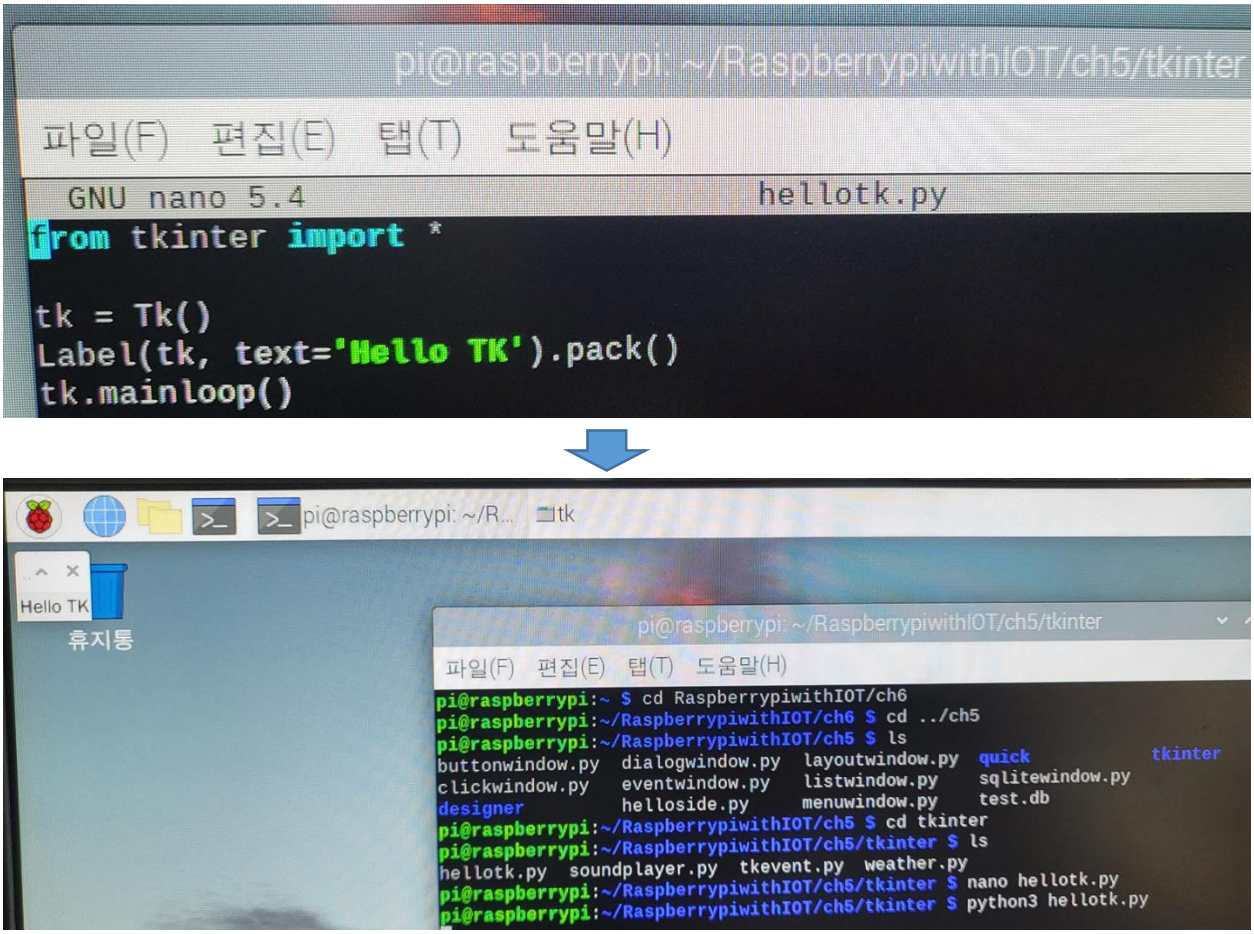
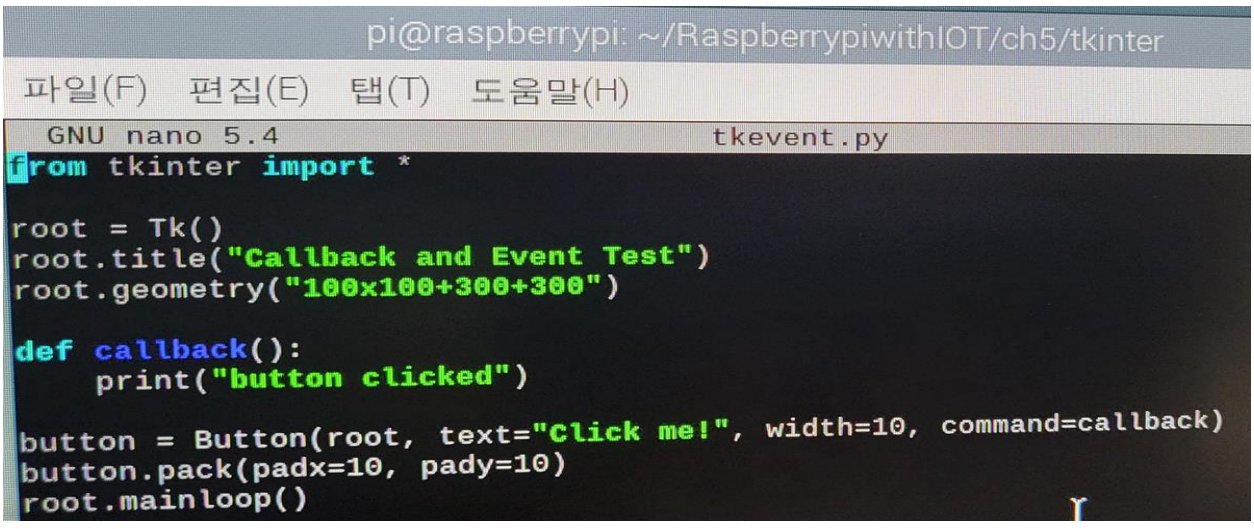
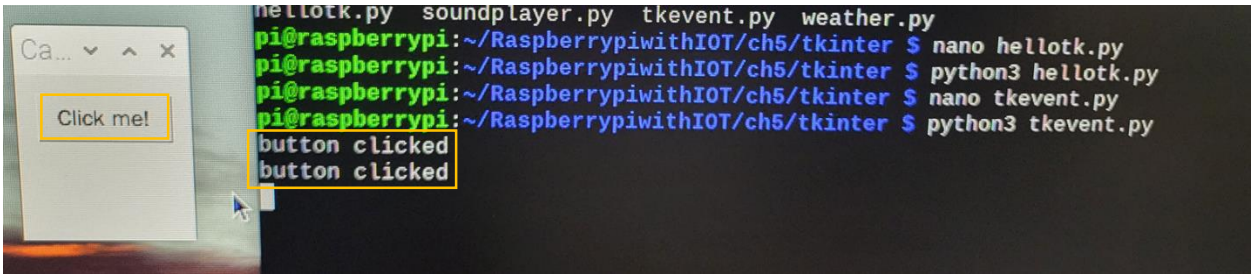
1. hellotk.py (ch5/tkinter, 교재 p. 228. tkinter 기본 탑재)



2. tkevent.py (ch5/tkinter, 교재 p. 229)

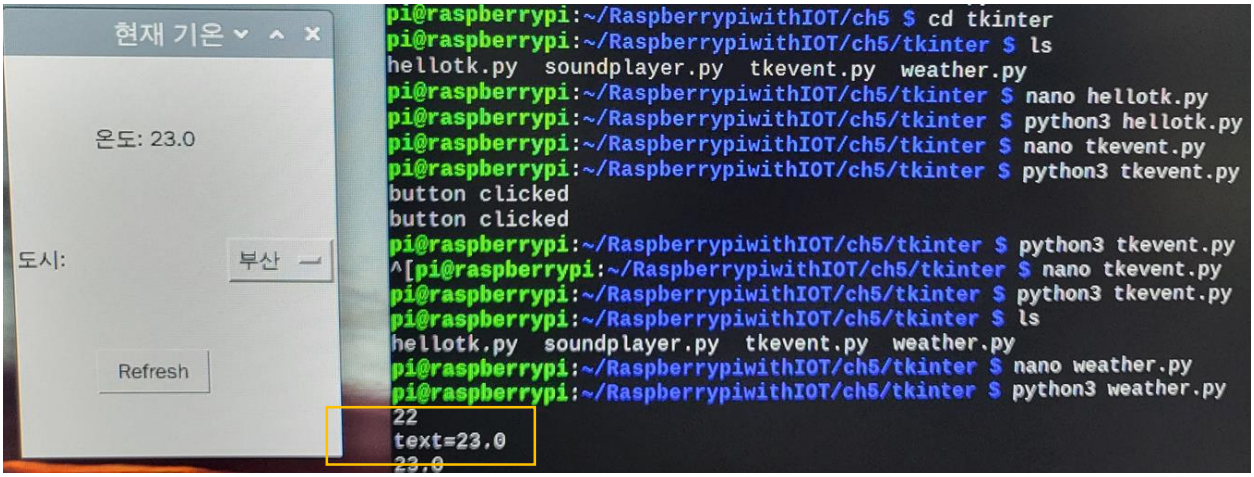




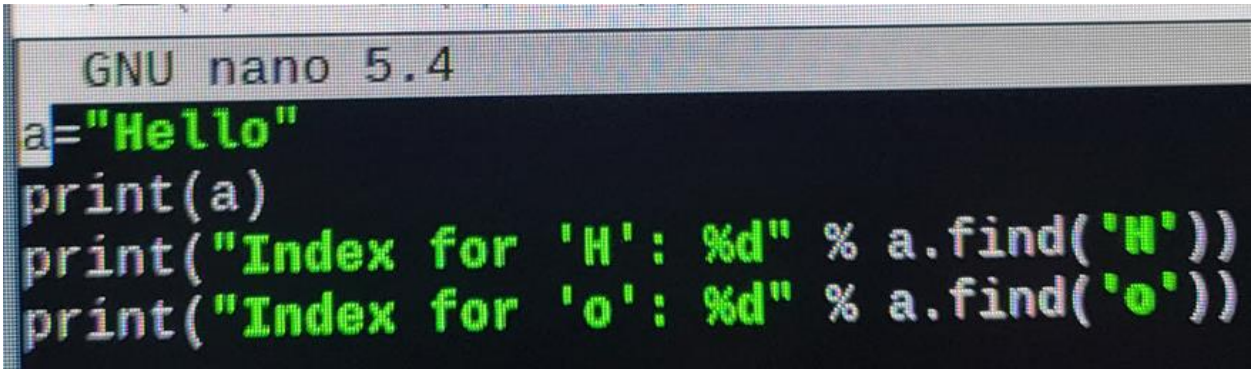
* geometry("W(너비)xH(높이)+X+Y"). (X,Y)는 뜨는 창의 좌측 상단 모서리 위치

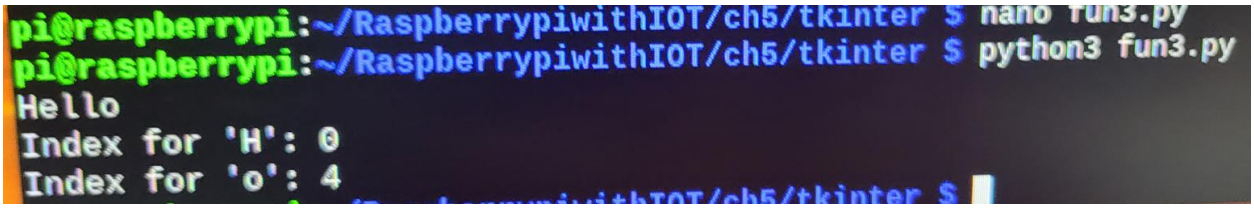
3. weather.py (ch5/tkinter, 교재 p. 230)

```
#-*- coding: utf-8 -*-
try:
    from urllib.request import urlopen #python 3
    from tkinter import *
except ImportError:
    from urllib2 import urlopen #python 2
    from Tkinter import *

def get_weather(city):
    page = urlopen("http://www.kma.go.kr/weather/observation/currentweather.jsp")
    #text = page.read().decode("euckr")
    text = page.read().decode("utf-8")
    text = text[text.find(">"+city+"<"):]
    print(text.find("<td>"))

    for i in range(5):
        text = text[text.find("<td>")+1:]
    start = 3
    end = text.find("</td>")
    print("text=%s " % str(text[start:end]))
    #tempV.set(u'온도: '+text[start:end])
    tempV.set('온도: '+text[start:end])
    print(text[start:end])

def refresh(*args):
    get_weather(cities.get())

app = Tk()
app.title("현재 기온")
app.geometry("200x150+200+200")

Label(app, text="도시: ").pack(side="left")

city_list = ["서울", "부산", "대구", "광주", "제주"]
cities = StringVar()
cities.set(city_list[0])
cities.trace("w", refresh)
OptionMenu(app, cities, *city_list).pack(side="right")

tempV = StringVar()
tempV.set("온도: ")
Label(app, textvariable=tempV).pack(pady=40, side="top")
Button(app, text="Refresh", command=refresh).pack(pady=40, side="bottom")
app.mainloop()
```

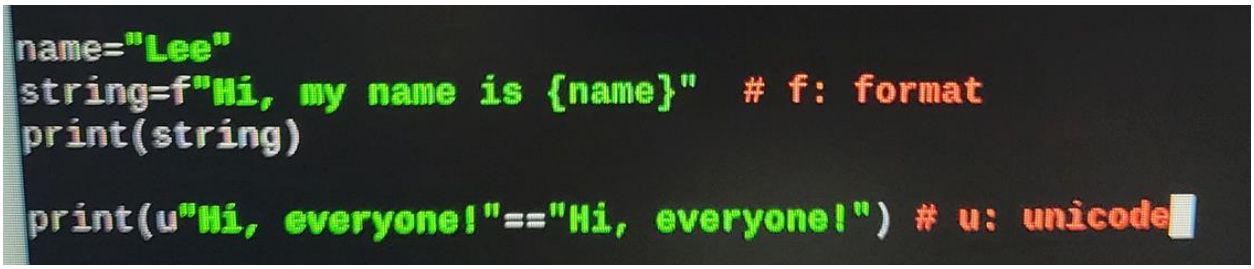


* find 함수: char 의 문자열내 위치(index)를 알려줌





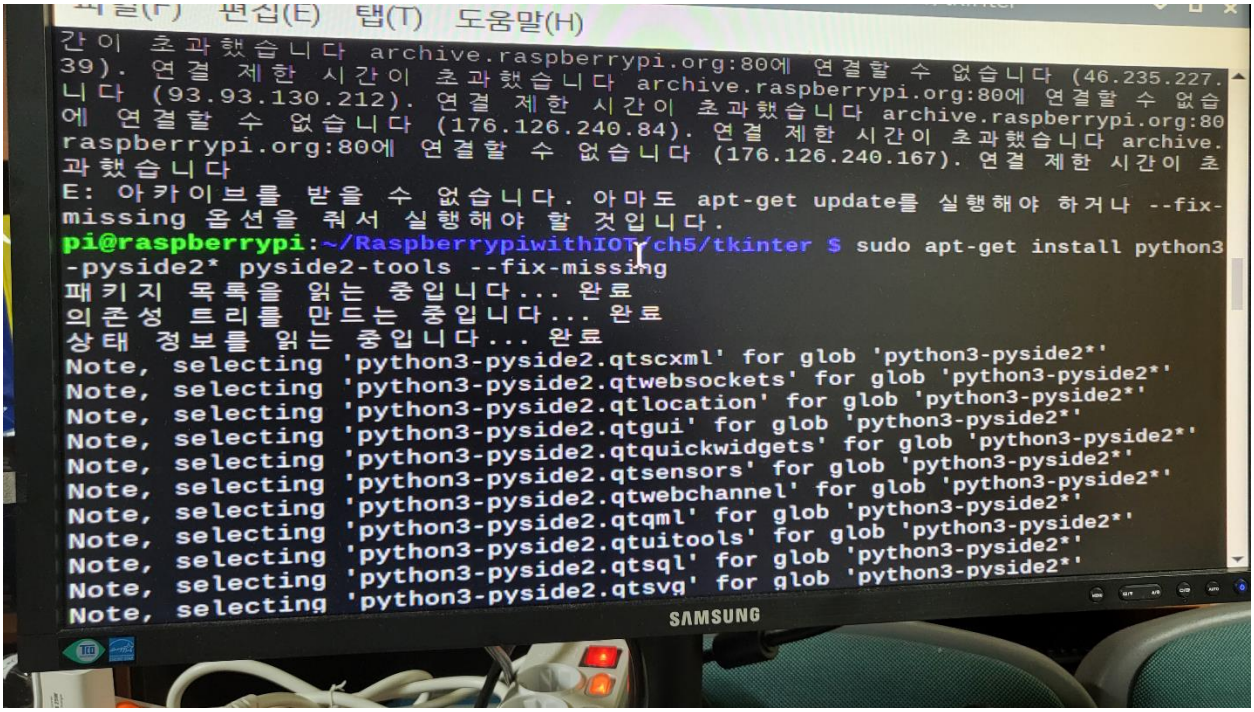
* prefix 'u': 문자열 앞에 붙는 알파벳 (예: r, b, u, f)



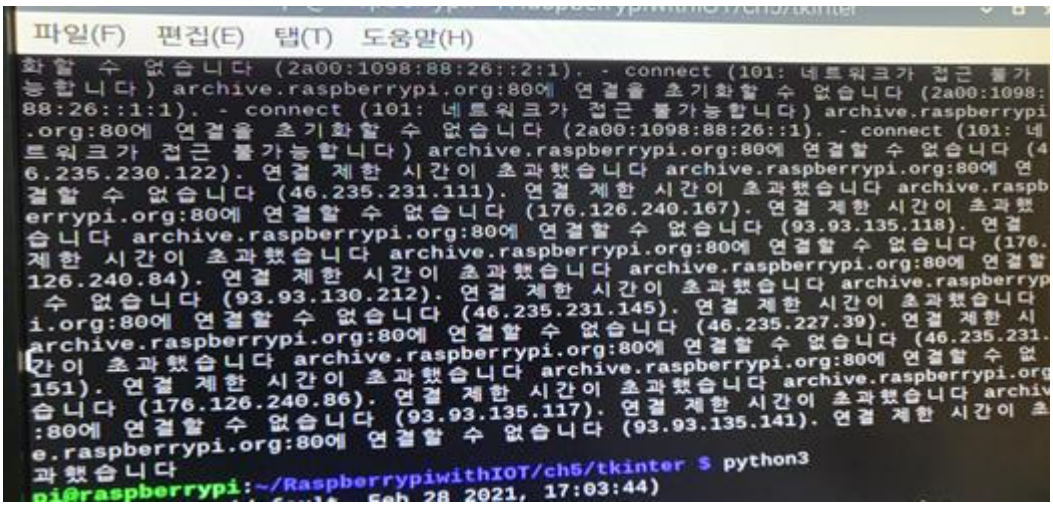
* python3 에서는 default enconding 이 unicode 라서 'u'를 안 붙여도 됨

* PySide2 패키지 설치 (ch5, 교재 p. 237 관련 (교재방법은 불가))

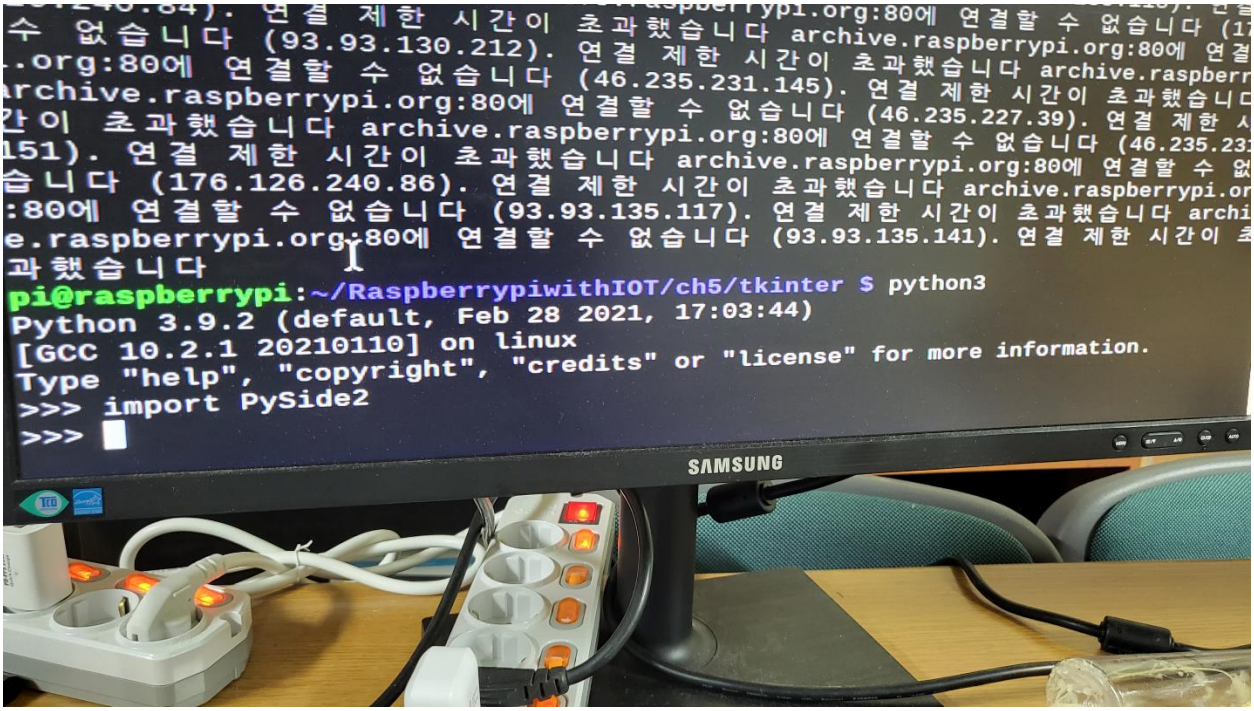
$ sudo apt-get install python3-pyside2* pyside2-tools --fix-missing



(중략)



- 설치 확인 (교재 p236, ch5)

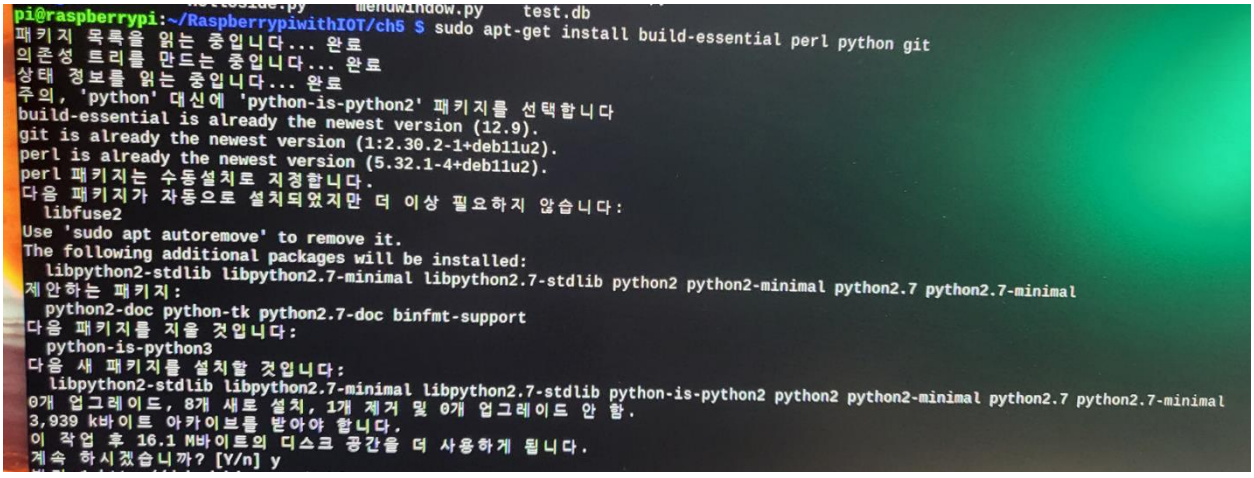


>>> quit()

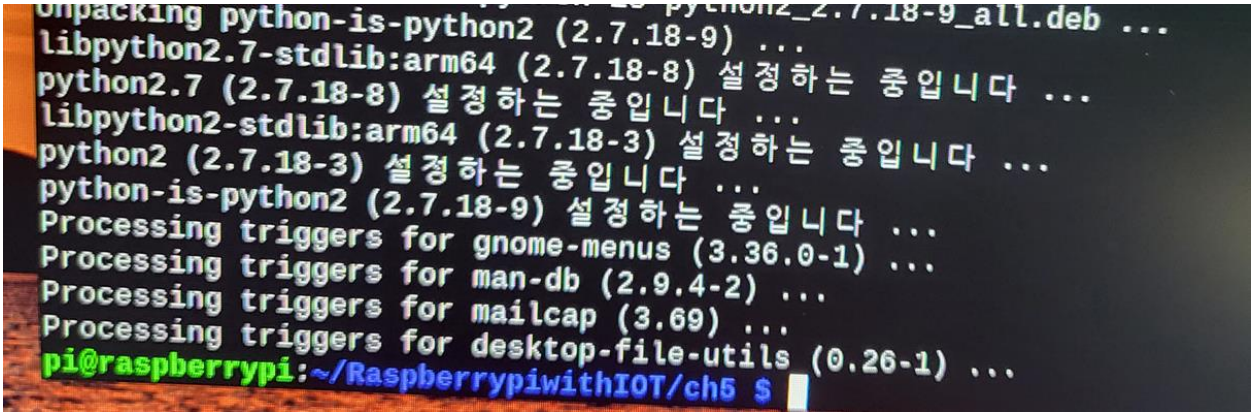
(이렇게 해서 shell 에서 빠져 나오기)

* Qt 설치 (참고. https://makeutil.tistory.com/138. 교재 p.236 방법으로는 설치 불가)

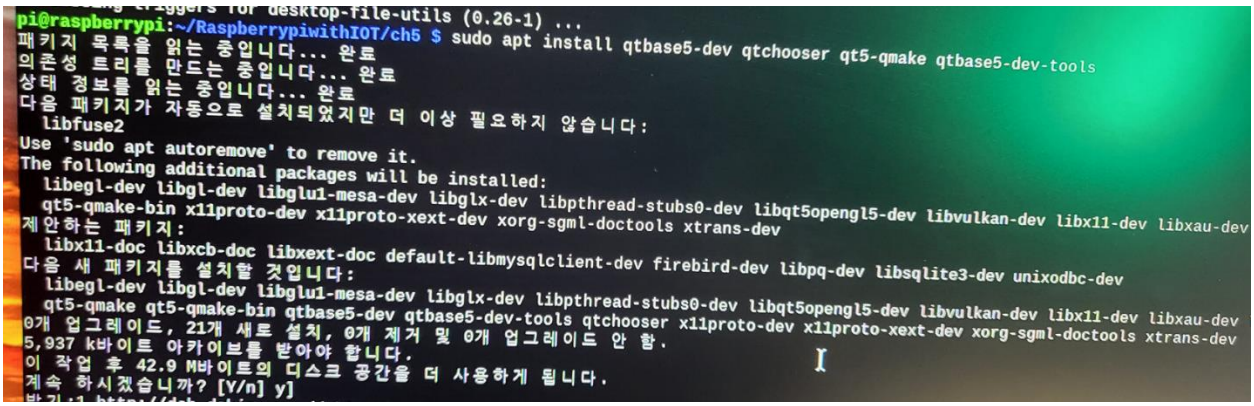
$ sudo apt-get install build-essential perl python git



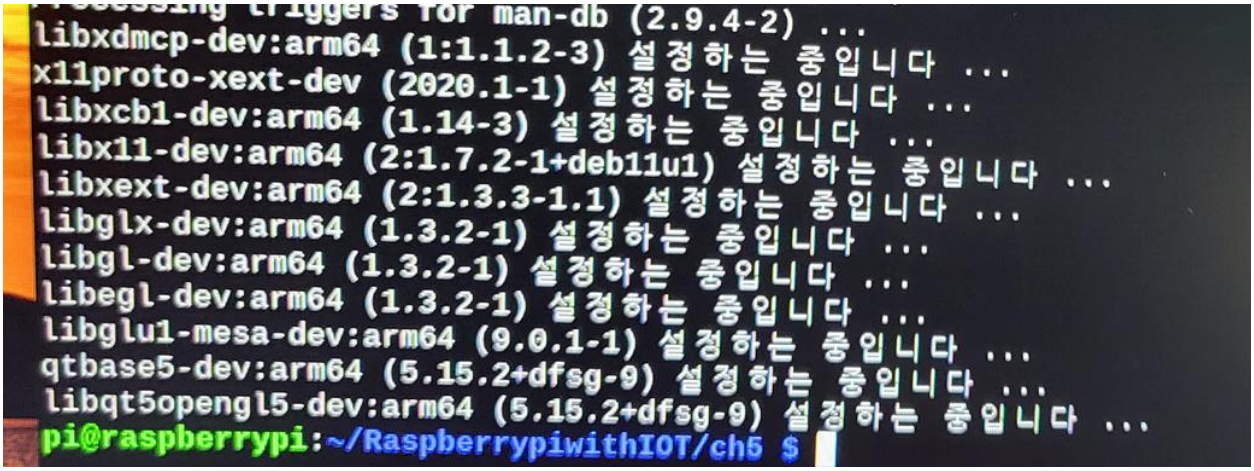
(중간에 [y/n]는 'y'로 타이핑. 중략)



$ sudo apt install qtbase5-dev qtchooser qt5-qmake qtbase5-dev-tools

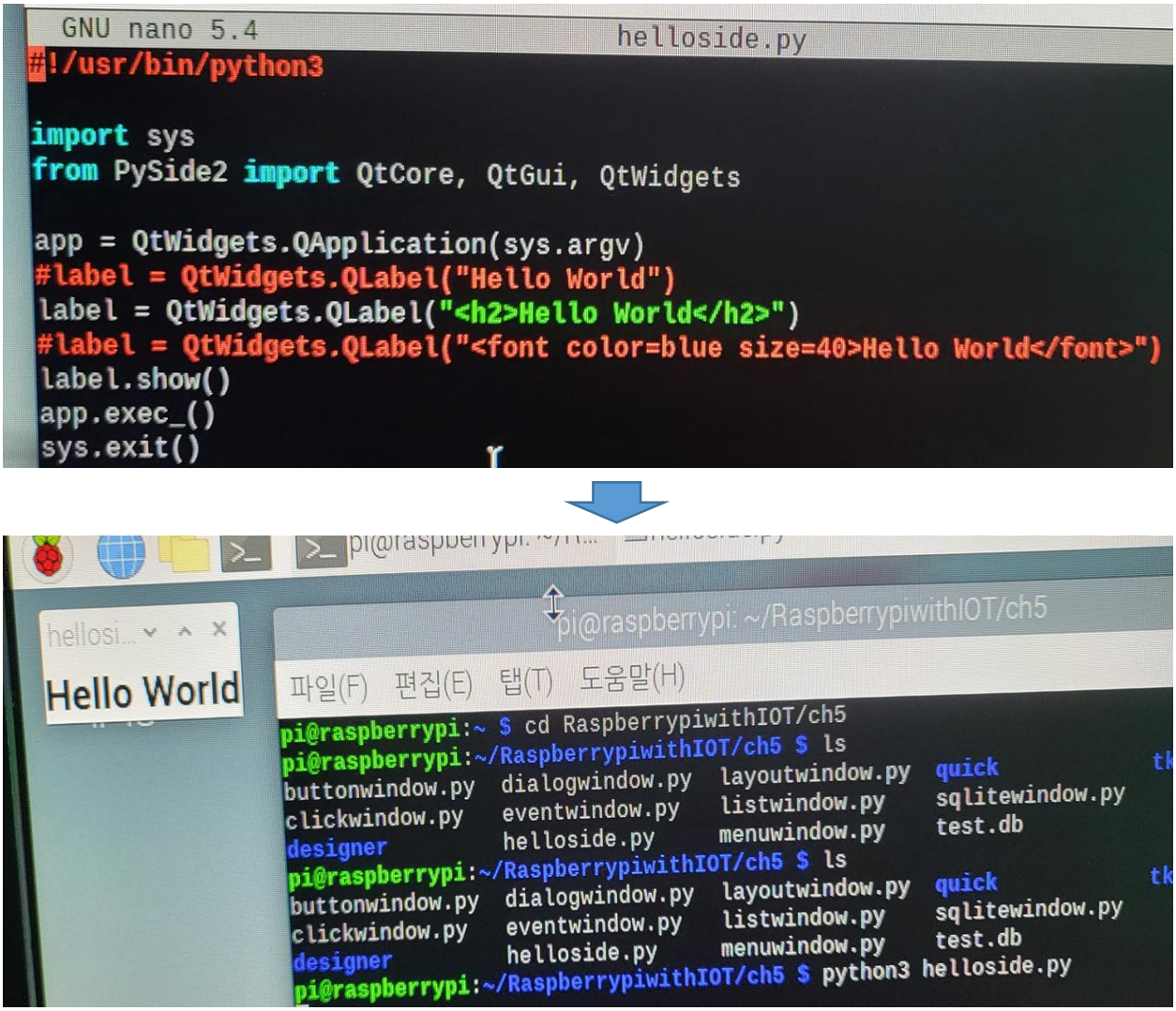


(중략)



$ sudo reboot

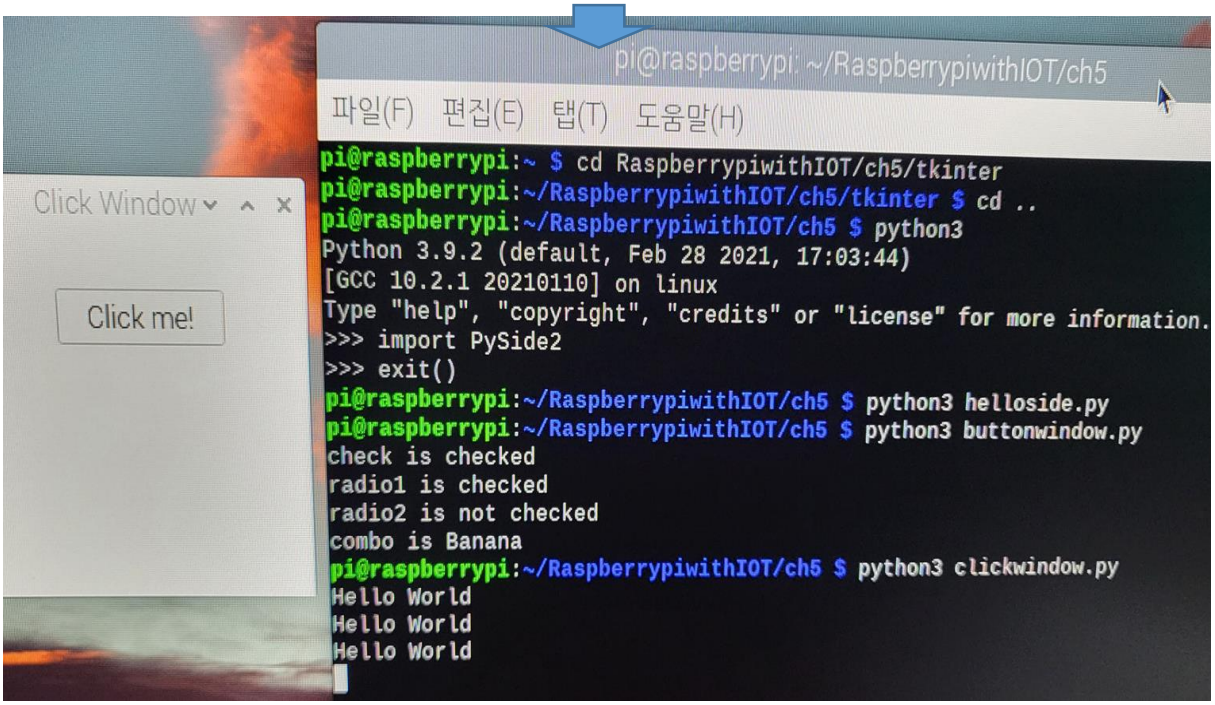
4. helloside.py (교재, p.237, ch5)



5. clickwindow.py (교재, p.241, ch5, buttonwindow.py 는 오타)

GNU nano 5.4 clickwindow.py

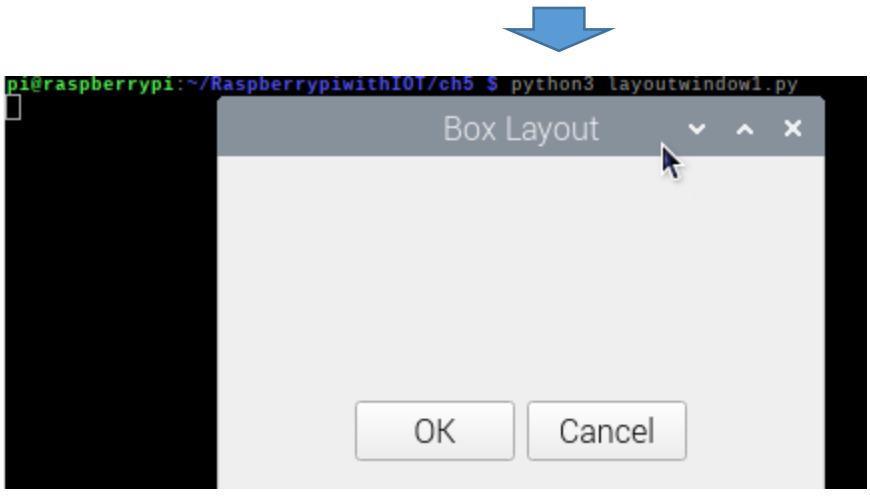
```
#!/usr/bin/python3

import sys
from PySide2 import QtCore, QtWidgets

class ButtonWindow(QtWidgets.QWidget):
    def __init__(self, msg):
        QtWidgets.QWidget.__init__(self)
        self.setWindowTitle("Click Window")
        self.setGeometry(300, 200, 200, 200)
        self.button = QtWidgets.QPushButton(msg, self)
        self.button.setGeometry(50, 30, 100, 30)
        self.button.clicked.connect(self.hello)
        #QtCore.QObject.connect(self.button, QtCore.SIGNAL('clicked()'), self.h

    def hello(self):
        print('Hello World')

if __name__ == "__main__" :
    app = QtWidgets.QApplication(sys.argv)
    #button = QtWidgets.QPushButton('Hello')
    #button.clicked.connect(hello)
    #button.show()
    bw = ButtonWindow("Click me!")
    bw.show()
    sys.exit(app.exec_())
```



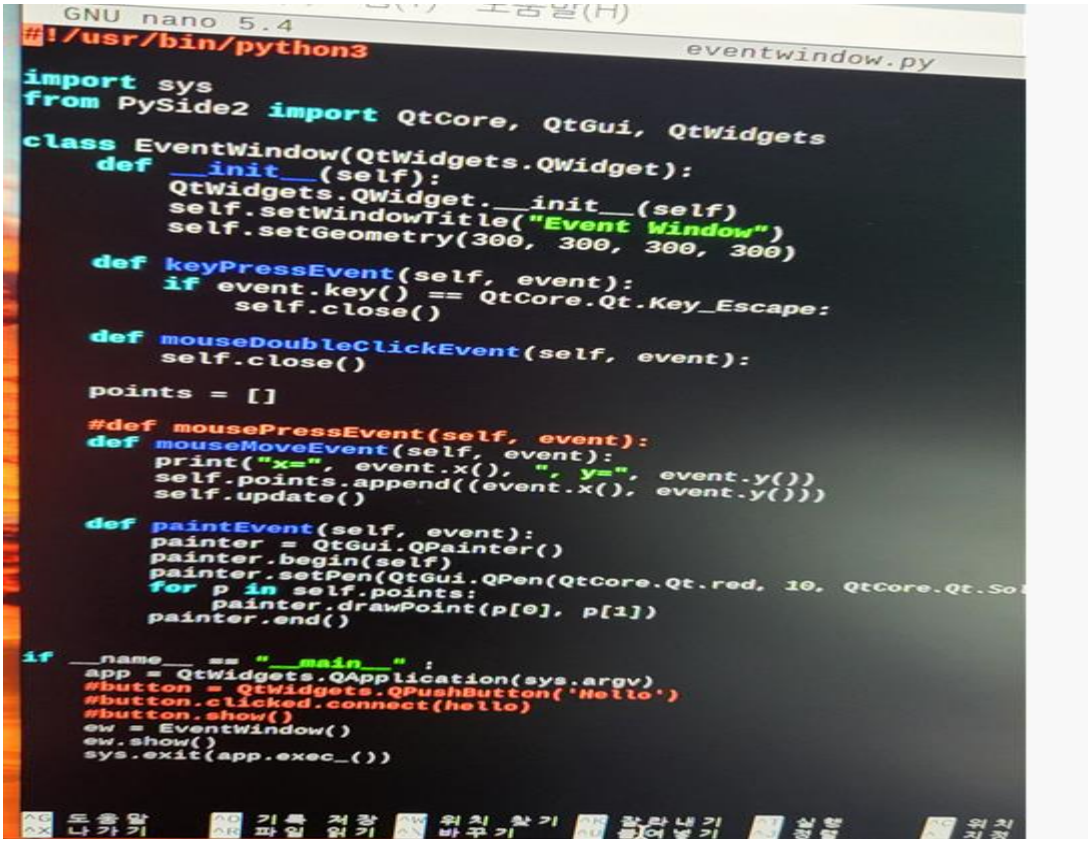
6. layoutwindow1.py (교재, p.242, ch5. 실행에러. 인터넷 다운)

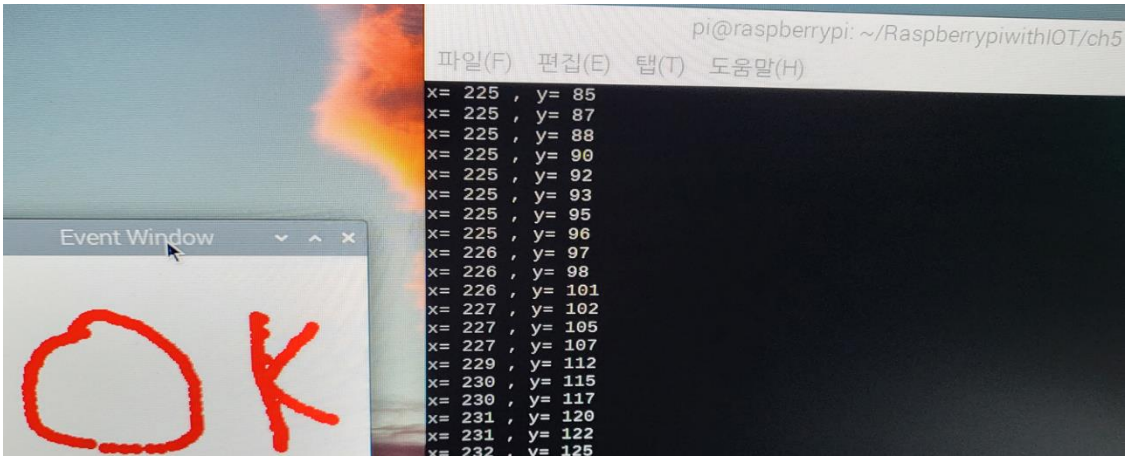
```
  GNU nano 5.4                                layoutwindow1.py
# Ref: https://wikidocs.net/21945
import sys
from PyQt5.QtWidgets import QApplication, QWidget, QPushButton, QHBoxLayout, QVBoxLayout


class MyApp(QWidget):

    def __init__(self):
        super().__init__()
        self.initUI()

    def initUI(self):
        okButton = QPushButton('OK')
        cancelButton = QPushButton('Cancel')

        hbox = QHBoxLayout()
        hbox.addStretch(1)
        hbox.addWidget(okButton)
        hbox.addWidget(cancelButton)
        hbox.addStretch(1)

        vbox = QVBoxLayout()
        vbox.addStretch(3)
        vbox.addLayout(hbox)
        vbox.addStretch(1)

        self.setLayout(vbox)

        self.setWindowTitle('Box Layout')
        self.setGeometry(300, 300, 300, 200)
```

```
if __name__ == '__main__':
    app = QApplication(sys.argv)
    ex = MyApp()
    sys.exit(app.exec_())
```

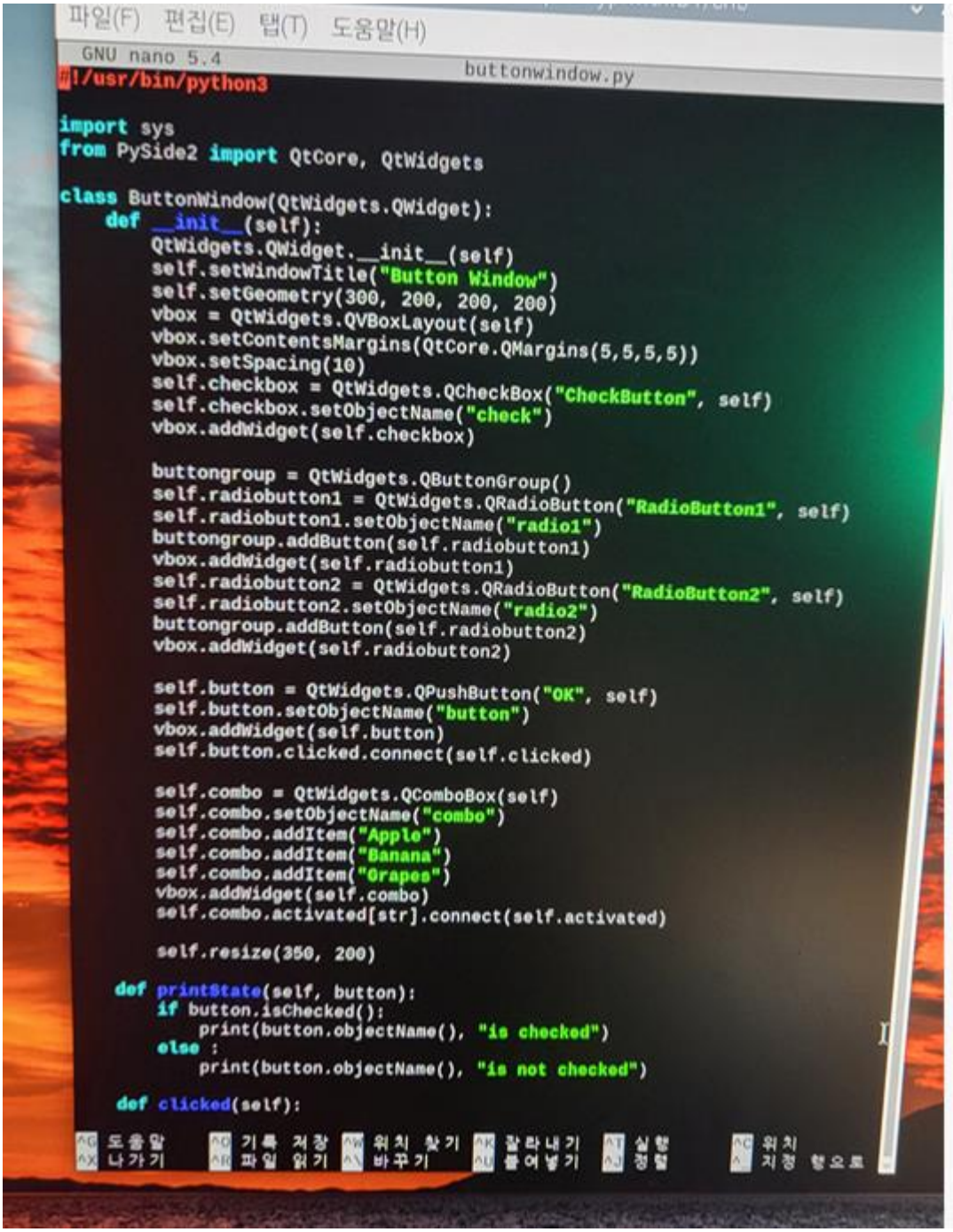


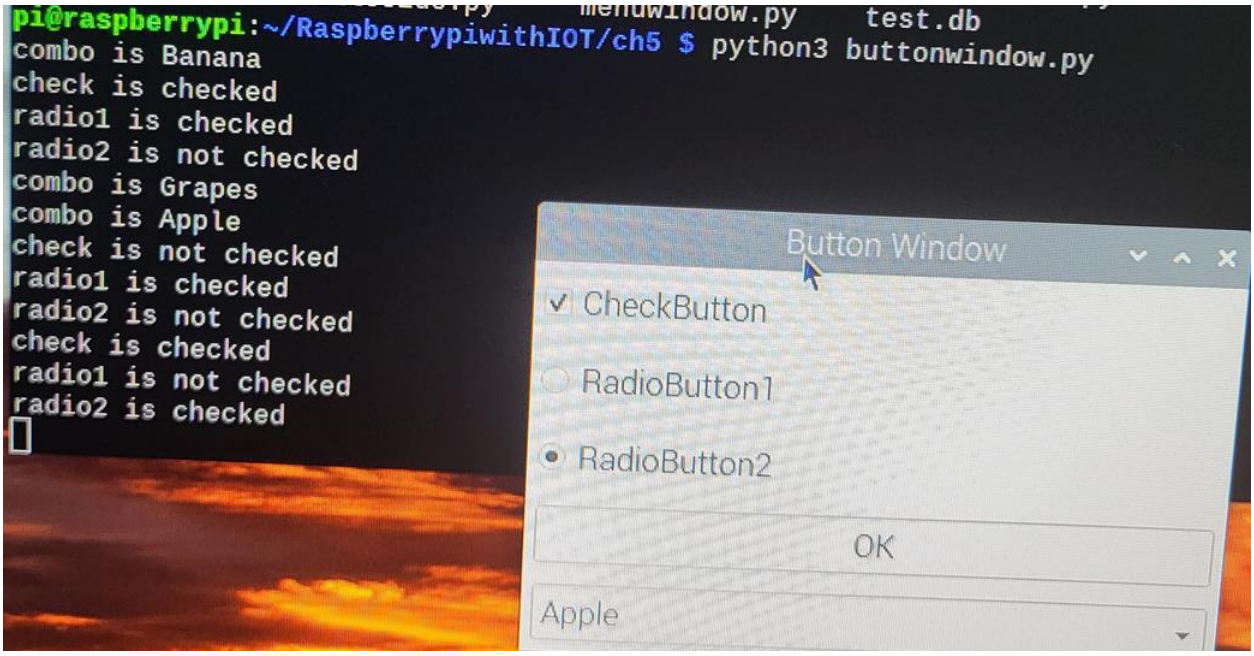
7. eventwindow.py (교재, p.244, ch5)


GNU nano 5.4
eventwindow.py
#!/usr/bin/python3
import sys
from PySide2 import QtCore, QtGui, QtWidgets
class EventWindow(QtWidgets.QWidget):
def __init__(self):
QtWidgets.QWidget.__init__(self)
self.setWindowTitle("Event Window")
self.setGeometry(300, 300, 300, 300)
def keyPressEvent(self, event):
if event.key() == QtCore.Qt.Key_Escape:
self.close()
def mouseDoubleClickEvent(self, event):
self.close()
points = []
#def mousePressEvent(self, event):
def mouseMoveEvent(self, event):
print("x=", event.x(), ", y=", event.y())
self.points.append((event.x(), event.y()))
self.update()
def paintEvent(self, event):
painter = QtGui.QPainter()
painter.begin(self)
painter.setPen(QtGui.QPen(QtCore.Qt.red, 10, QtCore.Qt.So
for p in self.points:
painter.drawPoint(p[0], p[1])
painter.end()
if __name__ == "__main__" :
app = QtWidgets.QApplication(sys.argv)
#button = QtWidgets.QPushButton('Hello')
#button.clicked.connect(hello)
#button.show()
ew = EventWindow()
ew.show()
sys.exit(app.exec_())

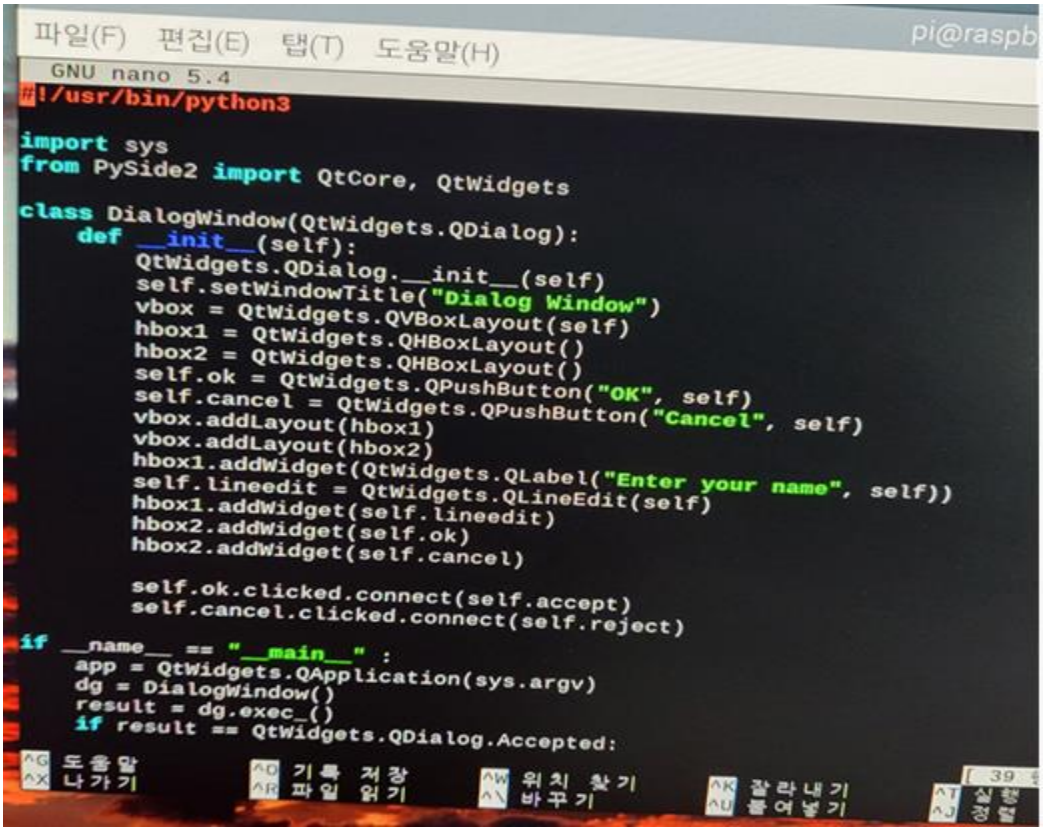

pi@raspberrypi: ~/RaspberrypiwithIOT/ch5
파일(F) 편집(E) 탭(T) 도움말(H)
Event Window
OK
x= 225 , y= 85
x= 225 , y= 87
x= 225 , y= 88
x= 225 , y= 90
x= 225 , y= 92
x= 225 , y= 93
x= 225 , y= 95
x= 225 , y= 96
x= 226 , y= 97
x= 226 , y= 98
x= 226 , y= 101
x= 227 , y= 102
x= 227 , y= 105
x= 227 , y= 107
x= 229 , y= 112
x= 230 , y= 115
x= 230 , y= 117
x= 231 , y= 120
x= 231 , y= 122

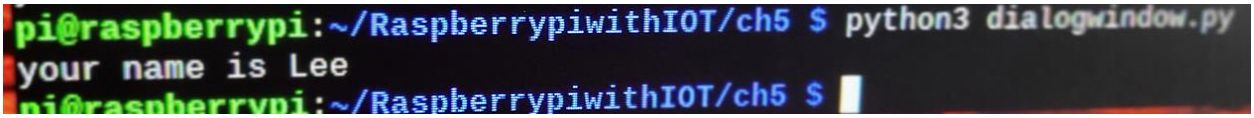
8. buttonwindow.py (교재, p.247, ch5)



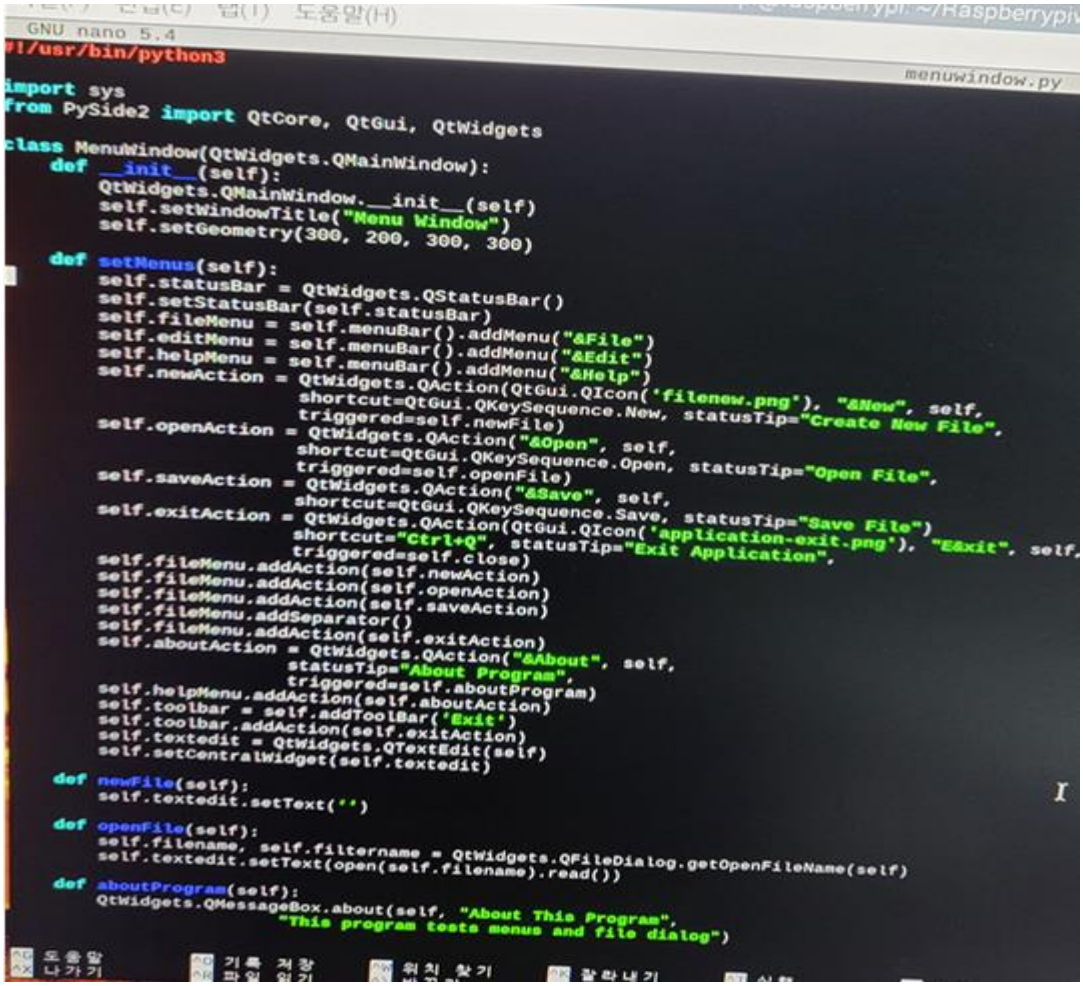


9. dialogwindow.py (교재, p.250, ch5)

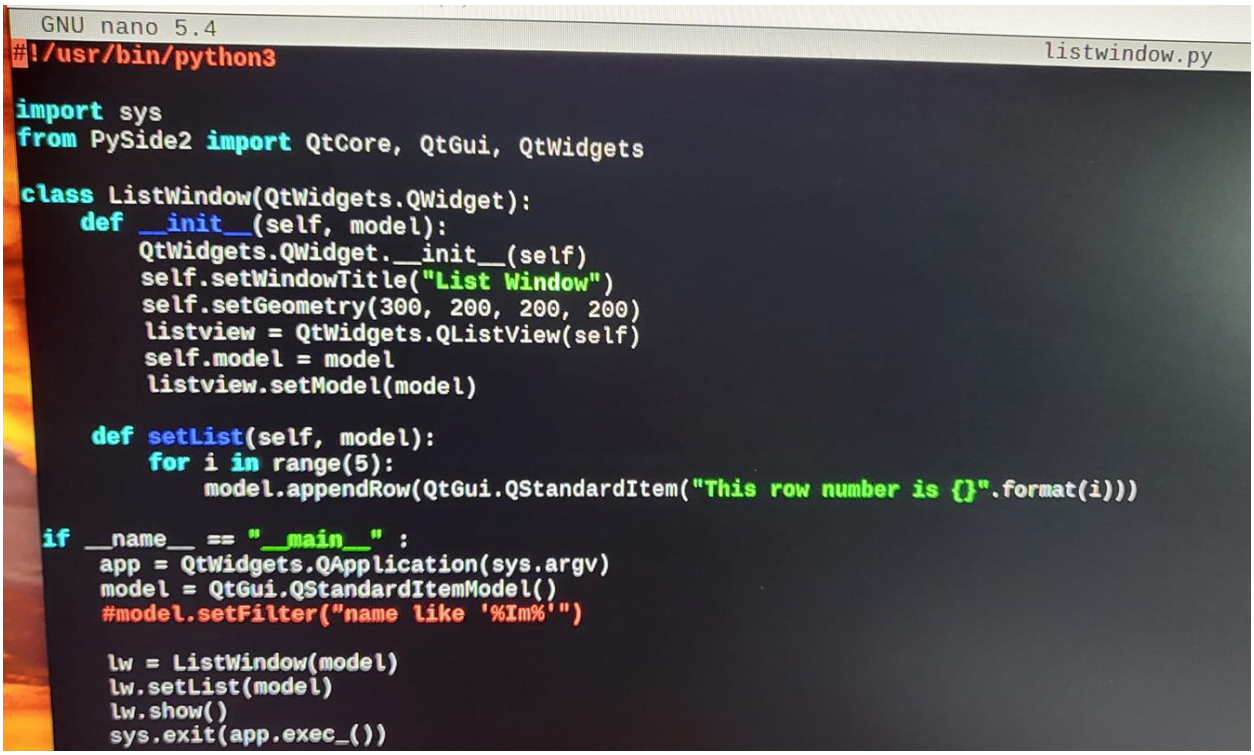


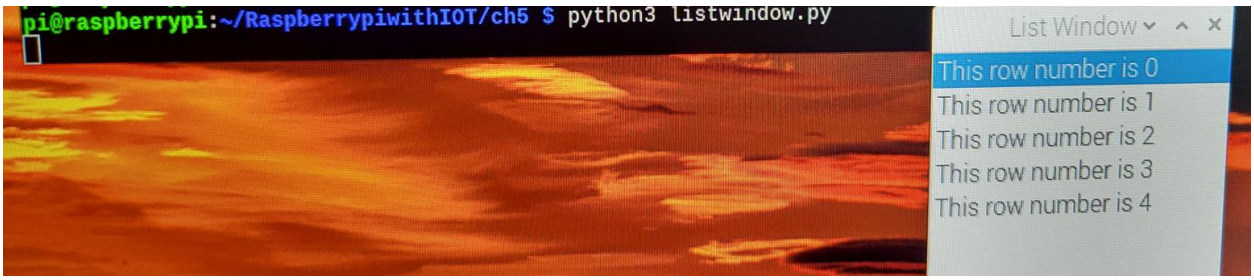


10. menuwindow.py (교재, p.253, ch5)



11. listwindow.py (교재, p.257, ch5)





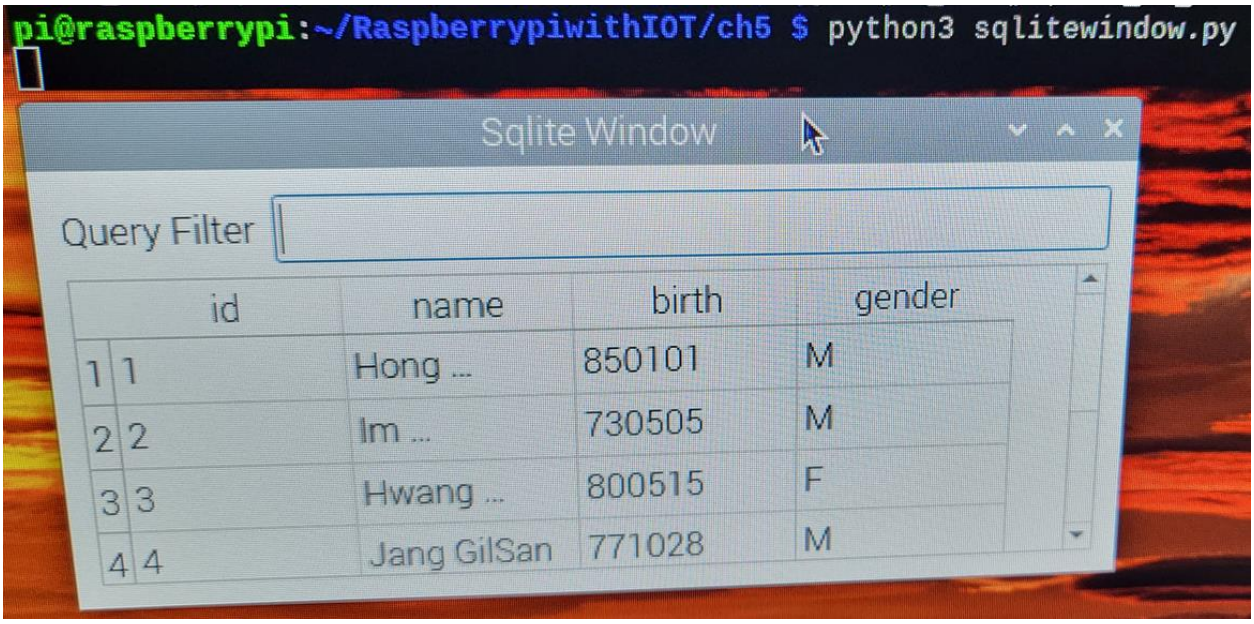
*SQLITE 설치 (교재, p.258, ch5)

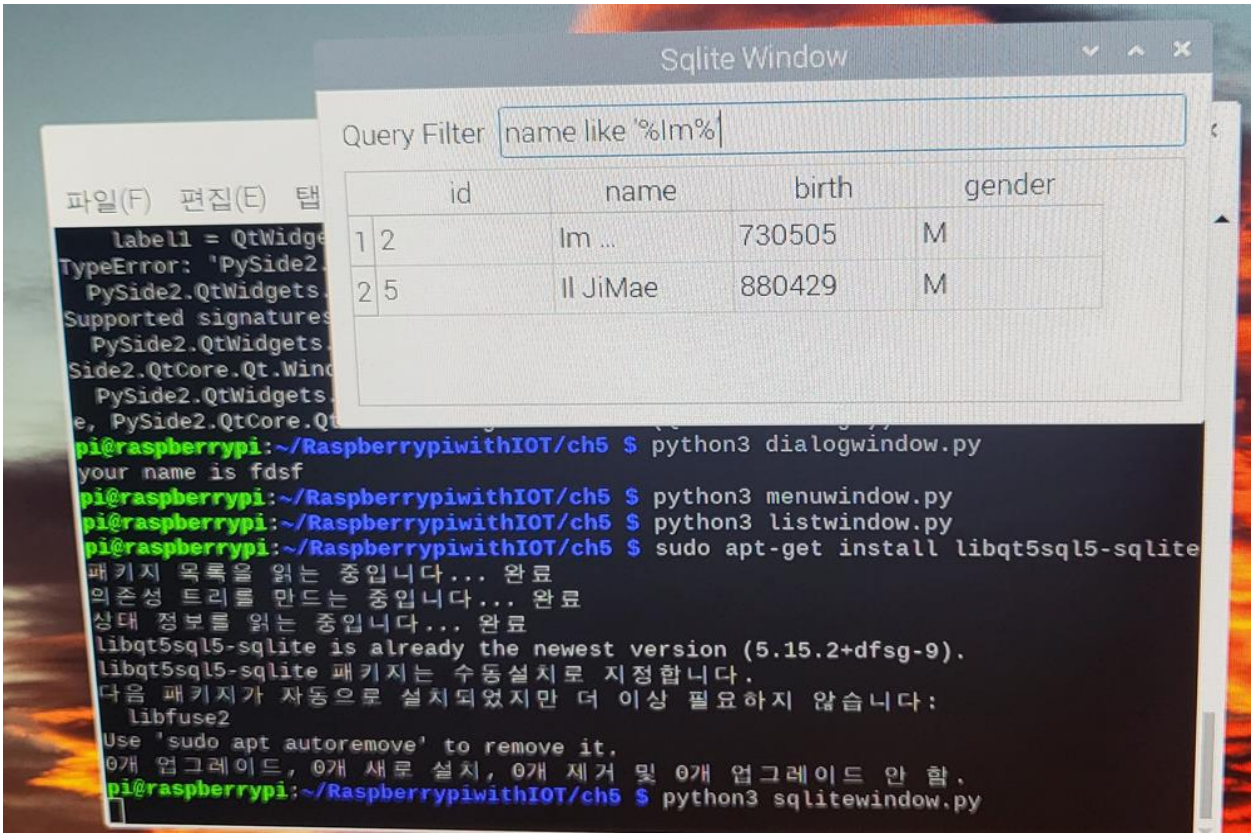
$ sudo apt-get install libqt5sql5-sqlite

```
pi@raspberrypi:~/RaspberrypiwithIOT/ch5 $ sudo apt-get install libqt5sql5-sqlite
패키지 목록을 읽는 중입니다... 완료
의존성 트리를 만드는 중입니다... 완료
상태 정보를 읽는 중입니다... 완료
libqt5sql5-sqlite is already the newest version (5.15.2+dfsg-9).
libqt5sql5-sqlite 패키지는 수동설치로 지정합니다.
다음 패키지가 자동으로 설치되었지만 더 이상 필요하지 않습니다:
  libfuse2
Use 'sudo apt autoremove' to remove it.
0개 업그레이드, 0개 새로 설치, 0개 제거 및 1개 업그레이드 안 함.
pi@raspberrypi:~/RaspberrypiwithIOT/ch5 $
```

12. sqlitewindow.py (교재, p.258, ch5)

```
GNU nano 5.4
#!/usr/bin/python3

import sys
from PySide2 import QtCore, QtWidgets, QtSql

def connectDB():
    db = QtSql.QSqlDatabase.addDatabase('QSQLITE')
    db.setDatabaseName('test.db')

    if not db.open():
        return False

    return True

def initModel(model):
    model.setTable("student")
    model.setEditStrategy(QtSql.QSqlTableModel.OnManualSubmit)
    model.select()

    model.setHeaderData(0, QtCore.Qt.Horizontal, "id")
    model.setHeaderData(1, QtCore.Qt.Horizontal, "name")
    model.setHeaderData(2, QtCore.Qt.Horizontal, "birth")
    model.setHeaderData(3, QtCore.Qt.Horizontal, "gender")

class SqliteWindow(QtWidgets.QWidget):
    def __init__(self, model):
        QtWidgets.QWidget.__init__(self)
        self.setWindowTitle("Sqlite Window")
        self.setGeometry(300, 200, 480, 200)
        vbox = QtWidgets.QVBoxLayout(self)
        hbox = QtWidgets.QHBoxLayout()
        label = QtWidgets.QLabel("Query Filter", self)
        self.queryedit = QtWidgets.QLineEdit(self)
        table = QtWidgets.QTableView(self)
        self.model = model
        table.setModel(model)
        #table.resize(460, 200)
        hbox.addWidget(label)
        hbox.addWidget(self.queryedit)
        vbox.addLayout(hbox)
        vbox.addWidget(table)
        self.queryedit.returnPressed.connect(self.sendQuery)

    def sendQuery(self):
        text = self.queryedit.text()
        self.model.setFilter(text)
        self.model.select()
^G 도움말
^X 나가기
^O 기록 저장
^R 파일 읽기
^W 위치 찾기
```


pi@raspberrypi:~/RaspberrypiwithIOT/ch5 $ python3 sqlitewindow.py
Sqlite Window
Query Filter
id
name
birth
gender
1 1 Hong ... 850101 M
2 2 Im ... 730505 M
3 3 Hwang ... 800515 F
4 4 Jang GilSan 771028 M


Sqlite Window
Query Filter name like '%Im%'
id
name
birth
gender
1 2 Im ... 730505 M
2 5 Il JiMae 880429 M
파일(F) 편집(E) 탭
pi@raspberrypi:~/RaspberrypiwithIOT/ch5 $ python3 dialogwindow.py
your name is fdsf
pi@raspberrypi:~/RaspberrypiwithIOT/ch5 $ python3 menuwindow.py
pi@raspberrypi:~/RaspberrypiwithIOT/ch5 $ python3 listwindow.py
pi@raspberrypi:~/RaspberrypiwithIOT/ch5 $ sudo apt-get install libqt5sql5-sqlite
패키지 목록을 읽는 중입니다... 완료
의존성 트리를 만드는 중입니다... 완료
상태 정보를 읽는 중입니다... 완료
libqt5sql5-sqlite is already the newest version (5.15.2+dfsg-9).
libqt5sql5-sqlite 패키지는 수동설치로 지정합니다.
다음 패키지가 자동으로 설치되었지만 더 이상 필요하지 않습니다:
libfuse2
Use 'sudo apt autoremove' to remove it.
0개 업그레이드, 0개 새로 설치, 0개 제거 및 0개 업그레이드 안 함.
pi@raspberrypi:~/RaspberrypiwithIOT/ch5 $ python3 sqlitewindow.py