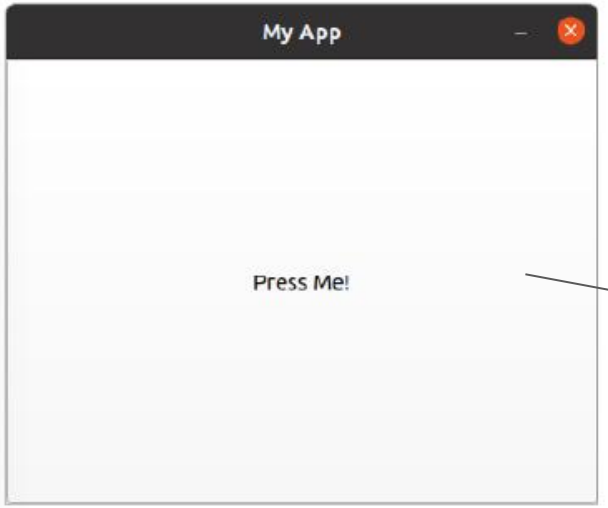
pyQt6

Signals & Slots

Signals are ***notifications*** emitted by widgets when something happens.

Copyright

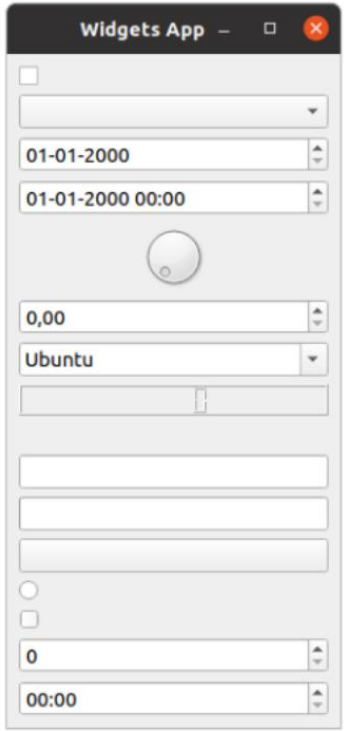
Sample




```
Clicked!
Clicked!
Clicked!
```

```python
import sys

from PyQt6.QtCore import QSize
from PyQt6.QtWidgets import QApplication, QMainWindow, QPushButton


class MainWindow(QMainWindow):
    def __init__(self):
        super().__init__()  ②

        self.setWindowTitle("My App")

        button = QPushButton("Press Me!")
        button.clicked.connect(self.the_button_was_clicked)

        # Set the central widget of the Window.
        self.setCentralWidget(button)

    def the_button_was_clicked(self):
        print("Clicked!")


app = QApplication(sys.argv)

window = MainWindow()
window.show()

app.exec()
```

Widgets



Widget	What it does
QCheckbox	A checkbox
QComboBox	A dropdown list box
QDateEdit	For editing dates
QDateTimeEdit	For editing dates and datetimes
QDial	Rotatable dial
QDoubleSpinbox	A number spinner for floats
QFontComboBox	A list of fonts
QLCDNumber	A quite ugly LCD display
QLabel	Just a label, not interactive
QLineEdit	Enter a line of text
QProgressBar	A progress bar
QPushButton	A button
QRadioButton	A group with only one active choice
QSlider	A slider
QSpinBox	An integer spinner
QTimeEdit	For editing times

https://doc.qt.io/qt-6/qtwidgets-module.html

Layouts

Layout	Behavior
`QHBoxLayout`	Linear horizontal layout
`QVBoxLayout`	Linear vertical layout
`QGridLayout`	An (x&y) indexable grid
`QStackedLayout`	Stacked (z) in front of one another
`QFormLayout`	Linear 2-column layout for labels & fields

Nesting layouts

For more complex layouts you can nest layouts inside one another using `.addLayout` on a layout. Below we add a `QVBoxLayout` into the main `QHBoxLayout`. If we add some widgets to the `QVBoxLayout`, they'll be arranged vertically in the first slot of the parent layout.

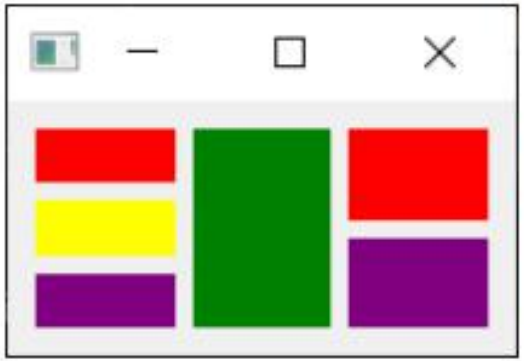
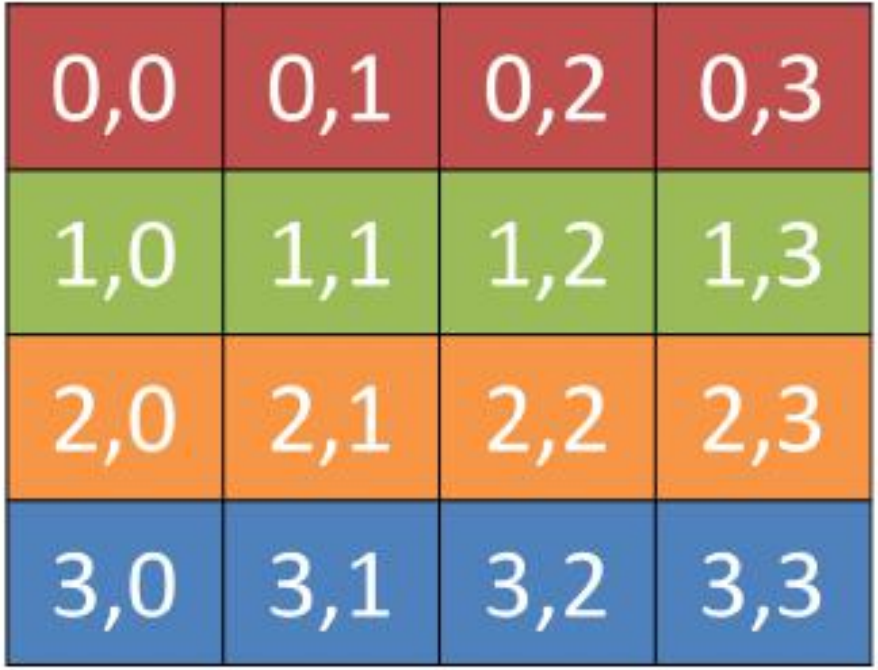


Figure 26. Nested `QHBoxLayout` and `QVBoxLayout` layouts.

```python
import sys

from layout_colorwidget import Color

from PyQt6.QtWidgets import (
    QApplication,
    QHBoxLayout,
    QMainWindow,
    QVBoxLayout,
    QWidget,
)


class MainWindow(QMainWindow):
    def __init__(self):
        super().__init__()

        self.setWindowTitle("My App")

        layout1 = QHBoxLayout()
        layout2 = QVBoxLayout()
        layout3 = QVBoxLayout()

        layout2.addWidget(Color("red"))
        layout2.addWidget(Color("yellow"))
        layout2.addWidget(Color("purple"))

        layout1.addLayout(layout2)
        layout1.addWidget(Color("green"))

        layout3.addWidget(Color("red"))
        layout3.addWidget(Color("purple"))

        layout1.addLayout(layout3)

        widget = QWidget()
        widget.setLayout(layout1)
        self.setCentralWidget(widget)


app = QApplication(sys.argv)

window = MainWindow()
window.show()

app.exec()
```

`QGridLayout` is a 2-dimensional layout, allowing you to lay widgets out horizontally and vertically using grid positions. Importantly, widgets in the same rows and columns will have their edges aligned. If widgets are different sizes, empty space will be added to the layout to keep this alignment.



```python
import sys

from layout_colorwidget import Color
```

```python
from PyQt6.QtWidgets import (
    QApplication,
    QGridLayout,
    QMainWindow,
    QWidget,
)
```

```python
class MainWindow(QMainWindow):
    def __init__(self):
        super().__init__()

        self.setWindowTitle("My App")

        layout = QGridLayout()

        layout.addWidget(Color("red"), 0, 0)
        layout.addWidget(Color("green"), 1, 0)
        layout.addWidget(Color("blue"), 1, 1)
        layout.addWidget(Color("purple"), 2, 1)

        widget = QWidget()
        widget.setLayout(layout)
        self.setCentralWidget(widget)


app = QApplication(sys.argv)

window = MainWindow()
window.show()

app.exec()
```