

PyQt4 编程简介

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日期:

2007-12-22 于武汉

注解:

该文档根据["Introduction to PyQt4"](#)翻译, 依照[创作公用约定](#)发布。

该文档的doxygen源文件可以从[pyqt-doc-cn](#)下载。

开始

创建一个 [PyQt4](#) 一般可以通过很少的步骤完成。通常的方法是用 [Qt](#) 提供的QtDesigner工具创建界面。使用QtDesigner, 可以方便地创建复杂的GUI界面。然后, 可以在窗口上创建部件, 添加名字等。创建一个PyQt4 一般需要:

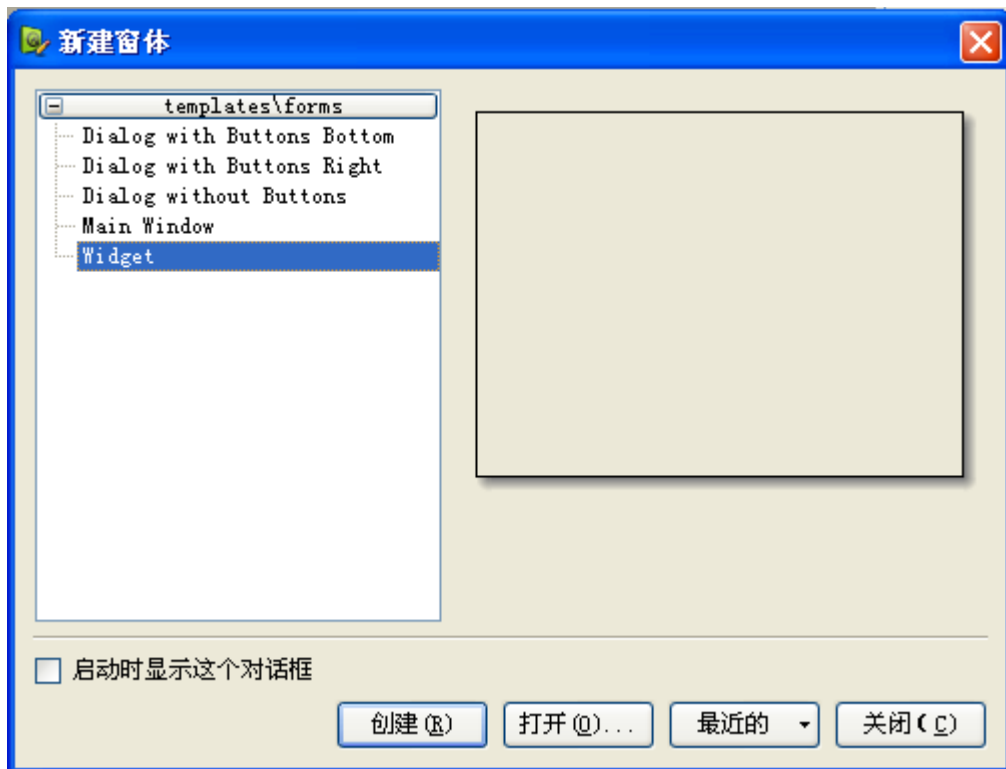
1. 使用 QtDesigner 创建 GUI 界面
2. 在属性编辑器中修改部件的名字
3. 使用 pyuic4 工具生成一个 python 类
4. 通过 GUI 对应类来运行程序
5. 通过设置自己的 slots 来扩展功能
6. 当使用窗口部件的时候, 可以从 ["PyQt's Classes"](#)查询。Qt采用易于理解的方式来命名函数, 例如: "setText"。

教程列表

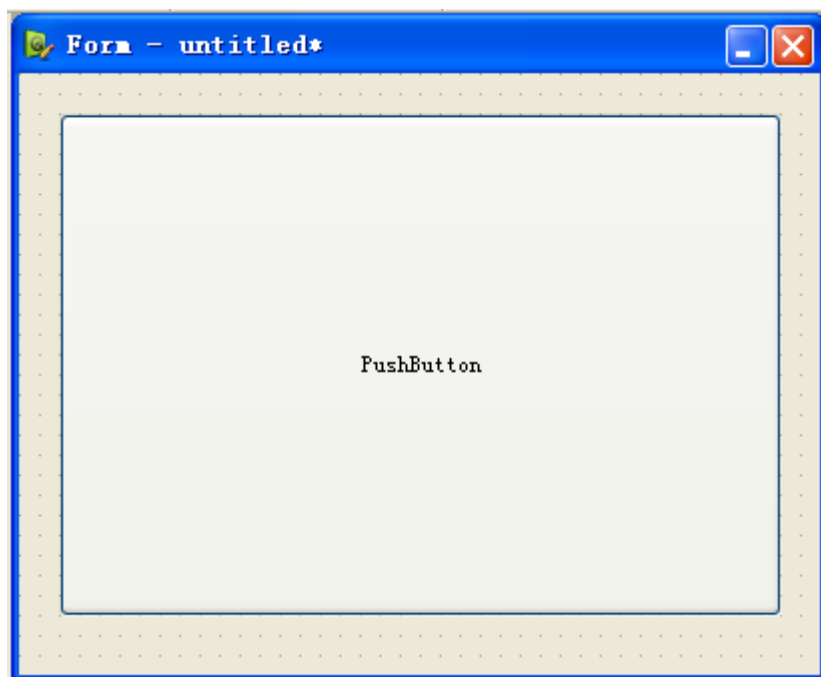
1. [简易的文本编辑器](#) - PyQt4 第一个程序
 2. [增加文本编辑器的功能](#) - 增加更多的功能
 3. [QYolk I - PyQt4 中的列表部件](#) - 怎么使用PyQt4 中的列表部件
 4. [QYolk II - 容器部件](#) - 怎么使用Tab Widget
 5. [PyQt4 文本编辑器 - 最终版](#) - PyQt4 的一些高级特性
 6. [QYolk III - 升级包列表](#) - 新的特性
- [下载教程代码](#) (缺少的部分请从原网站下载)

简介

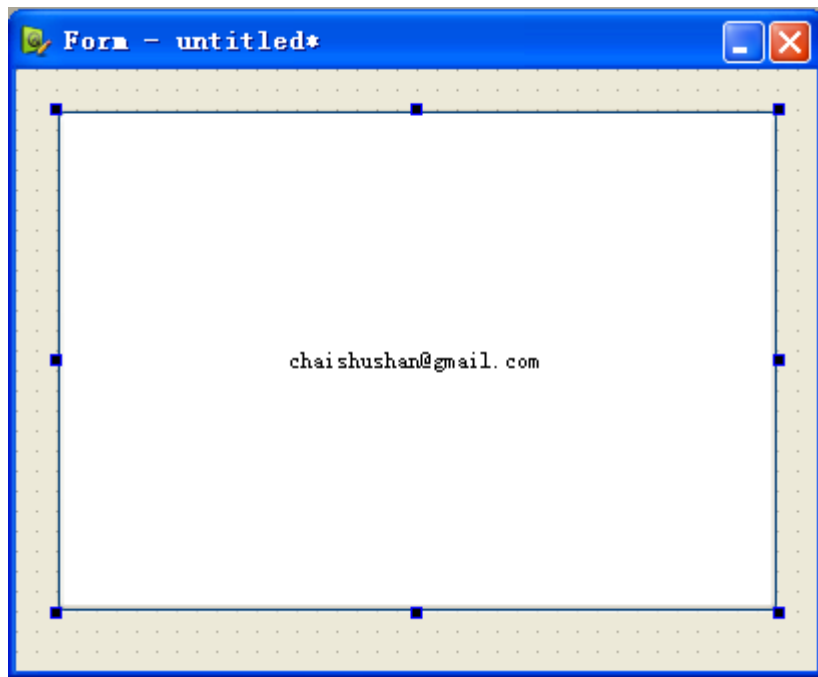
打开 QtDesigner，会出现"Hello... Close Button"对话框，让我们选择类型类型：



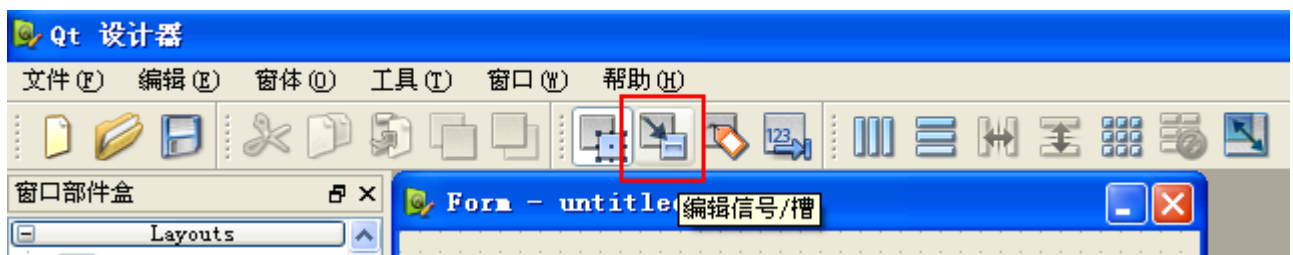
我们选择 widget 类型，然后在窗口中添加一个 QPushButton 按钮：



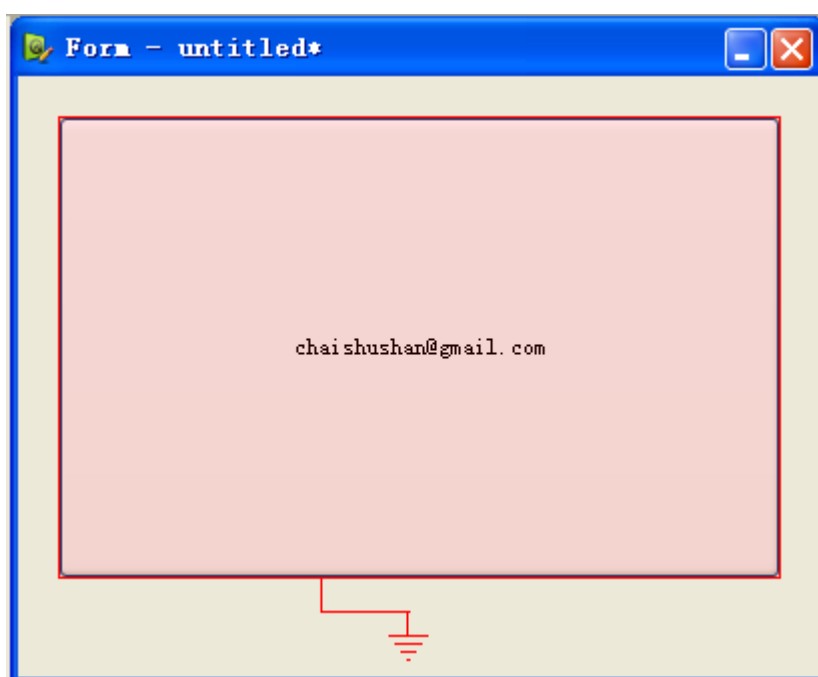
通过鼠标右键来修改 pushButton 显示的内容：



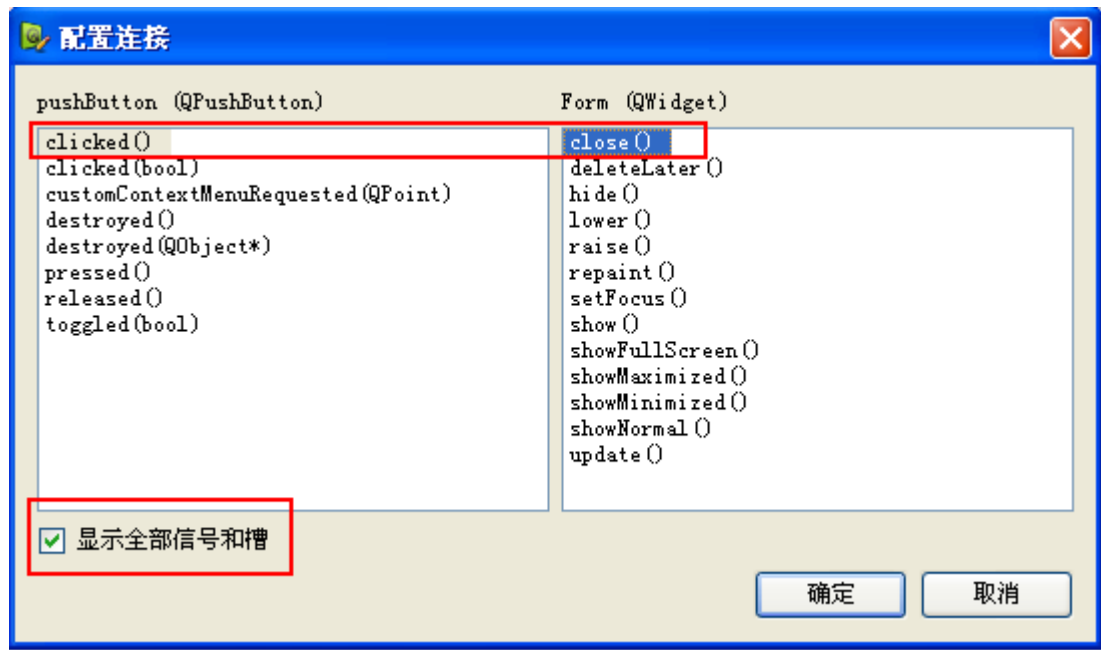
当窗口建好之后，我们可以 QtDesigner 来编辑一些 Qt 预定义的信号/槽。这里我们使用的是 "close()"槽函数 来关闭程序。首先切换到信号/槽边界模式：



用鼠标移到 pushButton 区域，然后拖动：



弹出一个信号/槽选择框：



信号选择 `clicked()`，槽选择 `close()`。将窗口保存为 `test.ui` 文件。切换到 `test.ui` 所在的目录，然后输入以下命令：

```
pyuic4 test.ui > test_ui.py
```

下一步是创建一个 `test.py` 文件：

```
import sys
from PyQt4 import QtCore, QtGui

from test_ui import Ui_Form

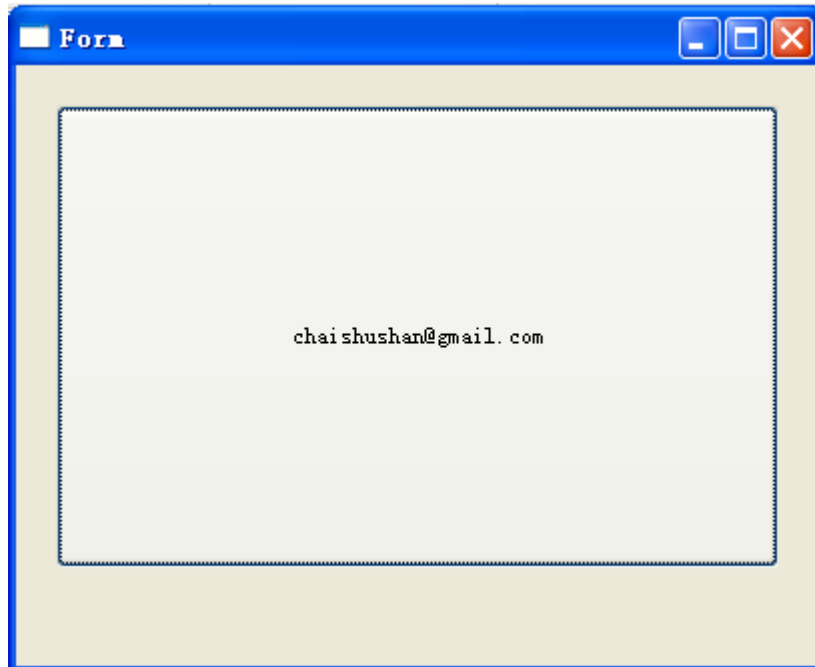
class MyForm(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_Form()
        self.ui.setupUi(self)

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = MyForm()
    myapp.show()
    sys.exit(app.exec_())
```

运行 test.py:

```
python test.py
```

现在应该出现响应的窗口，当你点击按钮的时候退出程序。

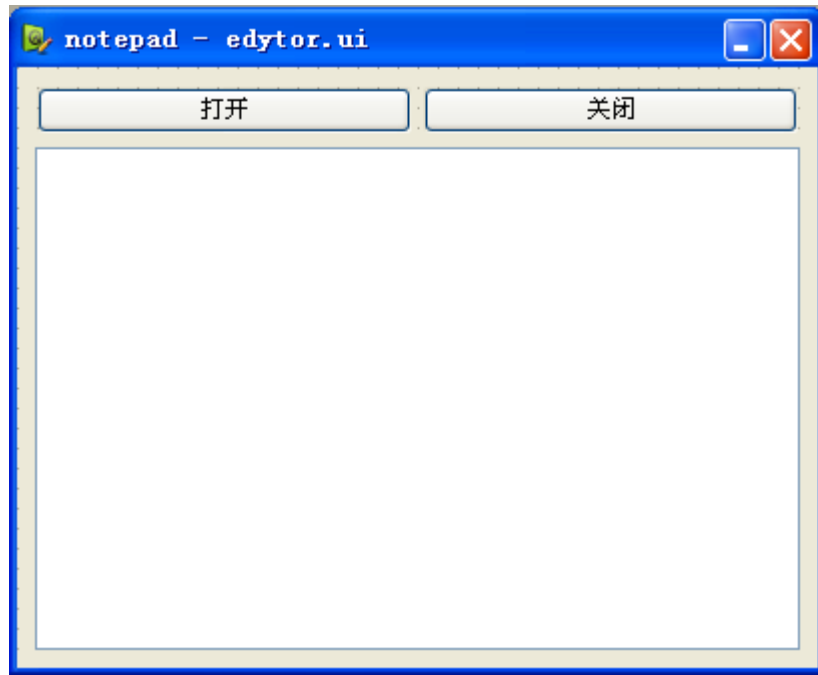


提示

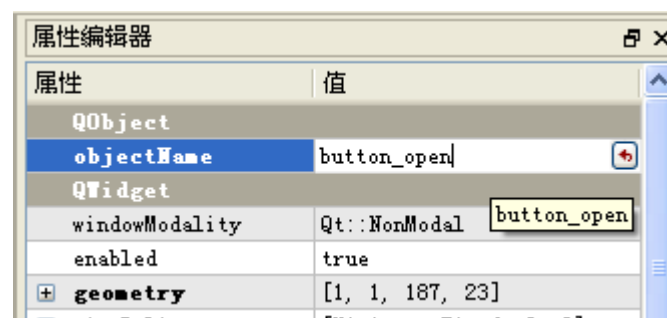
Ui_Form 是用 pyuic4 工具从"Form"窗口生成的对应 python 类的名字。你可以在 QtDesigner 自己喜欢的名字 一个类的名字（下一节我们会讲到）。

简易的文本编辑器

我们将要实现一个简单的文本编辑器，如图。用 QtDesigner 创建一个"Widget"类型的窗口。我们使用两个 `PushButton` 和一个 `TextEdit`：



"关闭"按钮被连接到窗口的"`close()`"槽函数，可以被用来关闭窗口。修改"打开"按钮的对象名字为"`button_open`"; 修改 `TextEdit` 部件的对象名字为"`editor_window`"; 修改窗口的名字为"`notepad`"（开始为"`MainWindow`"）。选择要该名字的对象，然后出现的属性编辑器中可以修改名字。



保存窗口，并生成对应的类：

```
pyuic4 edytor.ui > edytor.py
```

得到一个"`Ui_notepad`"类。我们还需要自己添加一些代码，创建 `start.py`：

```
import sys
```

```

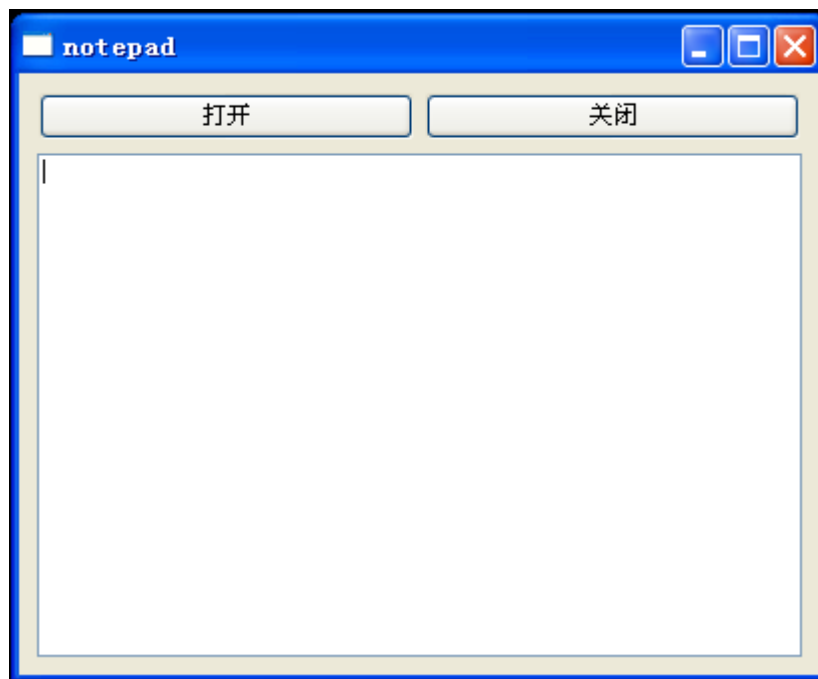
from PyQt4 import QtCore, QtGui
from edytor import Ui_notepad

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_notepad()
        self.ui.setupUi(self)

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())

```

运行 `start.py` 启动程序，点击“关闭”关闭程序。



下面我们编辑自己的 `slot` 函数：

```

import sys
from PyQt4 import QtCore, QtGui
from edytor import Ui_notepad

class StartQt4(QtGui.QMainWindow):

```

```

def __init__(self, parent=None):
    QtGui.QWidget.__init__(self, parent)
    self.ui = Ui_notepad()
    self.ui.setupUi(self)
    # here we connect signals with our slots

QtCore.QObject.connect(self.ui.button_open,QtCore.SIGNAL("clicked()"),
self.file_dialog)

    def file_dialog(self):
        self.ui.editor_window.setText('aaaaaaaaaaaa')

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())

```

当你点击“打开”的时候，在编辑框中将出现"aaaaaaaaaaaa"内容。那是因为我们把“打开”信号 连接到了我们自己实现的 slot 函数：

```

QtCore.QObject.connect(self.ui.button_open,QtCore.SIGNAL("clicked()"),
self.file_dialog)

```

self.ui 对应窗口，通过它我们可以访问窗口中的部件。因此，**self.ui.button_open** 对应“打开”按钮。**self.file_dialog** 是信号对应的函数，它是比较重要的部分，例如：

```

def file_dialog(self):
    self.ui.editor_window.setText('aaaaaaaaaaaa')

```

self.ui.editor_window 对应 **TextEdit**, **setText** 方法用来设置文本的内容。下面我们用 **QFileDialog** 来选择文件，代码如下：

```

import sys
from PyQt4 import QtCore, QtGui
from edytor import Ui_notepad

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_notepad()
        self.ui.setupUi(self)

```



```

QtCore.QObject.connect(self.ui.button_open,QtCore.SIGNAL("clicked()"),
self.file_dialog)

def file_dialog(self):
    fd = QtGui.QFileDialog(self)
    plik = open(fd.getOpenFileName()).read()
    self.ui.editor_window.setText(plik)

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())

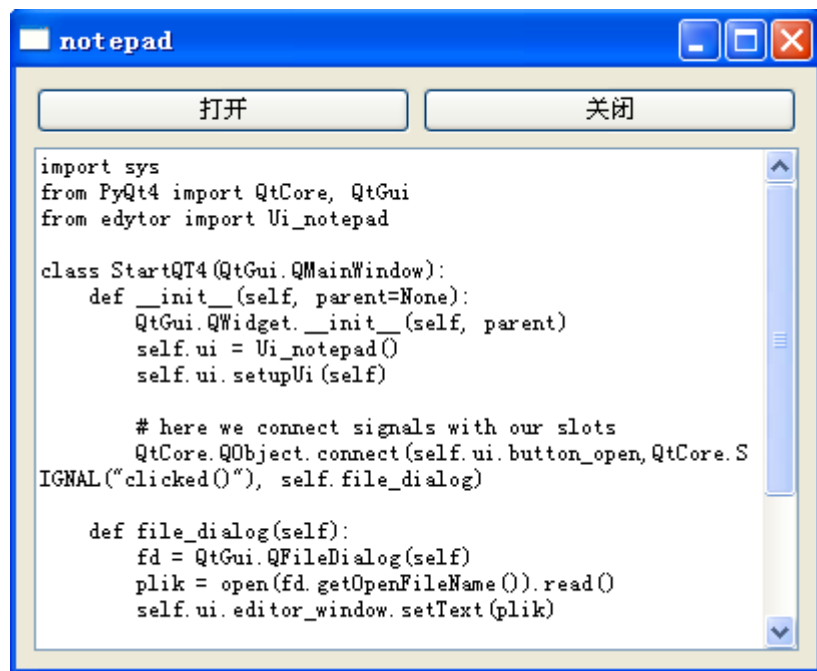
```

`fd.getOpenFileName()`弹出一个文件选择框。`fd.getOpenFileName()`用于返回我们选择文件的名字。但是，如果我们没有选择文件的话，将得到一个空的文件名，程序出现以下错误：

```

IOError: [Errno 2] Nie ma takiego pliku ani katalogu: < PyQt4.QtCore.QString object
at 0x2b6465569738 >

```



继续完善代码：

So we have to improve our code:

```

import sys
from PyQt4 import QtCore, QtGui

```

```

from edytor import Ui_notepad

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_notepad()
        self.ui.setupUi(self)
        # tutaj dajemy własne polaczenia slotow

QtCore.QObject.connect(self.ui.button_open,QtCore.SIGNAL("clicked()"),
self.file_dialog)

    def file_dialog(self):
        fd = QtGui.QFileDialog(self)
        self.filename = fd.getOpenFileName()
        from os.path import isfile
        if isfile(self.filename):
            text = open(self.filename).read()
            self.ui.editor_window.setText(text)

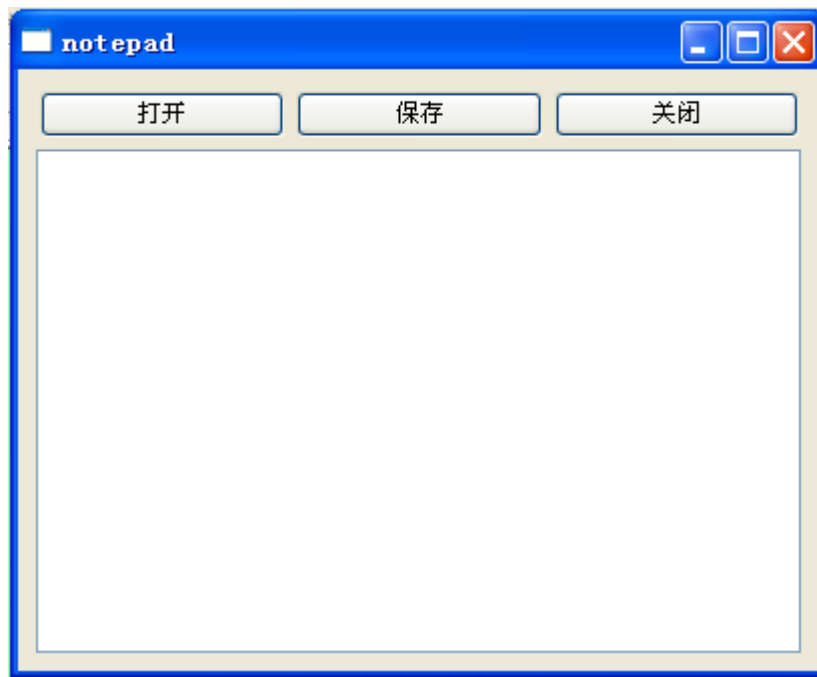
if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())

```

目前我们可以浏览文件了，但是并不能保存文件的任何修改。还需要增加一个“保存”按钮用来保存文件。在 **QtDesigner** 中添加一个 **pushButton**，名字改为"**button_save**"，保存*.ui 文件。然后重新生成对应的类：

```
pyuic4 edytor.ui > edytor.py
```

现在程序外观如图：



我们给"Save"按钮的 click 信号连接对应的槽函数:

```
import sys
from PyQt4 import QtCore, QtGui
from edytor import Ui_notepad

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_notepad()
        self.ui.setupUi(self)

QtCore.QObject.connect(self.ui.button_open, QtCore.SIGNAL("clicked()"),
self.file_dialog)

QtCore.QObject.connect(self.ui.button_save, QtCore.SIGNAL("clicked()"),
self.file_save)

    def file_dialog(self):
        fd = QtGui.QFileDialog(self)
        self.filename = fd.getOpenFileName()
        from os.path import isfile
        if isfile(self.filename):
            text = open(self.filename).read()
            self.ui.editor_window.setText(text)

    def file_save(self):
```

```

        from os.path import isfile
        if isfile(self.filename):
            file = open(self.filename, 'w')
            file.write(self.ui.editor_window.toPlainText())
            file.close()

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())

```

现在程序虽然可以基本工作，但是并不完善！它只能处理 **ASCII** 格式的文件。因此，我们最好给它增加 **UTF-8** 格式的支持：

```

# -*- coding: utf-8 -*-
import sys
from PyQt4 import QtCore, QtGui
from edytor import Ui_notepad

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_notepad()
        self.ui.setupUi(self)

QtCore.QObject.connect(self.ui.button_open, QtCore.SIGNAL("clicked()"),
self.file_dialog)

QtCore.QObject.connect(self.ui.button_save, QtCore.SIGNAL("clicked()"),
self.file_save)

    def file_dialog(self):
        fd = QtGui.QFileDialog(self)
        self.filename = fd.getOpenFileName()
        from os.path import isfile
        if isfile(self.filename):
            import codecs
            s = codecs.open(self.filename, 'r', 'utf-8').read()
            self.ui.editor_window.setPlainText(s)

    def file_save(self):

```

```
        from os.path import isfile
        if isfile(self.filename):
            import codecs
            s = codecs.open(self.filename, 'w', 'utf-8')
            s.write(unicode(self.ui.editor_window.toPlainText()))
            s.close()

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())
```

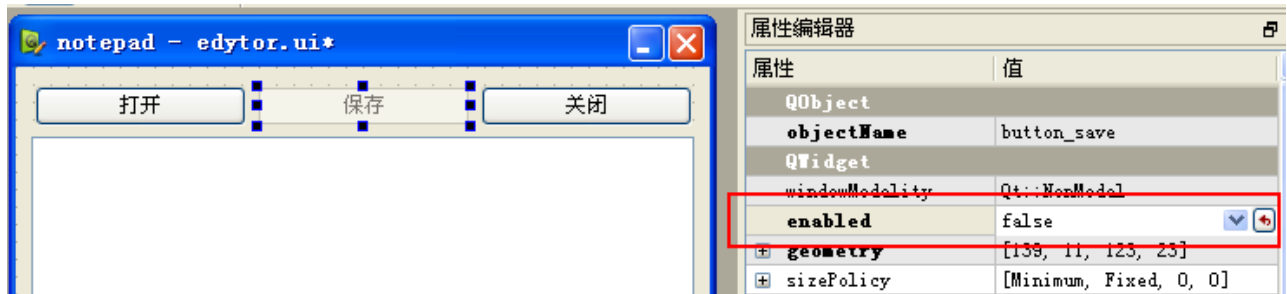
现在可以完美地处理 **UTF-8** 格式的文件了。下一节我们将演示更多的特性。

增加文本编辑器的功能

现在我们给编辑器增加两个新的功能。同时也可以练习我们查阅文档的技巧。

禁用"Save"按钮

当没有打开任何文件，或者是文件没有改动的时候，禁用"Save"按钮。在 QtDesigner 工具的属性编辑器中，我们将"Save"按钮设置"enabled"属性为"False"。



textEdit 部件含有"TextChanged()"信号，因此检测文本是否改动比较简单。但是，pushButton 并没有类似的 "enabled"操作。查阅文档可以发现：pushButton 从 QAbstractButton 继承，QAbstractButton 从 QWidget 继承，而 QWidget 刚好有 setEnabled()函数。因此可以修改代码：

```
# -*- coding: utf-8 -*-
import sys
from PyQt4 import QtCore, QtGui
from edytor import Ui_notatnik

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_notepad()
        self.ui.setupUi(self)
        self.filename = None

QtCore.QObject.connect(self.ui.button_open, QtCore.SIGNAL("clicked()"),
self.file_dialog)

QtCore.QObject.connect(self.ui.button_save, QtCore.SIGNAL("clicked()"),
self.file_save)

QtCore.QObject.connect(self.ui.editor_window, QtCore.SIGNAL("textChanged()"),
self.enable_save)
```

```

def file_dialog(self):
    fd = QtGui.QFileDialog(self)
    self.filename = fd.getOpenFileName()
    from os.path import isfile
    if isfile(self.filename):
        import codecs
        s = codecs.open(self.filename, 'r', 'utf-8').read()
        self.ui.editor_window.setPlainText(s)
        # inserting text emits textChanged() so we disable the
button :)
        self.ui.button_save.setEnabled(False)
def enable_save(self):
    self.ui.button_save.setEnabled(True)
def file_save(self):
    from os.path import isfile
    if isfile(self.filename):
        import codecs
        s = codecs.open(self.filename, 'w', 'utf-8')
        s.write(unicode(self.ui.editor_window.toPlainText()))
        s.close()
        self.ui.button_save.setEnabled(False)

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())

```

增加以下连接:

```

QtCore.QObject.connect(self.ui.editor_window, QtCore.SIGNAL("textChanged()"),
self.enable_save)
def enable_save(self):
    self.ui.button_save.setEnabled(True)

```

当我们修改文本的时候, `file_dialog` 函数将由 `"textChanged()"` 触发, 因此我们在函数末尾应该禁止 `"Save"` 按钮:

```

self.ui.editor_window.setPlainText(s)
# inserting text emits textChanged() so we disable the button :)

```

```
self.ui.button_save.setEnabled(False)
```

保存修改

如果修改了文件没有保存的时候，又尝试打开新的文件，我们应该给出相关的提示信息。 可以使用 `QMessageBox` 提供的功能：

```
message = QtGui.QMessageBox(self)
message.exec_()
```



提示窗口还需要进一步改进，增加一些按钮和信息。首先修改 `file_dialog` 函数，如果文本没有被保存的时候 显示提示消息。但是怎么才能知道文本没有被保存呢？答案是"Save"没有被禁用（`self.ui.button_save.isEnabled()`）。修改 `start.py`：

```
# -*- coding: utf-8 -*-
import sys
from PyQt4 import QtCore, QtGui
from edytor import Ui_notatnik

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_notepad()
        self.ui.setupUi(self)
        self.filename = None

QtCore.QObject.connect(self.ui.button_open, QtCore.SIGNAL("clicked()"),
self.file_dialog)

QtCore.QObject.connect(self.ui.button_save, QtCore.SIGNAL("clicked()"),
self.file_save)

QtCore.QObject.connect(self.ui.editor_window, QtCore.SIGNAL("textChanged()"),
self.enable_save)

    def file_dialog(self):
        response = False
```



```

# buttons texts
SAVE = 'Save'
DISCARD = 'Discard'
CANCEL = 'Cancel'

# if we have changes then ask about them
if self.ui.button_save.isEnabled() and self.filename:
    message = QtGui.QMessageBox(self)
    message.setText('What to do about unsaved changes ?')
    message.setWindowTitle('Notepad')
    message.setIcon(QtGui.QMessageBox.Question)
    message.addButton(SAVE, QtGui.QMessageBox.AcceptRole)
    message.addButton(DISCARD,
QtGui.QMessageBox.DestructiveRole)
    message.addButton(CANCEL, QtGui.QMessageBox.RejectRole)
    message.setDetailedText('Unsaved changes in file: ' +
str(self.filename))

    message.exec_()
    response = message.clickedButton().text()
    # save file
    if response == SAVE:
        self.file_save()
        self.ui.button_save.setEnabled(False)
    # discard changes
    elif response == DISCARD:
        self.ui.button_save.setEnabled(False)
# if we didn't cancelled show the file dialogue
if response != CANCEL:
    fd = QtGui.QFileDialog(self)
    self.filename = fd.getOpenFileName()
    from os.path import isfile
    if isfile(self.filename):
        import codecs
        s = codecs.open(self.filename, 'r', 'utf-8').read()
        self.ui.editor_window.setPlainText(s)
        self.ui.button_save.setEnabled(False)

def enable_save(self):
    self.ui.button_save.setEnabled(True)

def file_save(self):
    from os.path import isfile

```

```

        if isfile(self.filename):
            import codecs
            s = codecs.open(self.filename, 'w', 'utf-8')
            s.write(unicode(self.ui.editor_window.toPlainText()))
            s.close()
            self.ui.button_save.setEnabled(False)

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())

```

新增加的代码如下：

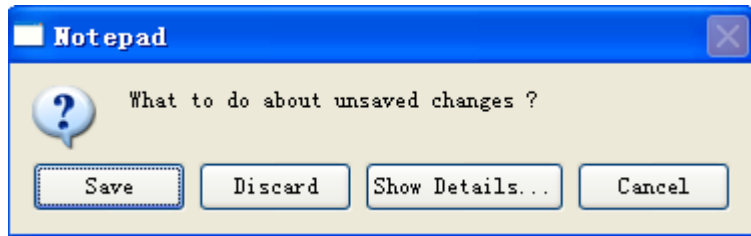
```

response = False
# buttons texts
SAVE = 'Save'
DISCARD = 'Discard'
CANCEL = 'Cancel'
# if we have changes then ask about them
if self.ui.button_save.isEnabled() and self.filename:
    message = QtGui.QMessageBox(self)
    message.setText('What to do about unsaved changes ?')
    message.setWindowTitle('Notepad')
    message.setIcon(QtGui.QMessageBox.Question)
    message.addButton(SAVE, QtGui.QMessageBox.AcceptRole)
    message.addButton(DISCARD, QtGui.QMessageBox.DestructiveRole)
    message.addButton(CANCEL, QtGui.QMessageBox.RejectRole)
    message.setDetailedText('Unsaved changes in file: ' + str(self.filename))
    message.exec_()
    response = message.clickedButton().text()
    # save file
    if response == SAVE:
        self.file_save()
        self.ui.button_save.setEnabled(False)
    # discard changes
    elif response == DISCARD:
        self.ui.button_save.setEnabled(False)

```

```
# if we didn't cancelled show the file dialogue  
if response != CANCEL:
```

我们使用 `QtGui.QMessageBox` 生成信息提示框，然后设置文本信息、标题、图标、并且增件了三个按钮。第二个参数设置每个按钮对应的 `ButtonRole`（具体细节可以参考文档）。`setDetailedText` 设置详细的提示信息。然后通过 `exec_()` 来运行消息提示框。消息框返回被按下的按钮值，因此我们可以根据返回值来选择下一步要进行的操作。消息框外观如下：

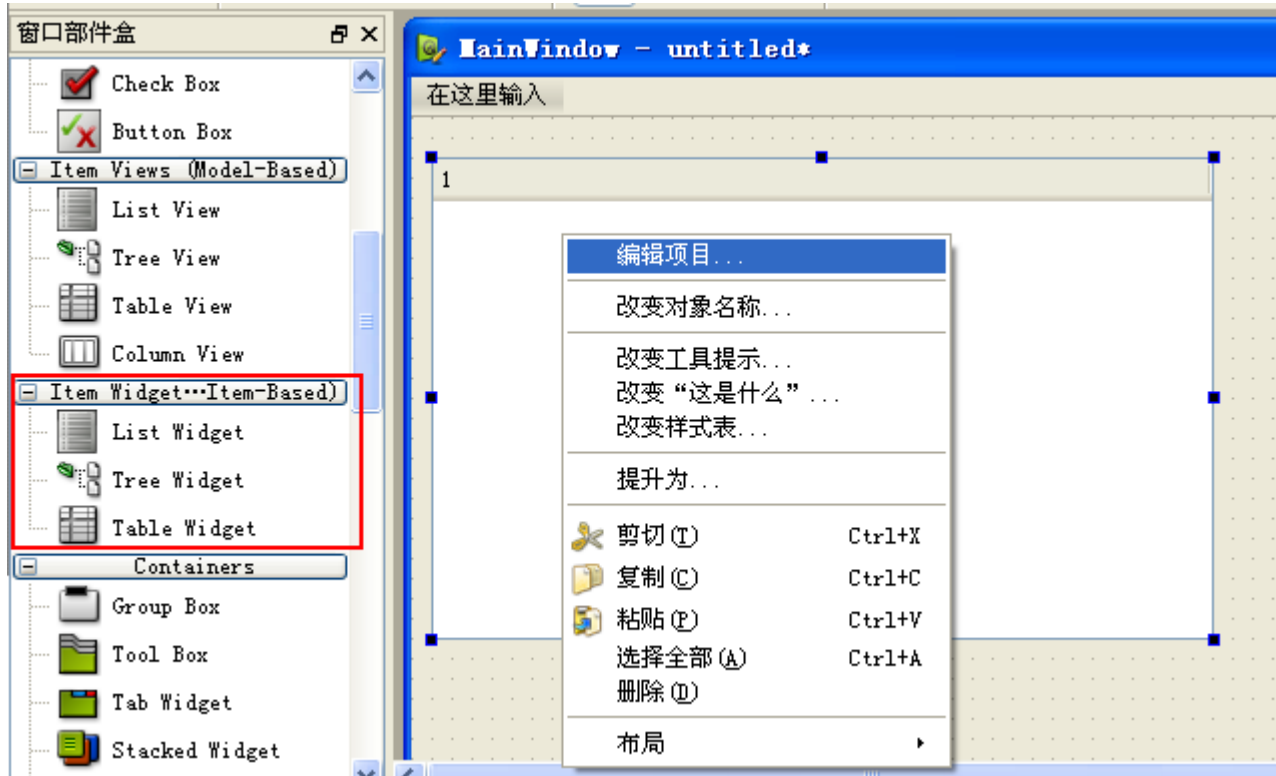


QYolk I - PyQt4 中的列表部件

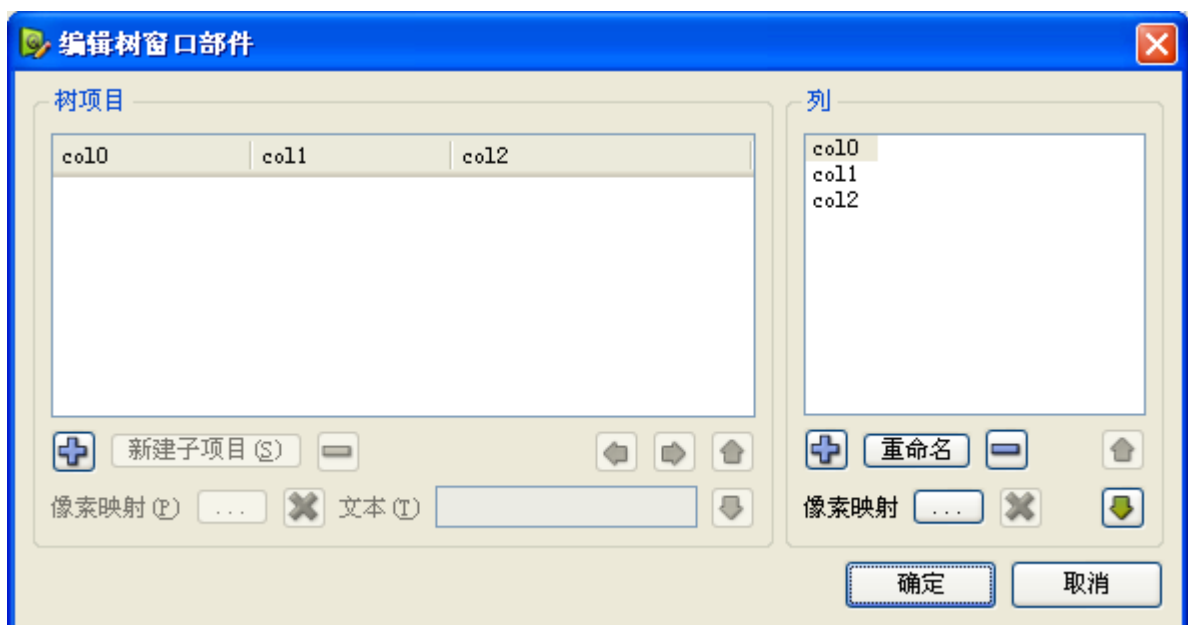
注解:

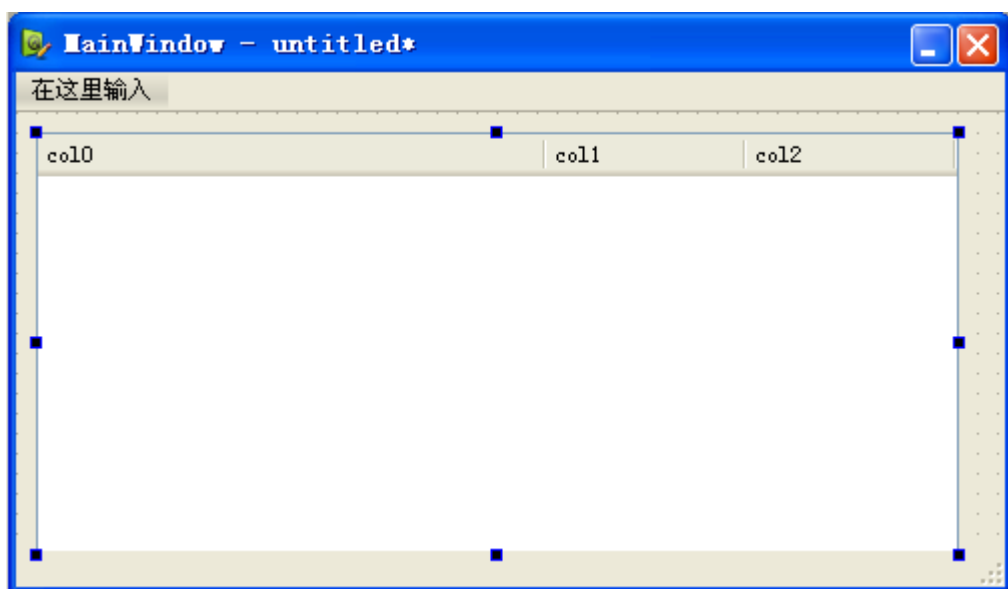
yolk的安装步骤请参考 [安装yolk](#)

在 PyQt4 中我们有三种列表部件可以使用: List View、Tree View 和 Table View。这些部件都可以在列表框架 中使用 (Model and Item Based)。这里我们使用的是 Item Based:



在这个例子中, 我们使用的是 Tree View。当你在 Tree View 部件上点击鼠标右键时, 会出现“编辑项目”选项, 通过它可以给部件增加列。需要注意的是列从 0 开始编号:





Tree View 给我们提供了丰富的功能，具体细节请参考文档。

QYolk

Yolk 可以通过 `easy_install` 命令安装：

```
easy_install yolk
```

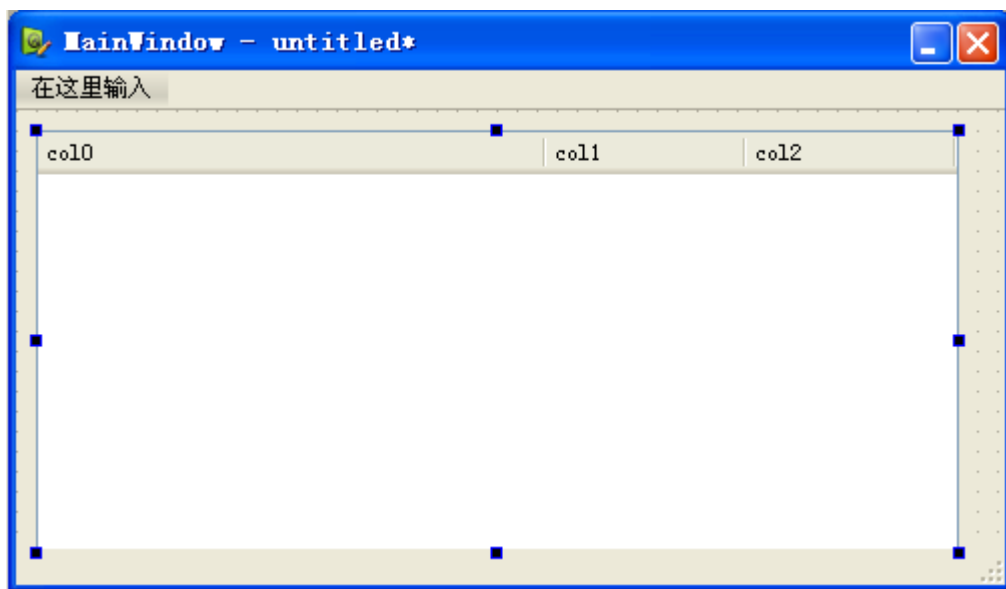
运行命令：

```
yolk -l
```

可以看到已经安装的包。我们将要把这些包列表通过 `QtreeWidget` 显示出来。数据通过以下方式获取：

```
from yolk import yolklib
packages = yolklib.Distributions()
for pkg in packages.get_distributions('all'):
    print pkg[0]
    print pkg[1]
    print '#####'
```

函数 `get_distributions` 返回包的信息：name + version，以及包的状态（Active/not-active）。我们把 列表部件命名为 `treeList`，把窗口命名为 `QYolk`，然后保存到 `qyolk.ui`。生成 `qyolk.py` 文件：



创建 start.py 文件:

```
# -*- coding: utf-8 -*-
import sys
from PyQt4 import QtCore, QtGui
from qyolk import Ui_QYolk
from yolk import yolklib

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_QYolk()
        self.ui.setupUi(self)
        # set the widths of the columns
        self.ui.treeList.setColumnWidth(0,200)
        self.ui.treeList.setColumnWidth(1,100)

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())
```

`setColumnWidth` 用于设置 `QTreeView` 中每列的宽度。0 对应第一列，1 对应第二列。下面我们利用 `QTreeWidgetItem` 向列表中添加数据:

```

a = QtGui.QTreeWidgetItem(self.ui.treeList)
a.setText(0, 'a')
a.setText(1, 'b')
a.setText(2, 'c')

```

`QTreeWidgetItem` 需要指定一个 `QTreeWidget` 对象, 表示要添加数据的列表。方法 `setText(Column ID, Text)` 用来设置对应列的数据。我们通过一个循环来完成操作:

```

# -*- coding: utf-8 -*-
import sys
from PyQt4 import QtCore, QtGui
from qyolk import Ui_QYolk
from yolk import yolklib

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_QYolk()
        self.ui.setupUi(self)
        # set the widths of the columns
        self.ui.treeList.setColumnWidth(0,200)
        self.ui.treeList.setColumnWidth(1,100)
        # generator which returns list of installed packages
        packages = yolklib.Distributions()
        for pkg in packages.get_distributions('all'):
            a = QtGui.QTreeWidgetItem(self.ui.treeList)
            pk = str(pkg[0]).split(' ')
            if pkg[1]:
                status = 'Active'
            else:
                status = 'Not Active'
            a.setText(0, pk[0])
            a.setText(1, pk[1])
            a.setText(2, status)

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()

```

```
sys.exit(app.exec_())
```

列表数据已经读出来了。我们还可以根据包的活动状态设置不同的颜色：

```
# -*- coding: utf-8 -*-
import sys
from PyQt4 import QtCore, QtGui
from qyolk import Ui_QYolk
from yolk import yolllib

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_QYolk()
        self.ui.setupUi(self)
        # set the widths of the columns
        self.ui.treeList.setColumnWidth(0,200)
        self.ui.treeList.setColumnWidth(1,100)
        # generator which returns list of installed packages
        packages = yolllib.Distributions()
        for pkg in packages.get_distributions('all'):
            a = QtGui.QTreeWidgetItem(self.ui.treeList)
            pk = str(pkg[0]).split(' ')
            if pkg[1]:
                status = 'Active'
                a.setTextColor(0, QtGui.QColor(0, 0, 255))
                a.setTextColor(1, QtGui.QColor(0, 0, 255))
                a.setTextColor(2, QtGui.QColor(0, 0, 255))
            else:
                status = 'Not Active'
                a.setTextColor(0, QtGui.QColor(128, 128, 128))
                a.setTextColor(1, QtGui.QColor(128, 128, 128))
                a.setTextColor(2, QtGui.QColor(128, 128, 128))
            a.setText(0, pk[0])
            a.setText(1, pk[1])
            a.setText(2, status)

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
```



```
myapp = StartQt4()  
myapp.show()  
sys.exit(app.exec_())
```

setTextColor(Column ID, QtGui.QColor(R, G, B))根据 RGB 来设置颜色。下面是运行效果:



安装yolk

注解:

该节为译者补充

由于我在自己的电脑上一直没有成功安装 `easy_install`, 因此只好手工安装 `yolk` 了。这里是在 Win-XP 下安装 `yolk` 步骤。

- 下载 [setuptools-0.6c7.win32-py2.5.exe](#)
- 下载 [yolk-0.0.7.tar.gz](#)

从本地下载:

- 下载 [setuptools-0.6c7.win32-py2.5.exe](#)
- 下载 [yolk-0.0.7.tar.gz](#)

首先安装 `setuptools`, 然后将 `yolk-0.0.7` 压缩包中的 `yolk` 子目录复制到 `Python25-packages` 中。现在应该就可以使用了 :)

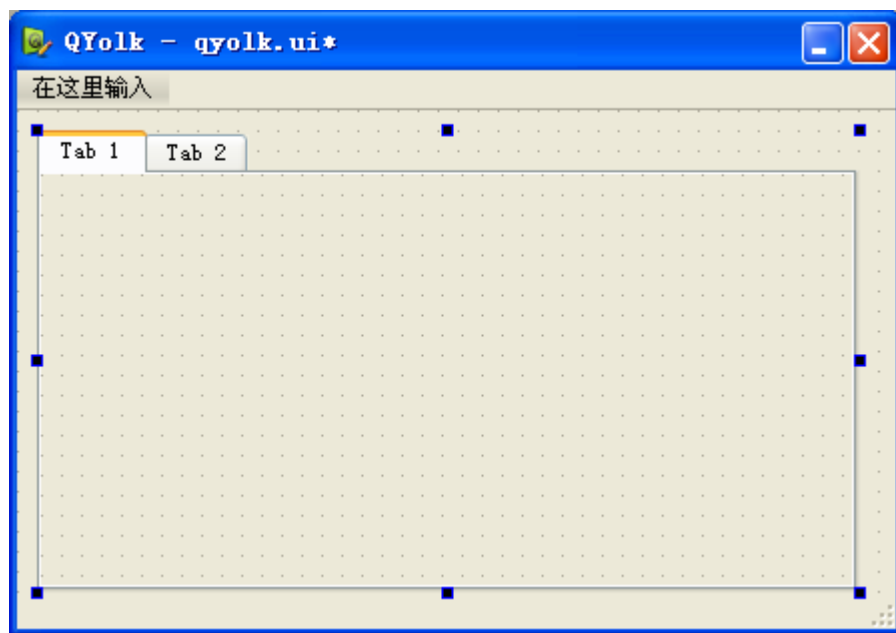
QYolk II - 容器部件

在这节教程中，我们将使用容器部件——Tab Widget。下图是上次教程实现的程序：



现在我们将使用 Tab Widget 在三个 tab 中分别显示 all packages/active/not active 包列表。

在 QtDesigner 中创建一个 Tab Widget，然后在第一个 tab 中创建一个 tree widget。当你把一个部件 放置到其他的容器部件中的时候，容器部件会高亮显示。如果你要编辑主窗口中的部件，主窗口也 会高亮显示。



通过右键菜单给 Tab Widget 添加 tab 页。然后在属性编辑器中修改每个标签页显示的文本。并且从第一个 tab 中 复制 tree widget 到后两个 tab 页中。



QtabWidget 重新命名为"pkgTabs"。三个 tree widget 分别命名为 "allList"/"activeList"/"notActiveList"。 QLabel 部件重新命名为"infoLabel"（目前还没有用到）。然后修改 start.py:

```
# -*- coding: utf-8 -*-
import sys
from PyQt4 import QtCore, QtGui
from qyolk import Ui_QYolk
from yolk import yolklib

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_QYolk()
        self.ui.setupUi(self)
        # set the widths of the columns
        #####
        # All packages
        #####
        self.ui.allList.setColumnWidth(0,200)
        self.ui.allList.setColumnWidth(1,100)
        # generator which returns list of installed packages
        packages = yolklib.Distributions()
        for pkg in packages.get_distributions('all'):
```

```

        a = QtGui.QTreeWidgetItem(self.ui.allList)
        pk = str(pkg[0]).split(' ')
        if pkg[1]:
            status = 'Active'
        else:
            status = 'Not Active'
            a.setText(0, QtGui.QColor(128, 128, 128))
            a.setText(1, QtGui.QColor(128, 128, 128))
            a.setText(2, QtGui.QColor(128, 128, 128))
        a.setText(0, pk[0])
        a.setText(1, pk[1])
        a.setText(2, status)
#####
# Active Packages
#####
# set the widths of the columns
self.ui.activeList.setColumnWidth(0,200)
self.ui.activeList.setColumnWidth(1,100)
# generator which returns list of active packages
for pkg in packages.get_distributions('active'):
    a = QtGui.QTreeWidgetItem(self.ui.activeList)
    pk = str(pkg[0]).split(' ')
    a.setText(0, pk[0])
    a.setText(1, pk[1])
    a.setText(2, 'Active')
#####
# Not Active Packages
#####
# set the widths of the columns
self.ui.notActiveList.setColumnWidth(0,200)
self.ui.notActiveList.setColumnWidth(1,100)
# generator which returns list of not active packages
for pkg in packages.get_distributions('nonactive'):
    a = QtGui.QTreeWidgetItem(self.ui.notActiveList)
    pk = str(pkg[0]).split(' ')
    a.setText(0, pk[0])
    a.setText(1, pk[1])
    a.setText(2, 'Not Active')

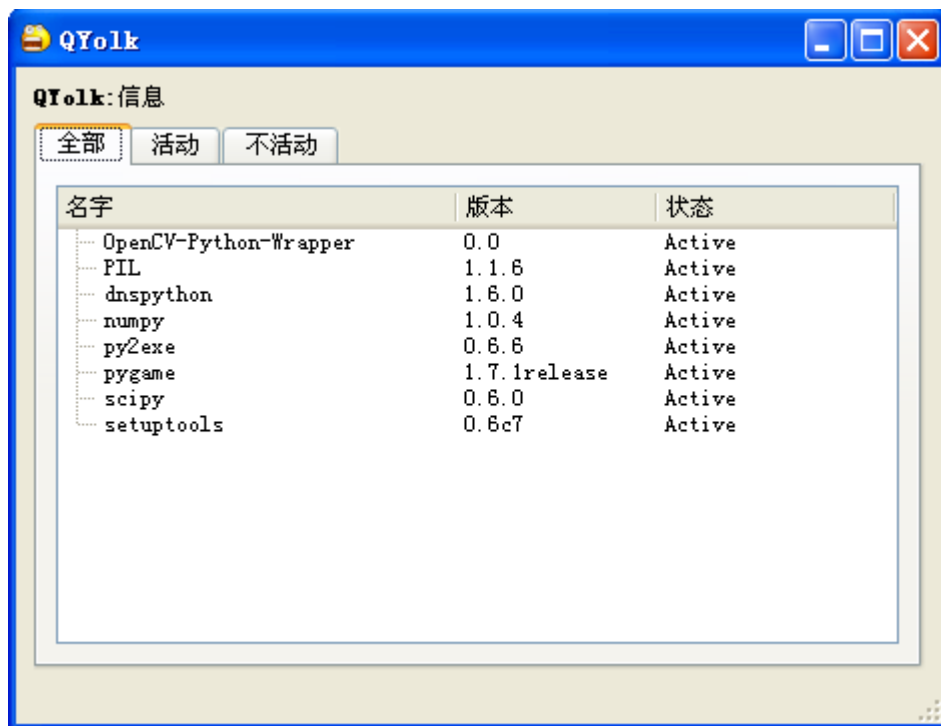
```

```

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())

```

运行结果：



有参数的Signals/Slots

在切换 QtabWidget 的 tab 页的时候，会发射 currentChanged 信号：

```
void currentChanged (int)
```

该信号有一个 int 类型的参数。之前我们使用的信号都是没有参数的。在这里，int 参数对应 tab 页的编号，并且每个 tab 页从 0 开始顺序编号。我们在连接 Signals/Slots 的时候，给 Slots 函数增加一个参数：

```

QtCore.QObject.connect(self.ui.pkgTabs,QtCore.SIGNAL("currentChanged(int)"),
self.tab_change)
def tab_change(self, tab_id):
    print tab_id

```

tab_id 是我们增加的一个参数，表示切换 tab 页的编号。signal 的参数和 slot 的参数依次对应。这样我们 就可以在切换 tab 页的时候，同步更新提示信息：

```

# -*- coding: utf-8 -*-
import sys
from PyQt4 import QtCore, QtGui
from qyolk import Ui_QYolk
from yolk import yolllib

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_QYolk()
        self.ui.setupUi(self)
        # set the widths of the columns
        #####
        # All packages
        #####
        self.ui.allList.setColumnWidth(0,200)
        self.ui.allList.setColumnWidth(1,100)
        # generator which returns list of installed packages
        packages = yolllib.Distributions()
        for pkg in packages.get_distributions('all'):
            a = QtGui.QTreeWidgetItem(self.ui.allList)
            pk = str(pkg[0]).split(' ')
            if pkg[1]:
                status = 'Active'
            else:
                status = 'Not Active'
            a.setTextColor(0, QtGui.QColor(128, 128, 128))
            a.setTextColor(1, QtGui.QColor(128, 128, 128))
            a.setTextColor(2, QtGui.QColor(128, 128, 128))
            a.setText(0, pk[0])
            a.setText(1, pk[1])
            a.setText(2, status)
        #####
        # Active Packages
        #####
        # set the widths of the columns
        self.ui.activeList.setColumnWidth(0,200)
        self.ui.activeList.setColumnWidth(1,100)
        # generator which returns list of active packages

```

```

        for pkg in packages.get_distributions('active'):
            a = QtGui.QTreeWidgetItem(self.ui.activeList)
            pk = str(pkg[0]).split(' ')
            a.setText(0, pk[0])
            a.setText(1, pk[1])
            a.setText(2, 'Active')

#####
# Not Active Packages
#####
# set the widths of the columns
self.ui.notActiveList.setColumnWidth(0,200)
self.ui.notActiveList.setColumnWidth(1,100)
# generator which returns list of not-active packages
for pkg in packages.get_distributions('nonactive'):
    a = QtGui.QTreeWidgetItem(self.ui.notActiveList)
    pk = str(pkg[0]).split(' ')
    a.setText(0, pk[0])
    a.setText(1, pk[1])
    a.setText(2, 'Not Active')

# Signals

QtCore.QObject.connect(self.ui.pkgTabs,QtCore.SIGNAL("currentChanged(int)"),
self.tab_change)

    def tab_change(self, tab_id):
        if tab_id == 0:
            self.ui.infoLabel.setText('<b>QYolk</b>: Browsing all
installed cheeseshop packages')
        elif tab_id == 1:
            self.ui.infoLabel.setText('<b>QYolk</b>: Browsing active
packages')
        elif tab_id == 2:
            self.ui.infoLabel.setText('<b>QYolk</b>: Browsing not
active packages (older versions)')

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()

```

```
sys.exit(app.exec_())
```

这里我们使用 `self.ui.infoLabel.setText` 来修改提示信息。下个 QYolk 程序我们将实现更多的功能。

PyQt4 文本编辑器 - 最终版

我们先描述新的特性：1. 使用 `QFileSystemWatcher` 来提示文件是否被外部改变；2. 创建并保存保存新的文件。 下面是 `start.py` 文件：

```
# -*- coding: utf-8 -*-
import sys
from PyQt4 import QtCore, QtGui
from edytor import Ui_notepad
import codecs
import codecs
from os.path import isfile

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_notepad()
        self.ui.setupUi(self)
        self.watcher = QtCore.QFileSystemWatcher(self)

QtCore.QObject.connect(self.ui.button_open, QtCore.SIGNAL("clicked()"),
self.file_dialog)

QtCore.QObject.connect(self.ui.button_save, QtCore.SIGNAL("clicked()"),
self.file_save)

QtCore.QObject.connect(self.ui.editor_window, QtCore.SIGNAL("textChanged()"),
self.enable_save)

QtCore.QObject.connect(self.watcher, QtCore.SIGNAL("fileChanged(const
QString&)" ), self.file_changed)
        self.filename = False
    def file_dialog(self):
        response = False
        # buttons texts
        SAVE = 'Save'
        DISCARD = 'Discard Changes'
        CANCEL = 'Cancel'
        # if we have changes then ask about them
        if self.ui.button_save.isEnabled():
```

```

        message = QtGui.QMessageBox(self)
        message.setText("Changes haven't been saved")
        message.setWindowTitle('Notepad')
        message.setIcon(QtGui.QMessageBox.Question)
        message.addButton(SAVE, QtGui.QMessageBox.AcceptRole)
        message.addButton(DISCARD,
QtGui.QMessageBox.DestructiveRole)
        message.addButton(CANCEL, QtGui.QMessageBox.RejectRole)
        message.setDetailedText('Unsaved Changes in: ' +
str(self.filename))
        message.exec_()
        response = message.clickedButton().text()
        # save file
        if response == SAVE:
            self.file_save()
            self.ui.button_save.setEnabled(False)
        # discard changes
        elif response == DISCARD:
            self.ui.button_save.setEnabled(False)
        # if we didn't canceled show the file dialog
        if response != CANCEL:
            fd = QtGui.QFileDialog(self)
            # remove old file from watcher
            if self.filename:
                self.watcher.removePath(self.filename)
            self.filename = fd.getOpenFileName()
            if isfile(self.filename):
                s = codecs.open(self.filename, 'r', 'utf-8').read()
                self.ui.editor_window.setPlainText(s)
                self.ui.button_save.setEnabled(False)
                # add file to watcher
                self.watcher.addPath(self.filename)

def enable_save(self):
    self.ui.button_save.setEnabled(True)

def file_changed(self, path):
    response = False
    # buttons texts
    SAVE = 'Save As'

```

```

RELOAD = 'Reload File'
CANCEL = 'Cancel'
message = QtGui.QMessageBox(self)
message.setText('Open file have been changed !')
message.setWindowTitle('Notepad')
message.setIcon(QtGui.QMessageBox.Warning)
message.addButton(SAVE, QtGui.QMessageBox.AcceptRole)
message.addButton(RELOAD, QtGui.QMessageBox.DestructiveRole)
message.addButton(CANCEL, QtGui.QMessageBox.RejectRole)
message.setDetailedText('The file "' + str(path) + '" have been
changed or removed by other application. What do you want to do ?')
message.exec_()
response = message.clickedButton().text()
# save current file under a new or old name
if response == SAVE:
    fd = QtGui.QFileDialog(self)
    newfile = fd.getSaveFileName()
    if newfile:
        s = codecs.open(newfile, 'w', 'utf-8')

s.write(unicode(self.ui.editor_window.toPlainText()))
s.close()
self.ui.button_save.setEnabled(False)
# new file, remove old and add the new one to the watcher
if self.filename and str(newfile) !=
str(self.filename):
    self.watcher.removePath(self.filename)
    self.watcher.addPath(newfile)
    self.filename = newfile

# reload the text in the editor
elif response == RELOAD:
    s = codecs.open(self.filename, 'r', 'utf-8').read()
    self.ui.editor_window.setPlainText(s)
    self.ui.button_save.setEnabled(False)

def file_save(self):
    # save changes to existing file
    if self.filename and isfile(self.filename):
        # don't react on our changes

```

```

        self.watcher.removePath(self.filename)
        s = codecs.open(self.filename, 'w', 'utf-8')
        s.write(unicode(self.ui.editor_window.toPlainText()))
        s.close()

        self.ui.button_save.setEnabled(False)
        self.watcher.addPath(self.filename)

    # save a new file
    else:
        fd = QtGui.QFileDialog(self)
        newfile = fd.getSaveFileName()
        if newfile:
            s = codecs.open(newfile, 'w', 'utf-8')

s.write(unicode(self.ui.editor_window.toPlainText()))
        s.close()
        self.ui.button_save.setEnabled(False)

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())

```

函数 `file_changed(self, path)` 在文件被外部程序修改的时候，由 `QFileSystemWatcher` 的 `fileChanged(const QString&)` 信号引发：

```

def file_changed(self, path):
    response = False
    # buttons texts
    SAVE = 'Save As'
    RELOAD = 'Reload File'
    CANCEL = 'Cancel'
    message = QtGui.QMessageBox(self)
    message.setText('Open file have been changed !')
    message.setWindowTitle('Notepad')
    message.setIcon(QtGui.QMessageBox.Warning)
    message.addButton(SAVE, QtGui.QMessageBox.AcceptRole)
    message.addButton(RELOAD, QtGui.QMessageBox.DestructiveRole)
    message.addButton(CANCEL, QtGui.QMessageBox.RejectRole)

```

```

        message.setDetailedText('The file "' + str(path) + '" have been
changed or removed by other application. What do you want to do ?')

        message.exec_()

        response = message.clickedButton().text()

        # save current file under a new or old name
        if response == SAVE:

            fd = QtGui.QFileDialog(self)
            newfile = fd.getSaveFileName()

            if newfile:

                s = codecs.open(newfile, 'w', 'utf-8')

s.write(unicode(self.ui.editor_window.toPlainText()))

                s.close()

                self.ui.button_save.setEnabled(False)

                # new file, remove old and add the new one to the watcher
                if self.filename and str(newfile) !=
str(self.filename):

                    self.watcher.removePath(self.filename)

                    self.watcher.addPath(newfile)

                    self.filename = newfile

                # reload the text in the editor
            elif response == RELOAD:

                s = codecs.open(self.filename, 'r', 'utf-8').read()

                self.ui.editor_window.setPlainText(s)

                self.ui.button_save.setEnabled(False)

```

通过 **QMessageBox** 让用户选择，是重新装载文件，还是将当前文件作为一个新文件重新保存。保存文件名通过 **QFileDialog** 的 **getSaveFileName** 获取。在使用 **QFileSystemWatcher** 的时候，我们需要通过 **adding/removing** 来添加/删除要观察的路径列表。

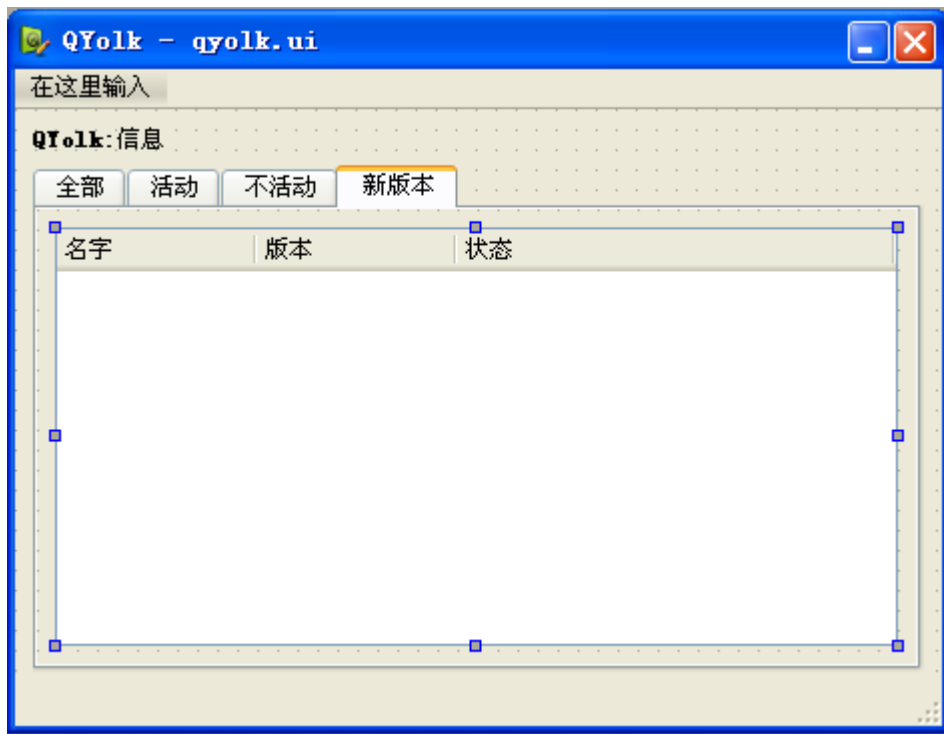
QYolk III - 升级包列表

在这个练习中，我们将增加一个 **tab** 页，用于显示- 升级包列表。通过下面代码获取列表：

```
from yolk.cli import get_pkglist
from yolk.yolklib import get_highest_version, Distributions
from yolk.pypi import CheeseShop
import pkg_resources

def get_fresh_updates(package_name="", version=""):
    ret = []
    pypi = CheeseShop()
    dists = Distributions()
    for pkg in get_pkglist():
        for (dist, active) in dists.get_distributions("all", pkg,
dists.get_highest_installed(pkg)):
            (project_name, versions) =
pypi.query_versions_pypi(dist.project_name, True)
            if versions:
                newest = get_highest_version(versions)
                if newest != dist.version:
                    if
pkg_resources.parse_version(dist.version) <
pkg_resources.parse_version(newest):
                        ret.append([project_name,
dist.version, newest])
    return ret
print get_fresh_updates()
```

在检测包是否有新版本的时候，运行速度可能有些慢。在后面我们会设计一个缓冲来处理这个问题。先给 **QtreeWidget** 添加一个 **tab** 页，里面包含一个名字为"updatesList"的 tree list。



更新 start.py:

```
# -*- coding: utf-8 -*-
import sys
from PyQt4 import QtCore, QtGui
from qyolk import Ui_QYolk
from yolk import yolllib

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_QYolk()
        self.ui.setupUi(self)
        # set the widths of the columns
        #####
        # All packages
        #####
        self.ui.allList.setColumnWidth(0,200)
        self.ui.allList.setColumnWidth(1,100)
        # generator which returns list of installed packages
        packages = yolllib.Distributions()
        for pkg in packages.get_distributions('all'):
            a = QtGui.QTreeWidgetItem(self.ui.allList)
```

```

        pk = str(pkg[0]).split(' ')
        if pkg[1]:
            status = 'Active'
        else:
            status = 'Not Active'
            a.setText(0, QtGui.QColor(128, 128, 128))
            a.setText(1, QtGui.QColor(128, 128, 128))
            a.setText(2, QtGui.QColor(128, 128, 128))
        a.setText(0, pk[0])
        a.setText(1, pk[1])
        a.setText(2, status)

#####
# Active Packages
#####
# set the widths of the columns
self.ui.activeList.setColumnWidth(0,200)
self.ui.activeList.setColumnWidth(1,100)
# generator which returns list of active packages
for pkg in packages.get_distributions('active'):
    a = QtGui.QTreeWidgetItem(self.ui.activeList)
    pk = str(pkg[0]).split(' ')
    a.setText(0, pk[0])
    a.setText(1, pk[1])
    a.setText(2, 'Active')

#####
# Not Active Packages
#####
# set the widths of the columns
self.ui.notActiveList.setColumnWidth(0,200)
self.ui.notActiveList.setColumnWidth(1,100)
# generator which returns list of not-active packages
for pkg in packages.get_distributions('nonactive'):
    a = QtGui.QTreeWidgetItem(self.ui.notActiveList)
    pk = str(pkg[0]).split(' ')
    a.setText(0, pk[0])
    a.setText(1, pk[1])
    a.setText(2, 'Not Active')

# Signals

```



```

QtCore.QObject.connect(self.ui.pkgTabs,QtCore.SIGNAL("currentChanged(int)"),
self.tab_change)

def tab_change(self, tab_id):
    if tab_id == 0:
        self.ui.infoLabel.setText('<b>QYolk</b>: Browsing all
installed cheeseshop packages')
    elif tab_id == 1:
        self.ui.infoLabel.setText('<b>QYolk</b>: Browsing active
packages')
    elif tab_id == 2:
        self.ui.infoLabel.setText('<b>QYolk</b>: Browsing not
active packages (older versions)')
    elif tab_id == 3:
        self.ui.infoLabel.setText('<b>QYolk</b>: Browsing
available updates')

        #####
        # List Updates
        #####
        # set the widths of the columns
        self.ui.updatesList.setColumnWidth(0,200)
        self.ui.updatesList.setColumnWidth(1,150)
        for pkg in get_fresh_updates():
            a = QtGui.QTreeWidgetItem(self.ui.updatesList)
            a.setText(0, pkg[0])
            a.setText(1, pkg[1])
            a.setText(2, pkg[2])

from yolk.cli import get_pkglist
from yolk.yolklib import get_highest_version, Distributions
from yolk.pypi import CheeseShop
import pkg_resources

def get_fresh_updates(package_name="", version=""):
    ret = []
    pypi = CheeseShop()
    dists = Distributions()
    for pkg in get_pkglist():
        for (dist, active) in dists.get_distributions("all", pkg,
dists.get_highest_installed(pkg)):

```

```

        (project_name, versions) =
pypi.query_versions_pypi(dist.project_name, True)

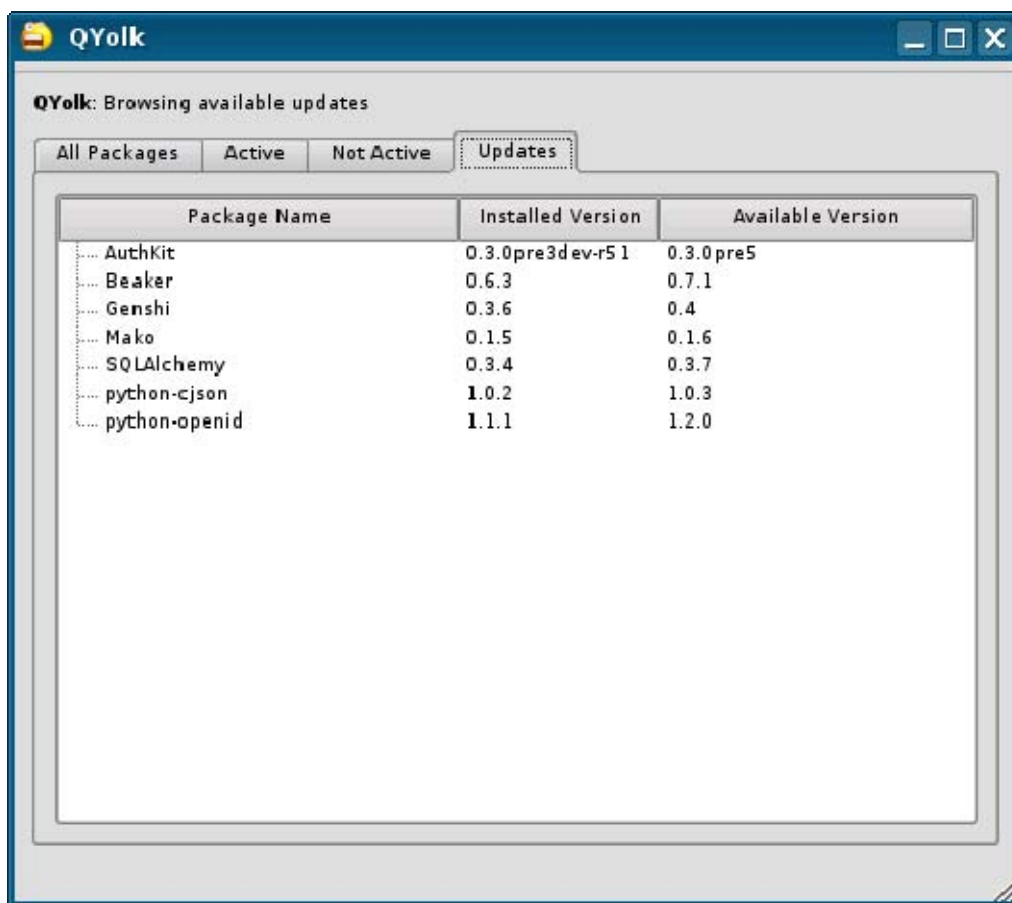
        if versions:
            newest = get_highest_version(versions)
            if newest != dist.version:
                if
pkg_resources.parse_version(dist.version) <
pkg_resources.parse_version(newest):
                    ret.append([project_name,
dist.version, newest])

        return ret

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())

```

译者：这里我没有运行成功，因此用的是原网站的截图。



新改动是在 `get_fresh_updates` 函数中，增加了新 tab 页的处理：

```

elif tab_id == 3:

    self.ui.infoLabel.setText('<b>QYolk</b>: Browsing
available updates')

    #####
    # List Updates
    #####

    # set the widths of the columns
    self.ui.updatesList.setColumnWidth(0,200)
    self.ui.updatesList.setColumnWidth(1,150)

    for pkg in get_fresh_updates():

        a = QtGui.QTreeWidgetItem(self.ui.updatesList)
        a.setText(0, pkg[0])
        a.setText(1, pkg[1])
        a.setText(2, pkg[2])

```

当切换到"Updates" tab 的时候，可能会花一些时间（依赖网络环境）。我们使用 **Pickle** 来缓冲信息：

```

from os.path import expanduser
import cPickle
userpath = expanduser('~')
f = open(userpath + '/test', 'w')
cPickle.dump(['a', 'b', 'c'], f)

```

读 pickled 数据：

```

f = open(userpath + '/test', 'r')
print cPickle.load(f)

```

给 `get_fresh_updates` 增加缓冲：

```

def get_fresh_updates(package_name="", version=""):
    userpath = expanduser('~')
    now = datetime.now()
    # do we have the cache
    if isfile(userpath + '/.qyolk'):
        f = open(userpath + '/.qyolk', 'r')
        cache = cPickle.load(f)
        check_time = now - timedelta(hours=24)
        if cache[0] > check_time:

```

```

        # fresh cache, use it
        return cache[1]

    # no cache, get updates and create the cace
    ret = []
    pypi = CheeseShop()
    dists = Distributions()
    for pkg in get_pkglist():
        for (dist, active) in dists.get_distributions("all", pkg,
dists.get_highest_installed(pkg)):
            (project_name, versions) =
pypi.query_versions_pypi(dist.project_name, True)
            if versions:
                newest = get_highest_version(versions)
                if newest != dist.version:
                    if
pkg_resources.parse_version(dist.version) <
pkg_resources.parse_version(newest):
                        ret.append([project_name,
dist.version, newest])
            f = open(userpath + '/.qyolk', 'w')
            cPickle.dump([now, ret], f)
    return ret

```

cPickle 保存一个列表[Date, list of upgrades]。我们检测缓冲文件是否存在，如果存在检测文件是否大于 24 小时没有更新。 如果文件不存在，我们将创建一个新的缓冲文件。下面是 **start.py**:

```

# -*- coding: utf-8 -*-
import sys
from PyQt4 import QtCore, QtGui
from qyolk import Ui_QYolk
from yolk import yolklib
from os.path import expanduser
import cPickle
from yolk.cli import get_pkglist
from yolk.yolklib import get_highest_version, Distributions
from yolk.pypi import CheeseShop
import pkg_resources
from os.path import isfile
from datetime import timedelta

```

```

from datetime import datetime

class StartQt4(QtGui.QMainWindow):
    def __init__(self, parent=None):
        QtGui.QWidget.__init__(self, parent)
        self.ui = Ui_QYolk()
        self.ui.setupUi(self)

        #splash = QtGui.QSplashScreen(self)
        #splash.drawContents()

        #####
        # All packages
        #####
        self.ui.allList.setColumnWidth(0,200)
        self.ui.allList.setColumnWidth(1,100)
        # generator which returns list of installed packages
        packages = yolklib.Distributions()
        for pkg in packages.get_distributions('all'):
            a = QtGui.QTreeWidgetItem(self.ui.allList)
            pk = str(pkg[0]).split(' ')
            if pkg[1]:
                status = 'Active'
            else:
                status = 'Not Active'
            a.setTextColor(0, QtGui.QColor(128, 128, 128))
            a.setTextColor(1, QtGui.QColor(128, 128, 128))
            a.setTextColor(2, QtGui.QColor(128, 128, 128))
            a.setText(0, pk[0])
            a.setText(1, pk[1])
            a.setText(2, status)

        #####
        # Active Packages
        #####
        # set the widths of the columns
        self.ui.activeList.setColumnWidth(0,200)
        self.ui.activeList.setColumnWidth(1,100)
        # generator which returns list of active packages
        for pkg in packages.get_distributions('active'):

```

```

        a = QtGui.QTreeWidgetItem(self.ui.activeList)
        pk = str(pkg[0]).split(' ')
        a.setText(0, pk[0])
        a.setText(1, pk[1])
        a.setText(2, 'Active')
#####
# Not Active Packages
#####
# set the widths of the columns
self.ui.notActiveList.setColumnWidth(0,200)
self.ui.notActiveList.setColumnWidth(1,100)
# generator which returns list of not-active packages
for pkg in packages.get_distributions('nonactive'):
    a = QtGui.QTreeWidgetItem(self.ui.notActiveList)
    pk = str(pkg[0]).split(' ')
    a.setText(0, pk[0])
    a.setText(1, pk[1])
    a.setText(2, 'Not Active')
#####
# List Updates
#####
# set the widths of the columns
self.ui.updatesList.setColumnWidth(0,200)
self.ui.updatesList.setColumnWidth(1,150)
for pkg in get_fresh_updates():
    a = QtGui.QTreeWidgetItem(self.ui.updatesList)
    a.setText(0, pkg[0])
    a.setText(1, pkg[1])
    a.setText(2, pkg[2])

# Signals

QtCore.QObject.connect(self.ui.pkgTabs,QtCore.SIGNAL("currentChanged(int)"),
self.tab_change)

def tab_change(self, tab_id):
    if tab_id == 0:
        self.ui.infoLabel.setText('<b>QYolk</b>: Browsing all
installed cheeseshop packages')
    elif tab_id == 1:

```

```

        self.ui.infoLabel.setText('<b>QYolk</b>: Browsing active
packages')

        elif tab_id == 2:
            self.ui.infoLabel.setText('<b>QYolk</b>: Browsing not
active packages (older versions)')

        elif tab_id == 3:
            self.ui.infoLabel.setText('<b>QYolk</b>: Browsing
available updates')

def get_fresh_updates(package_name="", version=""):
    userpath = expanduser('~')
    now = datetime.now()
    # do we have the cache
    if isfile(userpath + '/.qyolk'):
        f = open(userpath + '/.qyolk', 'r')
        cache = cPickle.load(f)
        check_time = now - timedelta(hours=24)
        if cache[0] > check_time:
            # fresh cache, use it
            return cache[1]

    # no cache, get updates and create the cace
    ret = []
    pypi = CheeseShop()
    dists = Distributions()
    for pkg in get_pkglist():
        for (dist, active) in dists.get_distributions("all", pkg,
dists.get_highest_installed(pkg)):
            (project_name, versions) =
pypi.query_versions_pypi(dist.project_name, True)
            if versions:
                newest = get_highest_version(versions)
                if newest != dist.version:
                    if
pkg_resources.parse_version(dist.version) <
pkg_resources.parse_version(newest):
                                ret.append([project_name,
dist.version, newest])

        f = open(userpath + '/.qyolk', 'w')
        cPickle.dump([now, ret], f)

```

```
        return ret

if __name__ == "__main__":
    app = QtGui.QApplication(sys.argv)
    myapp = StartQt4()
    myapp.show()
    sys.exit(app.exec_())
```

更新包的信息我们移动到了__init__ —— 它将在程序启动的时候运行。如果缓冲文件不存在的话，窗口 将在成功更新包信息之后被创建（这中间可能要花一些时间）。如果缓冲文件已经存在则不会有太大的问题。 在下一次的教程中，我们将用 **QSplashScreen** 给程序增加一个启动画面，这样在窗口被创建的时候可以 给用户提供一些有用的信息。

更多内容，请参阅：

<http://www.rkblog.rk.edu.pl/w/p/introduction-pyqt4/>