3

CST 205

Aside: Qt can render websites

```python
import sys
from PyQt5.QtWidgets import QApplication, QWidget
from PyQt5.QtWebEngineWidgets import QWebEngineView
from PyQt5.QtCore import QUrl

class Example(QWebEngineView):
    def __init__(self):
        super().__init__()
        self.load(QUrl('https://csumb.edu'))

app = QApplication(sys.argv)
ex = Example()
ex.show()
sys.exit(app.exec_())
```

GitHub Gist

Putting layouts in layouts (nesting)

```python
class MyWindow(QWidget):
    def __init__(self):
        super().__init__()

        b1 = QPushButton('button 1')
        b2 = QPushButton('button 2')

        hbox = QHBoxLayout()
        hbox.addWidget(b1)
        hbox.addWidget(b2)

        b3 = QPushButton('button 3')
        b4 = QPushButton('button 4')

        vbox = QVBoxLayout()
        vbox.addWidget(b3)
        vbox.addWidget(b4)

        mbox = QHBoxLayout()
        mbox.addLayout(hbox)
        mbox.addLayout(vbox)
        self.setLayout(mbox)
```
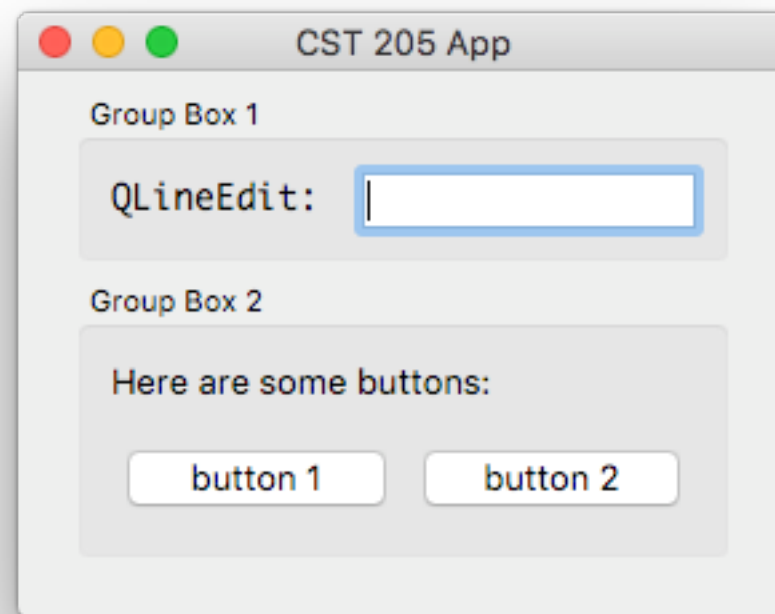
button 1 button 2 button 3
button 4

GitHub Gist

QGroupBox

- A group box allows you to organize widgets into groups. (docs)

GitHub Gist

More UI Widgets

- `QLineEdit` — a one-line text editor

- `QComboBox` — a dropdown menu: GitHub Gist

- `QTextBrowser` — a multi-line text editor: GitHub Gist

Color!

- **QColor** allows us to use RGB colors ([docs](#))

- Background color example:

```python
import sys
from PyQt5.QtWidgets import QApplication, QWidget
from PyQt5.QtGui import QColor

class Example(QWidget):
    def __init__(self):
        super().__init__()
        self.setAutoFillBackground(True)
        p = self.palette()
        p.setColor(self.backgroundRole(), QColor(227, 66, 52))
        self.setPalette(p)

app = QApplication(sys.argv)
ex = Example()
ex.show()
sys.exit(app.exec_())
```

Opening new window

- For small messages, we can use the `QMessageBox`.

  - Can *hack* an image into a `QMessageBox` using an HTML `img` tag.

- Example with new full-size window: <u>GitHub Gist</u>