Python and PyQt

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Outcome

- Create Graphical User Interfaces with Python and PyQt
- Give life to your applications by connecting user events to concrete actions
- Create fully-functional GUI applications to solve real-world problems

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Understand PyQt

- PyQt is a Python binding for Qt
- Platform-independent abstractions for GUI
- Networking, threads, regular expression, SQL databases, SVG, OpenGL, XML, and many other powerful features

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PyQt5

- Graphical User Interfaces as well as XML handling, network communication, regular expressions, threads, SQL databases, multimedia, web browsing, and etc.

- Compatible with Windows, Unix, Linux, macOS, iOS & Android

- PyQt5 is available under two licenses:

1. The Riverbank Commercial License
2. The General Public License (GPL), version 3

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Installation

- Build from source
- Use Binary Wheel
  (Wheels are a very popular way to manage the installation of Python Package)
- Package Manager from Linux and MacOS
- Anaconda Distribution

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Anaconda Installation

- **pyqt:** a Python binding for the cross-platform GUI toolkit Qt (Commercial, GPL-2.0, GPL-3.0 licenses)
- **anyqt**: a compatibility layer for PyQt4/PyQt5 (GPL-3.0 license)
- **qtPy**: an abstraction layer PyQt5/PyQt4/PySide (MIT license)
- **qtpygraph**: a Python library for Scientific Graphics (MIT license)

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Create First PyQt Application

Here are the steps you'll follow:

1. Import QApplication and all the required widgets from PyQt5.QtWidgets.
2. Create an instance of QApplication.
3. Create an instance of your application's GUI.
4. Show your application's GUI.
5. Run your application's event loop (or main loop).

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Step 1

```
# Filename: hello.py

"""Simple Hello World example with PyQt5."""

import sys

# 1. Import `QApplication` and all the required widgets
from PyQt5.QtWidgets import QApplication
from PyQt5.QtWidgets import QLabel
from PyQt5.QtWidgets import QWidget
```

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Step 2 and Step 3

```
# 2. Create an instance of QApplication
app = QApplication(sys.argv)
```

```
# 3. Create an instance of your application's GUI
window = QWidget()
window.setWindowTitle('PyQt5 App')
window.setGeometry(100, 100, 280, 80)
window.move(60, 15)
helloMsg = QLabel('<h1>Hello World!</h1>', parent=window)
helloMsg.move(60, 15)
```

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Step 4 and Step 5

```
# 4. Show your application's GUI
window.show()

# 5. Run your application's event loop (or main loop)
sys.exit(app.exec_())
```

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Execute the Code

```
$ python3 hello.py
```

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Run the code with PyCharm

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