Assignment 2: Evolving the Anubis IDE

Course Name: Software Maintenance and Evolution
Course Code: CSE426

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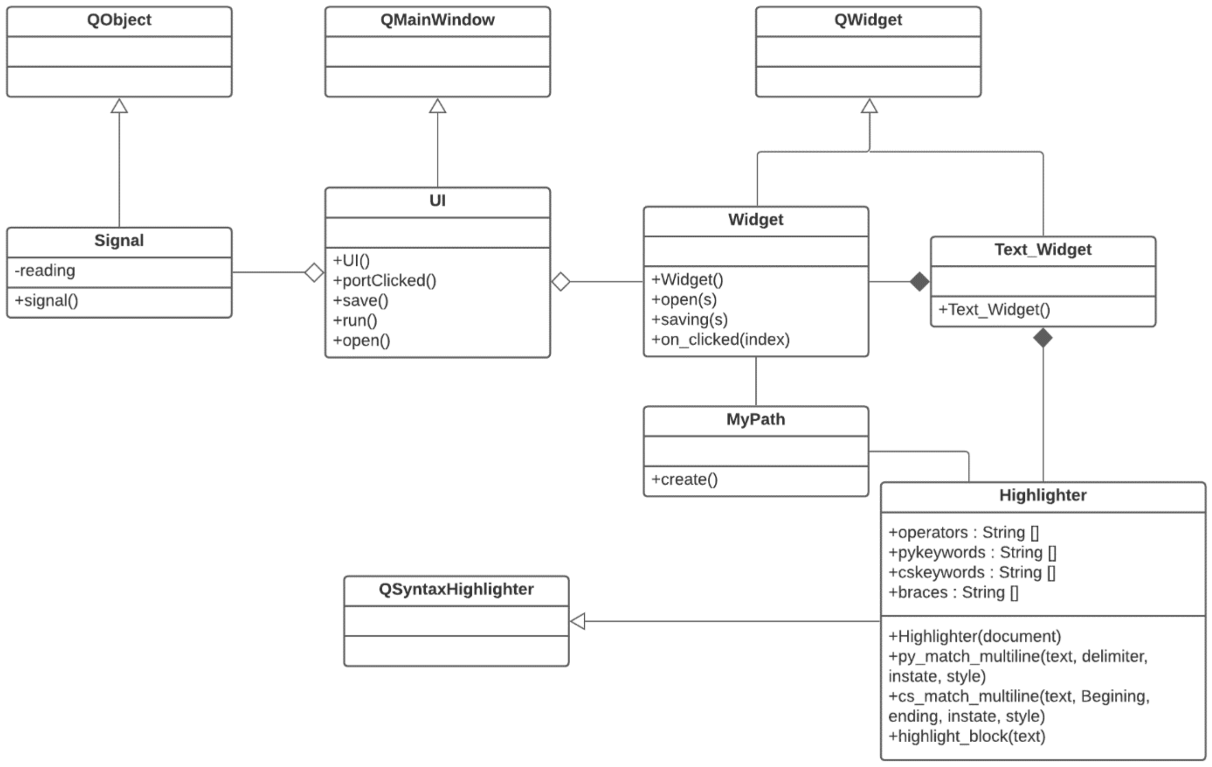
1.0 Introduction:

This document will contain all the design, code modifications, screenshots, and code regarding the evolution of the Anubis IDE. The features that will be added are the color and syntax highlighting features for the coding files written in the C# programming language. All the files are uploaded to a GitHub repository and the link is provided below.

GitHub Repository Link:
https://github.com/AhmadMamduhh/Evolved_Anubis_IDE

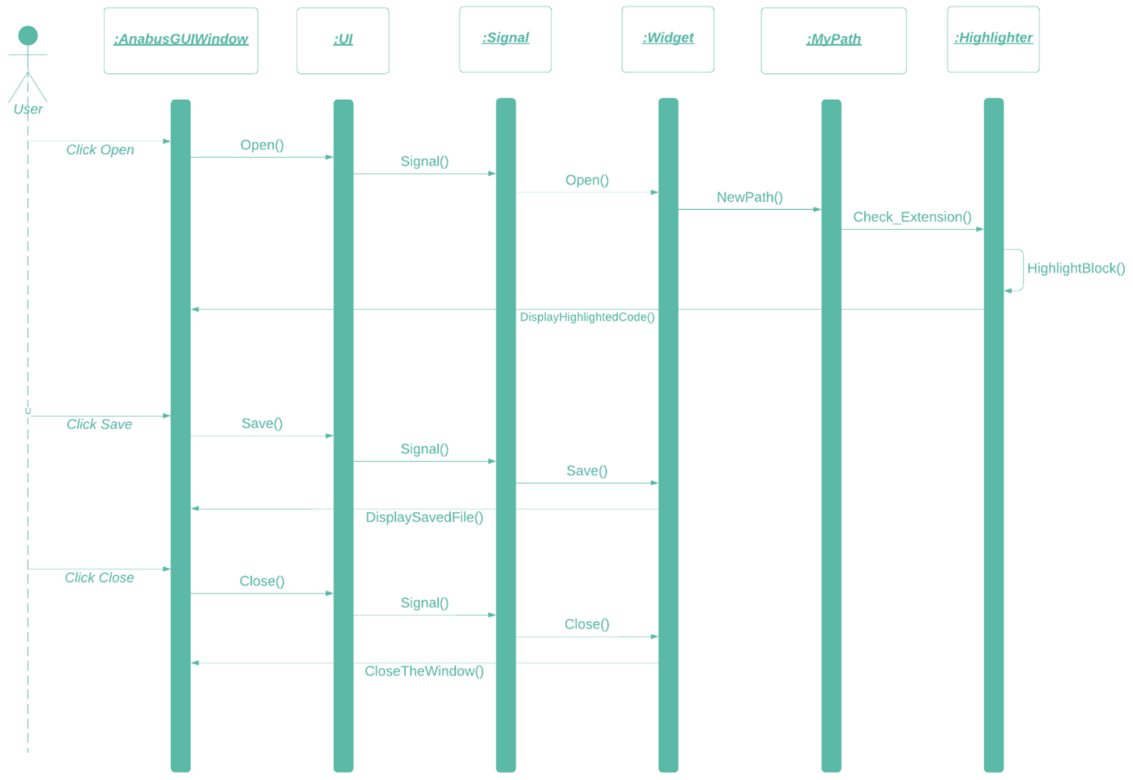
In this document, there is a section for the design changes (updated class diagram and updated sequence diagram), a section for all the code modifications (support for C# coding files), a section for the screenshots of the operation of the evolved Anubis IDE and a section for the actual written python code.

2.0 Class Diagram:



- There are 4 PyQT5 library main classes which are used as base classes for the remaining classes in the design. These classes are QObject, QMainWindow, QWidget and QSyntaxHighlighter.
- The remaining 6 classes are the main classes which are developed during the implementation phase. These classes are Signal, UI, Widget, Text_Widget, MyPath and Highlighter.
- MyPath has been added to decide whether the file is a python file or a C# file so the highlighter module could color it accordingly.
- Highlighter is a class which is responsible for coloring and syntax highlighting for the file depending on whether it is a C# file or a Python file.

3.0 Sequence Diagram:



This sequence diagram shows the sequence of interactions between different objects in the program at runtime in order to complete 3 of the main functionalities required which are open, save and close. As it is clearly shown in the above diagram, the user interacts with the GUI window which then interacts with the UI class to fulfill the user's desired request. The UI class is not the one responsible for fulfilling the requests, it calls for the signal class which fulfills the actual request of the user. The code is designed with this way in order to achieve separation of concerns which helps in the maintainability and readability of the code in the long run.

As it is shown in the diagram, the MyPath object decides the extension of the file (.py or .cs) and based on this extension, the highlighter object operates accordingly in order to correctly highlight the code.

4.0 Code Modifications:

This section contains all the actual code modifications made in order to evolve the Anubis IDE and add the extra needed functionalities.

Code Modifications Table:

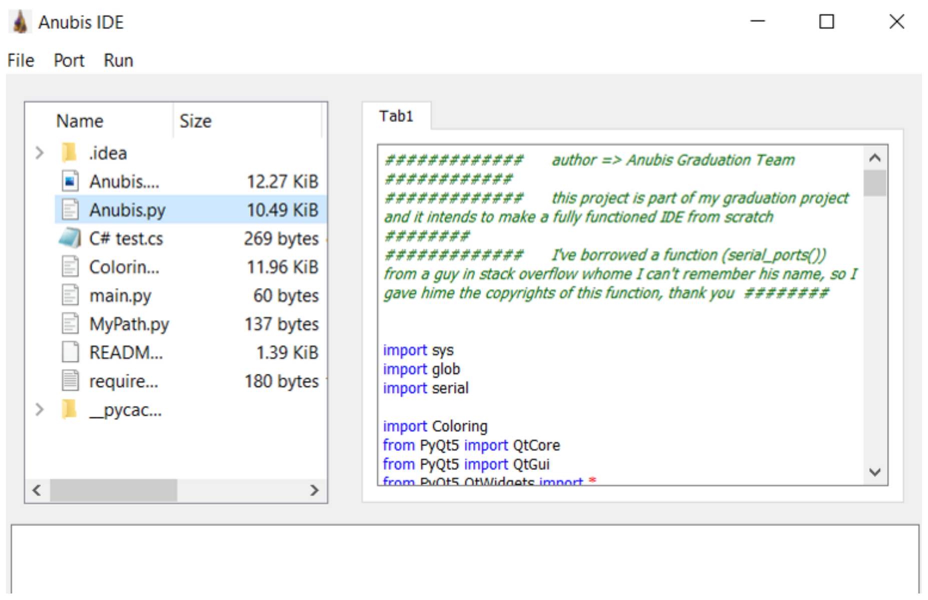
File	Code Modification
General	Changed the naming of the files/classes to be more general since C# is also supported now (Removed the Python from their names i.e PythonHighlighter is now Highlighter and PythonColoring.py is now Coloring.py)
Coloring.py	1- In the constructor function of the Highlighter class, the rules list has now been divided to a py_rules list and a cs_rules list in order to support the new functionality. 2- In Highlighter class, keywords list has now been divided into cs_keywords list and py_keywords list, also to support the new functionality. 3- Highlight block function has now been modified to check for the file extension (.py or .cs) in order to correctly highlight the code. 4- Divided the matchMultiline function into cs_matchMultiline and py_matchMultiline. The C# version has a beginning and end parameters. This is used for commenting in either language.

MyPath.py	This file has been created in order to determine the extension of the file and store it in a global variable. Based on this global variable's value, the appropriate highlight function will be used (C# highlighting or Python highlighting).
Anubis.py	1- on_clicked() function has been modified. The path variable is now globally shared so the MyPath file has to imported into the Anubis.py and Coloring.py files. 2- The globally shared path variable has to be created at the beginning in the main function (The start of the program) so in order to do this, I added MyPath.create() in the main function.

5.0 <u>Screenshots:</u>

In this section, I will include some screenshots from the operation of the evolved Anubis IDE to show you that both the new and old functionalities are working perfectly fine.

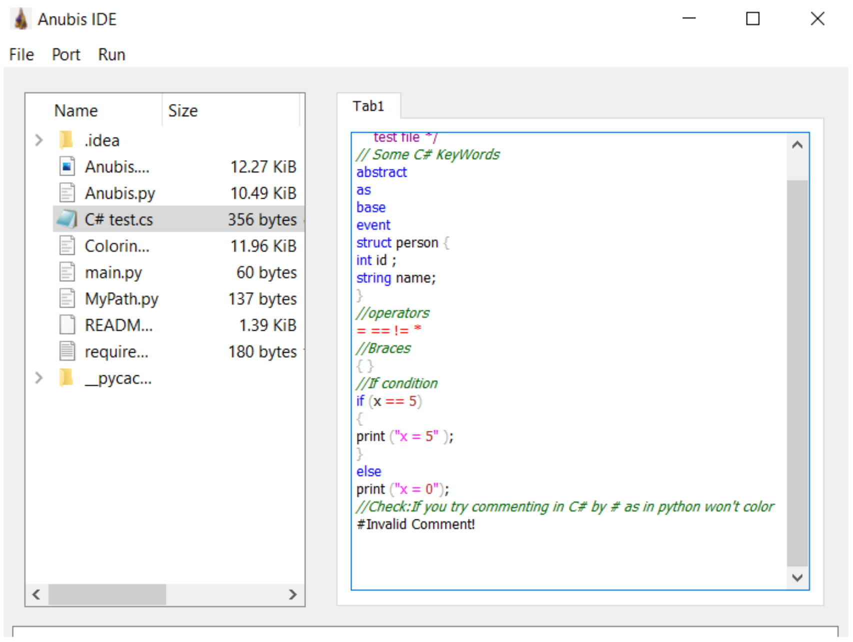
1- A screenshot of the IDE correctly highlighting a Python file according to the Python syntax.



Name	Size
.idea	
Anubis....	12.27 KiB
Anubis.py	10.49 KiB
C# test.cs	269 bytes
Colorin...	11.96 KiB
main.py	60 bytes
MyPath.py	137 bytes
READM...	1.39 KiB
require...	180 bytes
__pycac...	

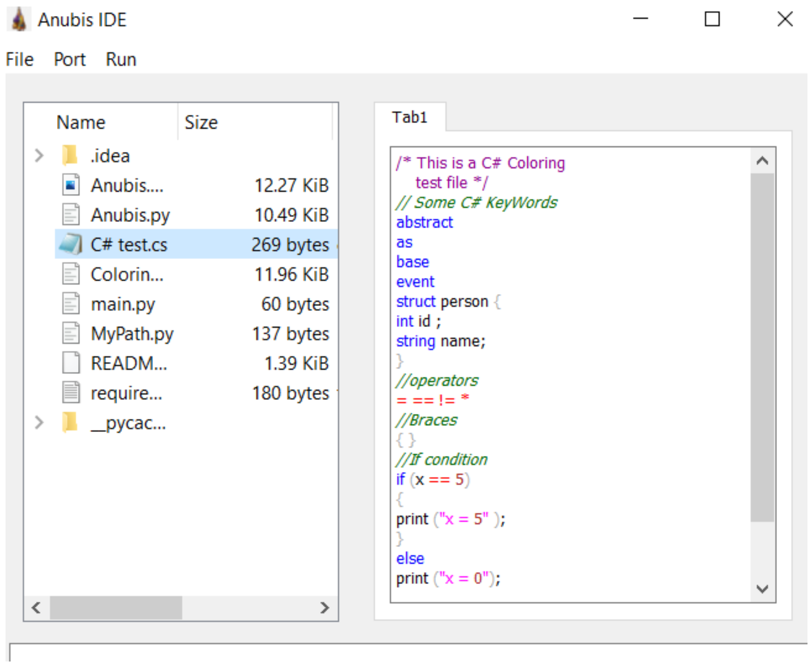
```
#############     author => Anubis Graduation Team
############
#############     this project is part of my graduation project
and it intends to make a fully functioned IDE from scratch
########
#############     I've borrowed a function (serial_ports())
from a guy in stack overflow whome I can't remember his name, so I
gave hime the copyrights of this function, thank you  ########


import sys
import glob
import serial

import Coloring
from PyQt5 import QtCore
from PyQt5 import QtGui
from PyQt5.QtWidgets import *
```

2- Checking whether the Python syntax and rules are separated from the C# syntax and rules during operation. This check is done through writing a comment using the Python syntax but inside a C# file. The IDE does not color this Python inline comment.



```
test file */
// Some C# KeyWords
abstract
as
base
event
struct person {
int id ;
string name;
}
//operators
= == != *
//Braces
{ }
//If condition
if (x == 5)
{
print ("x = 5" );
}
else
print ("x = 0");
//Check:If you try commenting in C# by # as in python won't color
#Invalid Comment!
```

3- This is a screenshot of a C# file highlighted using the C# syntax rules and keywords.

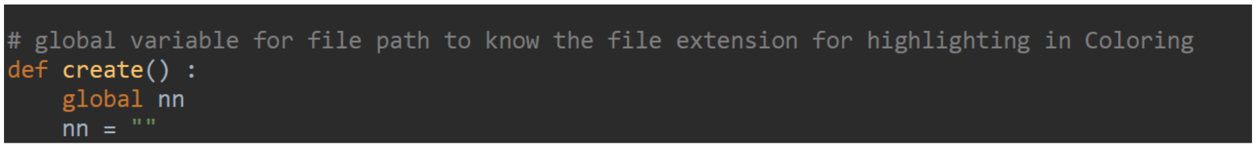


```
/* This is a C# Coloring
   test file */
// Some C# KeyWords
abstract
as
base
event
struct person {
int id ;
string name;
}
//operators
= == != *
//Braces
{ }
//If condition
if (x == 5)
{
print ("x = 5" );
}
else
print ("x = 0");
```

6.0 Code:

In this section, I will include all the code written in Python in order to develop this Anubis IDE in its full evolved version.

6.1 MyPath.py:



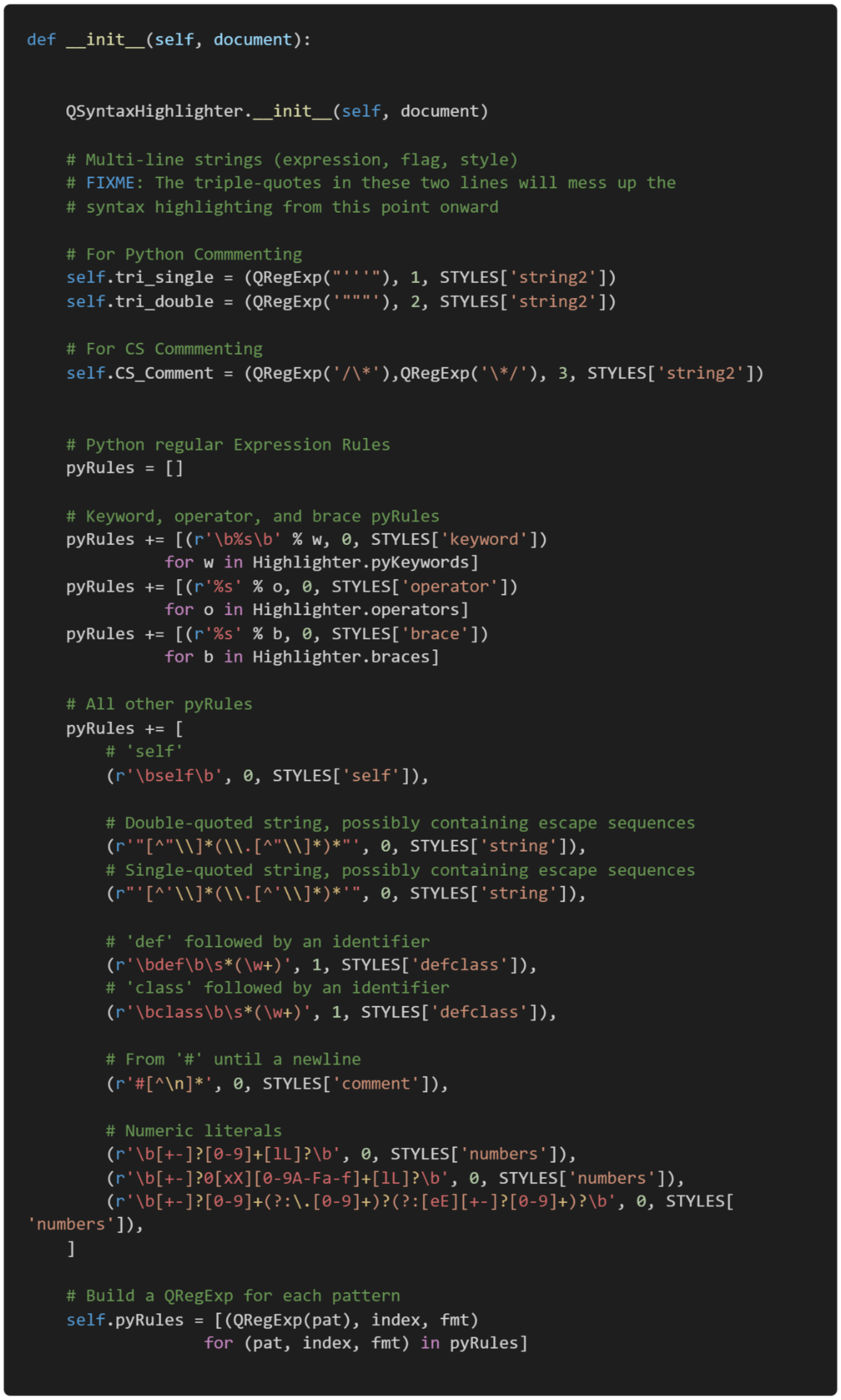
```
# global variable for file path to know the file extension for highlighting in Coloring
def create() :
    global nn
    nn = ""
```

This is a module which only stores a global shared variable which contains the value of the extension of the file loaded in the IDE.

6.2 Coloring.py:

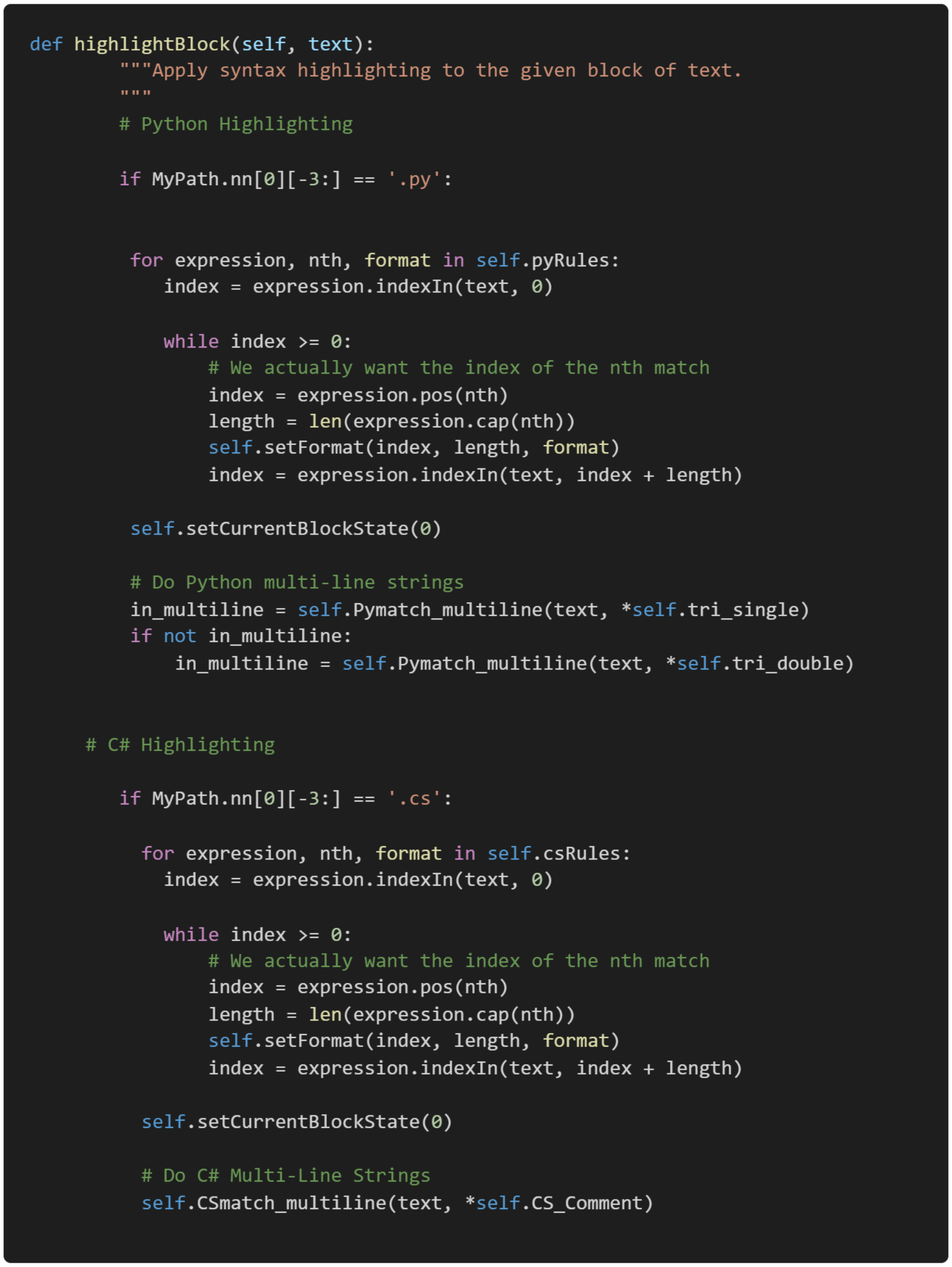
```python
import sys
from PyQt5.QtCore import QRegExp
from PyQt5.QtGui import QColor, QTextCharFormat, QFont, QSyntaxHighlighter
import MyPath
# A Module created for sharing a Global Variable for Path to be used based
# on extension in Coloring


def format(color, style=''):
    """
    Return a QTextCharFormat with the given attributes.
    """
    _color = QColor()
    if type(color) is not str:
        _color.setRgb(color[0], color[1], color[2])
    else:
        _color.setNamedColor(color)

    _format = QTextCharFormat()
    _format.setForeground(_color)
    if 'bold' in style:
        _format.setFontWeight(QFont.Bold)
    if 'italic' in style:
        _format.setFontItalic(True)

    return _format


# Syntax styles that can be shared by all languages

STYLES2 = {
    'keyword': format([200, 120, 50], 'bold'),
    'operator': format([150, 150, 150]),
    'brace': format('darkGray'),
    'defclass': format([220, 220, 255], 'bold'),
    'string': format([20, 110, 100]),
    'string2': format([30, 120, 110]),
    'comment': format([128, 128, 128]),
    'self': format([150, 85, 140], 'italic'),
    'numbers': format([100, 150, 190]),
}
STYLES = {
    'keyword': format('blue'),
    'operator': format('red'),
    'brace': format('darkGray'),
    'defclass': format('black', 'bold'),
    'string': format('magenta'),
    'string2': format('darkMagenta'),
    'comment': format('darkGreen', 'italic'),
    'self': format('black', 'italic'),
    'numbers': format('brown'),
}
```

```
class Highlighter(QSyntaxHighlighter):
    """Syntax highlighter for the Python and C# languages.
    """
    # Python keywords
    pyKeywords = [
        'and', 'assert', 'break', 'class', 'continue', 'def',
        'del', 'elif', 'else', 'except', 'exec', 'finally',
        'for', 'from', 'global', 'if', 'import', 'in',
        'is', 'lambda', 'not', 'or', 'pass', 'print',
        'raise', 'return', 'try', 'while', 'yield',
        'None', 'True', 'False',
    ]

    # C# keywords

    csKeywords = ['abstract', 'as', 'base', 'bool'
        , 'break', 'byte', 'case', 'catch'
        , 'char', 'checked', 'class', 'const'
        , 'continue', 'decimal', 'default','delegate'
        , 'do', 'double', 'else', 'enum'
        , 'event', 'explicit', 'extern', 'false'
        , 'finally', 'fixed', 'float', 'for'
        , 'foreach', 'goto', 'if', 'implicit', 'in', 'int', 'interface',
'internal'
        , 'is', 'lock', 'long', 'namespace', 'new', 'null', 'object', 'operator'
        , 'out', 'override', 'params', 'private', 'protected', 'public',
'readonly', 'ref'',return', 'sbyte', 'sealed','short', 'sizeof', 'stackalloc',
'static', 'string'
        , 'struct', 'switch', 'this', 'throw'
        , 'true', 'try', 'typeof', 'uint'
        , 'ulong', 'unchecked', 'unsafe', 'ushort'
        , 'using', 'virtual', 'void', 'volatile','while', 'var']

    #operators
    operators = [
        '=',
        # Comparison
        '==', '!=', '<', '<=', '>', '>=',
        # Arithmetic
        '\+', '-', '\*', '/', '//', '\%', '\*\*',
        # In-place
        '\+=', '-=', '\*=', '/=', '\%=',
        # Bitwise
        '\^', '\|', '\&', '\~', '>>', '<<',
    ]

    #  braces
    braces = [
        '\{', '\}', '\(', '\)', '\[', '\]',
    ]
```

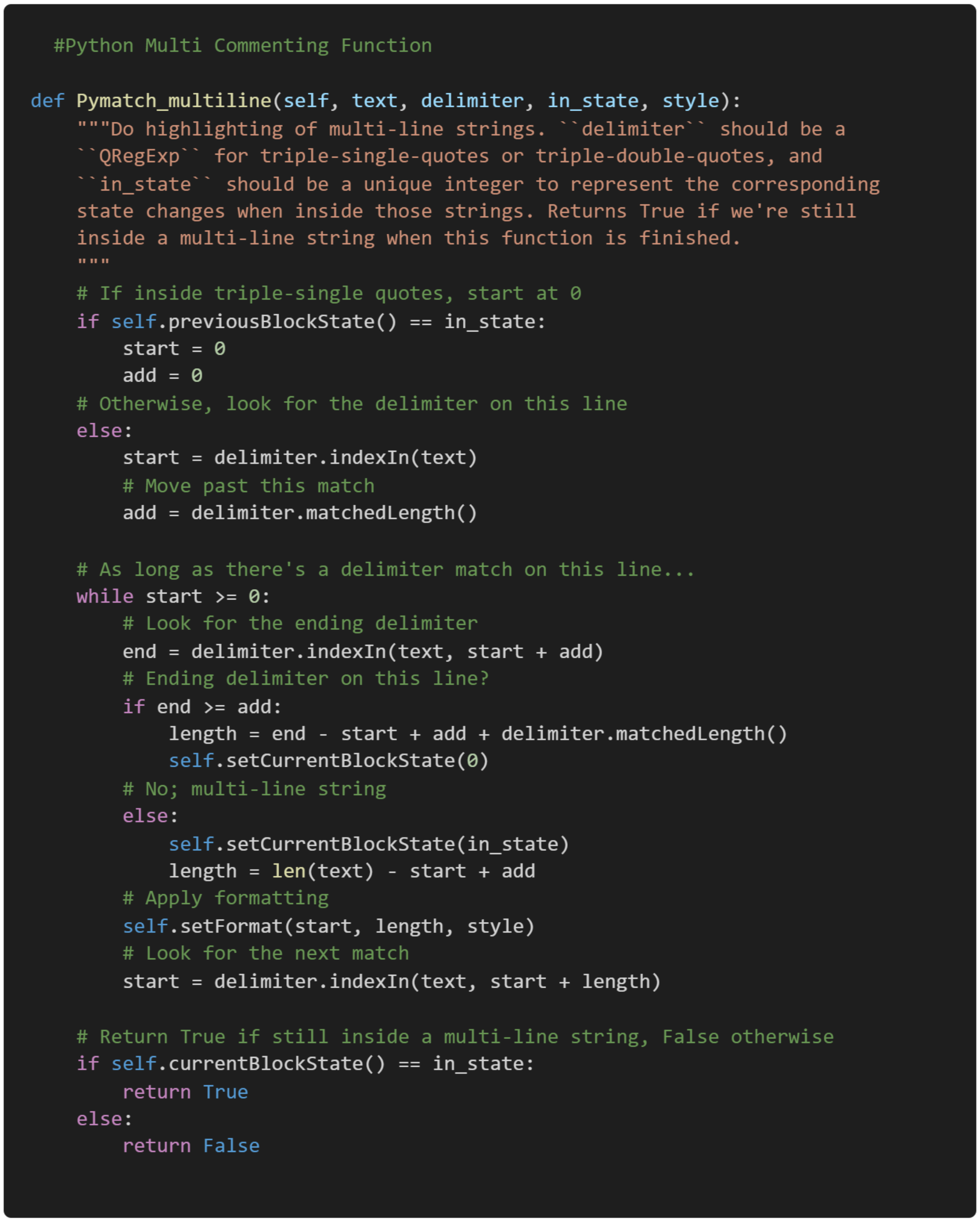


```
def __init__(self, document):


    QSyntaxHighlighter.__init__(self, document)

    # Multi-line strings (expression, flag, style)
    # FIXME: The triple-quotes in these two lines will mess up the
    # syntax highlighting from this point onward

    # For Python Commmenting
    self.tri_single = (QRegExp("'''"), 1, STYLES['string2'])
    self.tri_double = (QRegExp('"""'), 2, STYLES['string2'])

    # For CS Commmenting
    self.CS_Comment = (QRegExp('/\*'),QRegExp('\*/'), 3, STYLES['string2'])


    # Python regular Expression Rules
    pyRules = []

    # Keyword, operator, and brace pyRules
    pyRules += [(r'\b%s\b' % w, 0, STYLES['keyword'])
              for w in Highlighter.pyKeywords]
    pyRules += [(r'%s' % o, 0, STYLES['operator'])
              for o in Highlighter.operators]
    pyRules += [(r'%s' % b, 0, STYLES['brace'])
              for b in Highlighter.braces]

    # All other pyRules
    pyRules += [
        # 'self'
        (r'\bself\b', 0, STYLES['self']),

        # Double-quoted string, possibly containing escape sequences
        (r'"[^"\\]*(\\.[^"\\]*)*"', 0, STYLES['string']),
        # Single-quoted string, possibly containing escape sequences
        (r"'[^'\\]*(\\.[^'\\]*)*'", 0, STYLES['string']),

        # 'def' followed by an identifier
        (r'\bdef\b\s*(\w+)', 1, STYLES['defclass']),
        # 'class' followed by an identifier
        (r'\bclass\b\s*(\w+)', 1, STYLES['defclass']),

        # From '#' until a newline
        (r'#[^\n]*', 0, STYLES['comment']),

        # Numeric literals
        (r'\b[+-]?[0-9]+[lL]?\b', 0, STYLES['numbers']),
        (r'\b[+-]?0[xX][0-9A-Fa-f]+[lL]?\b', 0, STYLES['numbers']),
        (r'\b[+-]?[0-9]+(?:\.[0-9]+)?(?:[eE][+-]?[0-9]+)?\b', 0, STYLES[
'numbers']),
    ]

    # Build a QRegExp for each pattern
    self.pyRules = [(QRegExp(pat), index, fmt)
                  for (pat, index, fmt) in pyRules]
```

```
# C# regular Expression Rules
       csRules = []

       # Keyword, operator, and brace C# Rules
       csRules += [(r'\b%s\b' % w, 0, STYLES['keyword'])
                   for w in Highlighter.csKeywords]
       csRules += [(r'%s' % o, 0, STYLES['operator'])
                   for o in Highlighter.operators]
       csRules += [(r'%s' % b, 0, STYLES['brace'])
                   for b in Highlighter.braces]

       # All other C# Rules
       csRules += [
           # 'self'
           (r'\bself\b', 0, STYLES['self']),

           # Double-quoted string, possibly containing escape sequences
           (r'"[^"\\]*(\\.[^"\\]*)*"', 0, STYLES['string']),
           # Single-quoted string, possibly containing escape sequences
           (r"'[^'\\]*(\\.[^'\\]*)*'", 0, STYLES['string']),

           # 'def' followed by an identifier
           (r'\bdef\b\s*(\w+)', 1, STYLES['defclass']),
           # 'class' followed by an identifier
           (r'\bclass\b\s*(\w+)', 1, STYLES['defclass']),

           # From '//' until a newline
           (r'//[^\n]*', 0, STYLES['comment']),

           # Numeric literals
           (r'\b[+-]?[0-9]+[lL]?\b', 0, STYLES['numbers']),
           (r'\b[+-]?0[xX][0-9A-Fa-f]+[lL]?\b', 0, STYLES['numbers']),
           (r'\b[+-]?[0-9]+(?:\.[0-9]+)?(?:[eE][+-]?[0-9]+)?\b', 0, STYLES[
'numbers']),
       ]

       # Build a QRegExp for each pattern
       self.csRules = [(QRegExp(pat), index, fmt)
                       for (pat, index, fmt) in csRules]
```



```
def highlightBlock(self, text):
        """Apply syntax highlighting to the given block of text.
        """
        # Python Highlighting

        if MyPath.nn[0][-3:] == '.py':


         for expression, nth, format in self.pyRules:
            index = expression.indexIn(text, 0)

            while index >= 0:
                # We actually want the index of the nth match
                index = expression.pos(nth)
                length = len(expression.cap(nth))
                self.setFormat(index, length, format)
                index = expression.indexIn(text, index + length)

         self.setCurrentBlockState(0)

         # Do Python multi-line strings
         in_multiline = self.Pymatch_multiline(text, *self.tri_single)
         if not in_multiline:
             in_multiline = self.Pymatch_multiline(text, *self.tri_double)


     # C# Highlighting

        if MyPath.nn[0][-3:] == '.cs':

          for expression, nth, format in self.csRules:
            index = expression.indexIn(text, 0)

            while index >= 0:
                # We actually want the index of the nth match
                index = expression.pos(nth)
                length = len(expression.cap(nth))
                self.setFormat(index, length, format)
                index = expression.indexIn(text, index + length)

          self.setCurrentBlockState(0)

          # Do C# Multi-Line Strings
          self.CSmatch_multiline(text, *self.CS_Comment)
```

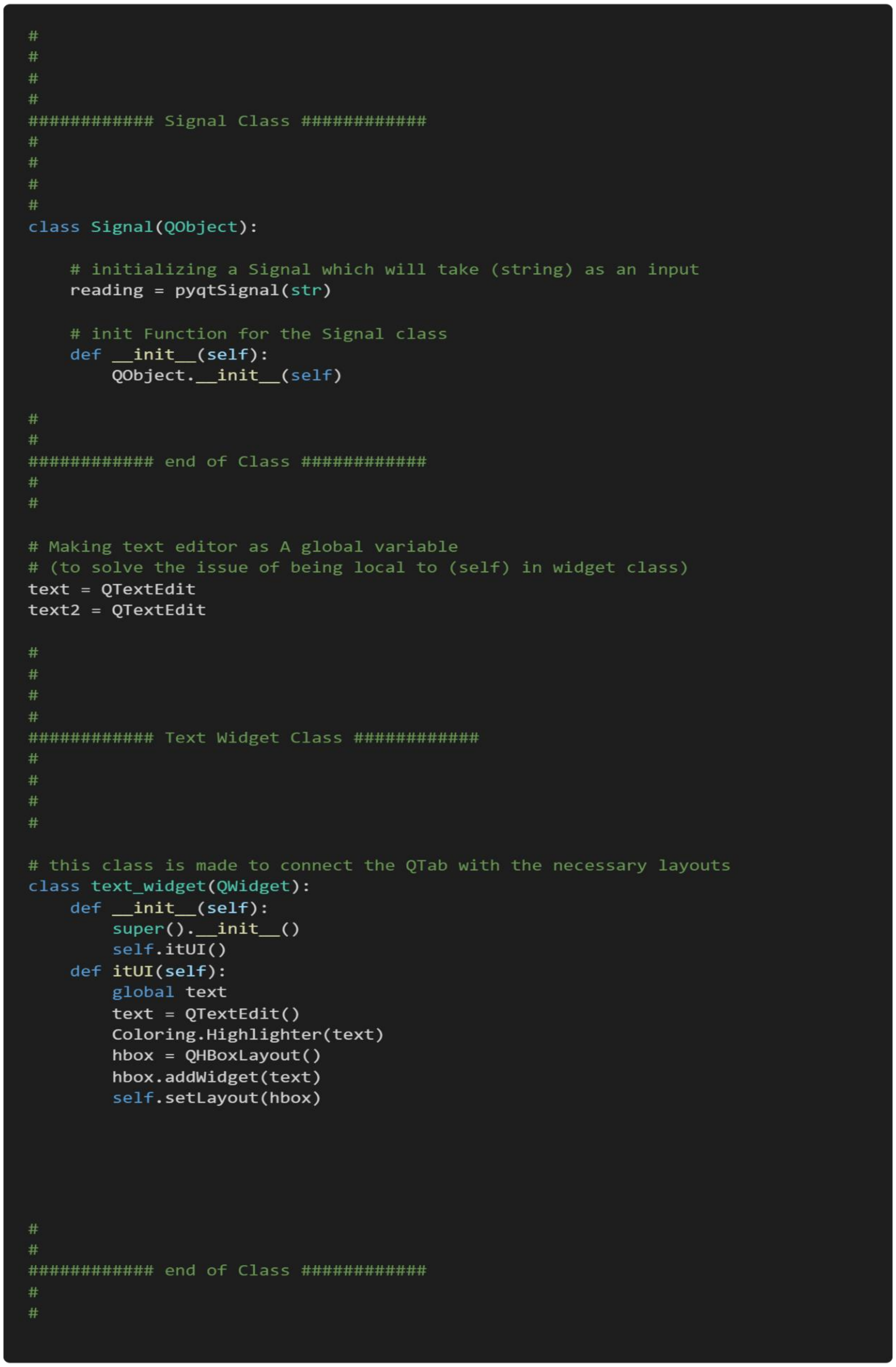


```
  #Python Multi Commenting Function

def Pymatch_multiline(self, text, delimiter, in_state, style):
    """Do highlighting of multi-line strings. ``delimiter`` should be a
    ``QRegExp`` for triple-single-quotes or triple-double-quotes, and
    ``in_state`` should be a unique integer to represent the corresponding
    state changes when inside those strings. Returns True if we're still
    inside a multi-line string when this function is finished.
    """
    # If inside triple-single quotes, start at 0
    if self.previousBlockState() == in_state:
        start = 0
        add = 0
    # Otherwise, look for the delimiter on this line
    else:
        start = delimiter.indexIn(text)
        # Move past this match
        add = delimiter.matchedLength()

    # As long as there's a delimiter match on this line...
    while start >= 0:
        # Look for the ending delimiter
        end = delimiter.indexIn(text, start + add)
        # Ending delimiter on this line?
        if end >= add:
            length = end - start + add + delimiter.matchedLength()
            self.setCurrentBlockState(0)
        # No; multi-line string
        else:
            self.setCurrentBlockState(in_state)
            length = len(text) - start + add
        # Apply formatting
        self.setFormat(start, length, style)
        # Look for the next match
        start = delimiter.indexIn(text, start + length)

    # Return True if still inside a multi-line string, False otherwise
    if self.currentBlockState() == in_state:
        return True
    else:
        return False
```

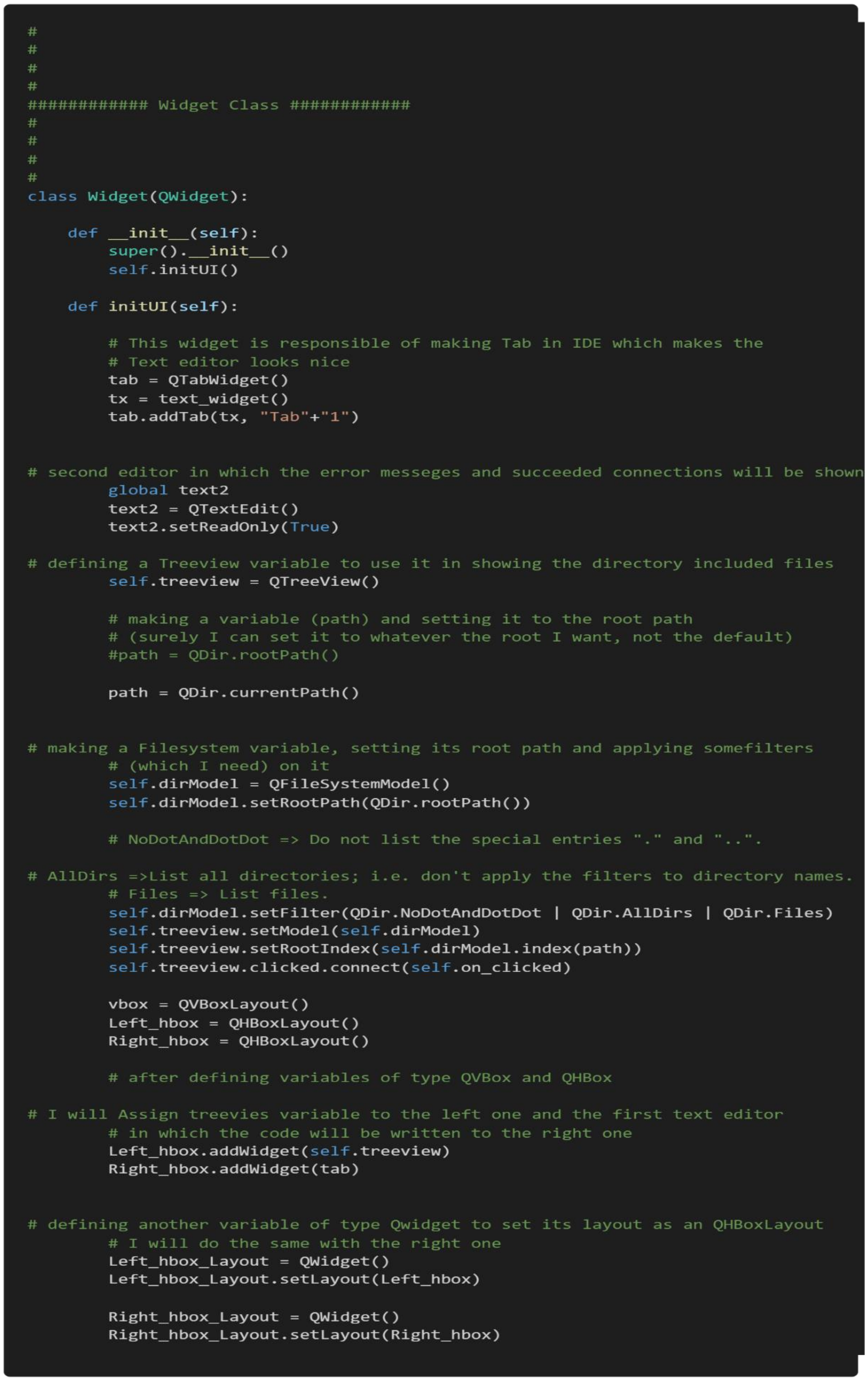
```
# C# Multi Commenting

   def CSmatch_multiline(self, text, Beginning, Ending, in_state, style):
       """Do highlighting of multi-line strings. There should be a
         ``QRegExp`` for /* as  Beginning and */ as Ending(Delimiter) , and
         ``in_state`` should be a unique integer to represent the corresponding
         state changes when inside those strings. Returns True if we're still
         inside a multi-line string when this function is finished.
         """
       # If inside /* , start at 0
       if self.previousBlockState() == in_state:
           start = 0
           add = 0
       # Otherwise, look for the Ending on this line
       else:
           start = Beginning.indexIn(text)
           # Move past this match
           add = Beginning.matchedLength()

       # As long as there's a Ending match on this line...
       while start >= 0:
           # Look for the ending delimiter
           end = Ending.indexIn(text, start + add)
           # Ending delimiter on this line?
           if end >= add:
               length = end - start + add + Ending.matchedLength()
               self.setCurrentBlockState(0)
           # No; multi-line string
           else:
               self.setCurrentBlockState(in_state)
               length = len(text) - start + add
           # Apply formatting
           self.setFormat(start, length, style)
           # Look for the next match
           start = Ending.indexIn(text, start + length)

       # Return True if still inside a multi-line string, False otherwise
       if self.currentBlockState() == in_state:
           return True
       else:
           return False
```

6.3 Anubis.py:

```python
import sys
import glob
import serial

import Coloring
from PyQt5 import QtCore
from PyQt5 import QtGui
from PyQt5.QtWidgets import *
from PyQt5.QtCore import *
from pathlib import Path
import MyPath

def serial_ports():
    """ Lists serial port names
        :raises EnvironmentError:
            On unsupported or unknown platforms
        :returns:
            A list of the serial ports available on the system
    """
    if sys.platform.startswith('win'):
        ports = ['COM%s' % (i + 1) for i in range(256)]
    elif sys.platform.startswith('linux') or sys.platform.startswith('cygwin'):
        # this excludes your current terminal "/dev/tty"
        ports = glob.glob('/dev/tty[A-Za-z]*')
    elif sys.platform.startswith('darwin'):
        ports = glob.glob('/dev/tty.*')
    else:
        raise EnvironmentError('Unsupported platform')

    result = []
    for port in ports:
        try:
            s = serial.Serial(port)
            s.close()
            result.append(port)
        except (OSError, serial.SerialException):
            pass
    return result
```

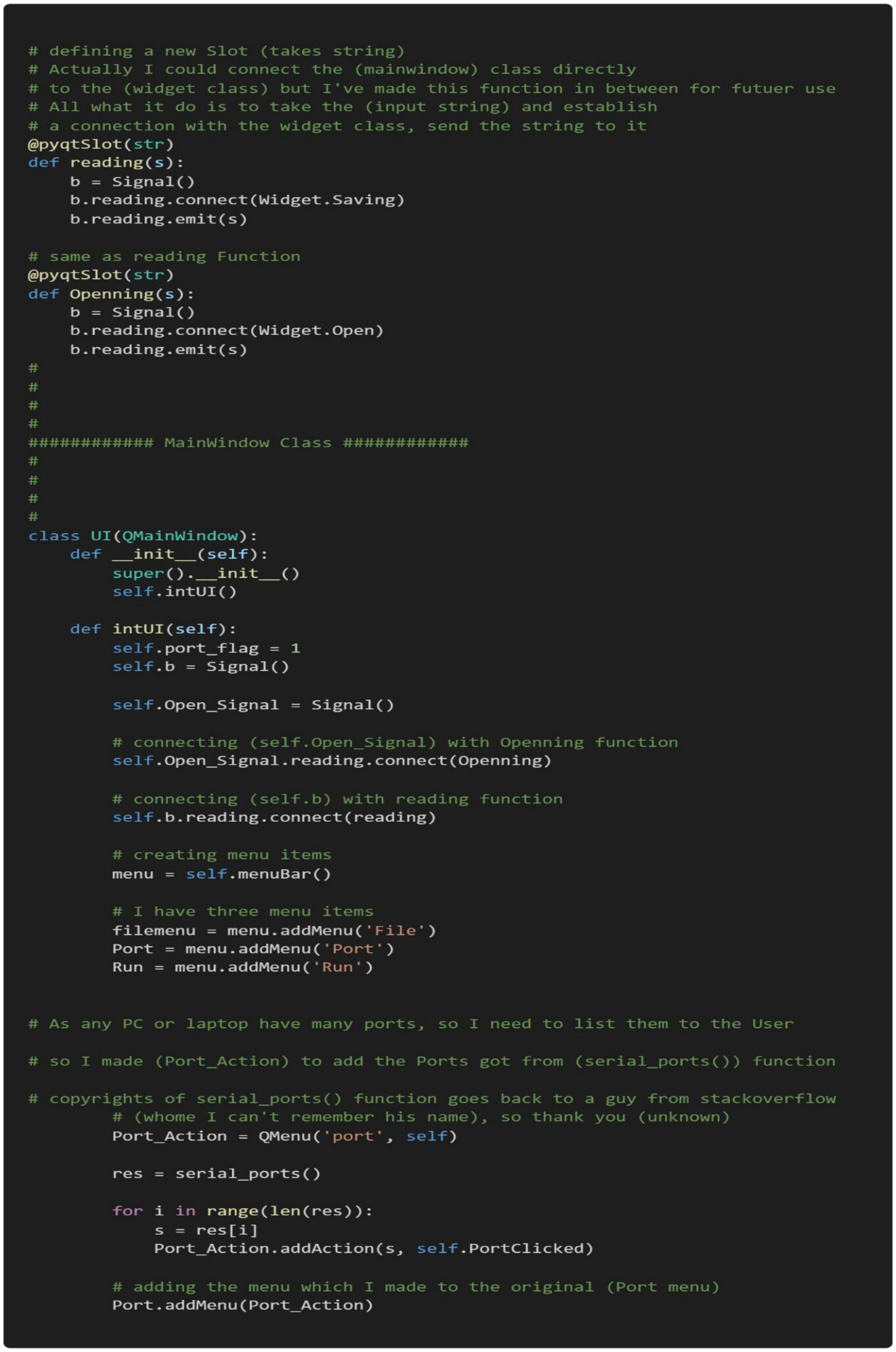


```
#
#
#
#
############ Signal Class ############
#
#
#
#
class Signal(QObject):

    # initializing a Signal which will take (string) as an input
    reading = pyqtSignal(str)

    # init Function for the Signal class
    def __init__(self):
        QObject.__init__(self)

#
#
############ end of Class ############
#
#

# Making text editor as A global variable
# (to solve the issue of being local to (self) in widget class)
text = QTextEdit
text2 = QTextEdit

#
#
#
#
############ Text Widget Class ############
#
#
#
#

# this class is made to connect the QTab with the necessary layouts
class text_widget(QWidget):
    def __init__(self):
        super().__init__()
        self.itUI()
    def itUI(self):
        global text
        text = QTextEdit()
        Coloring.Highlighter(text)
        hbox = QHBoxLayout()
        hbox.addWidget(text)
        self.setLayout(hbox)





#
#
############ end of Class ############
#
#
```

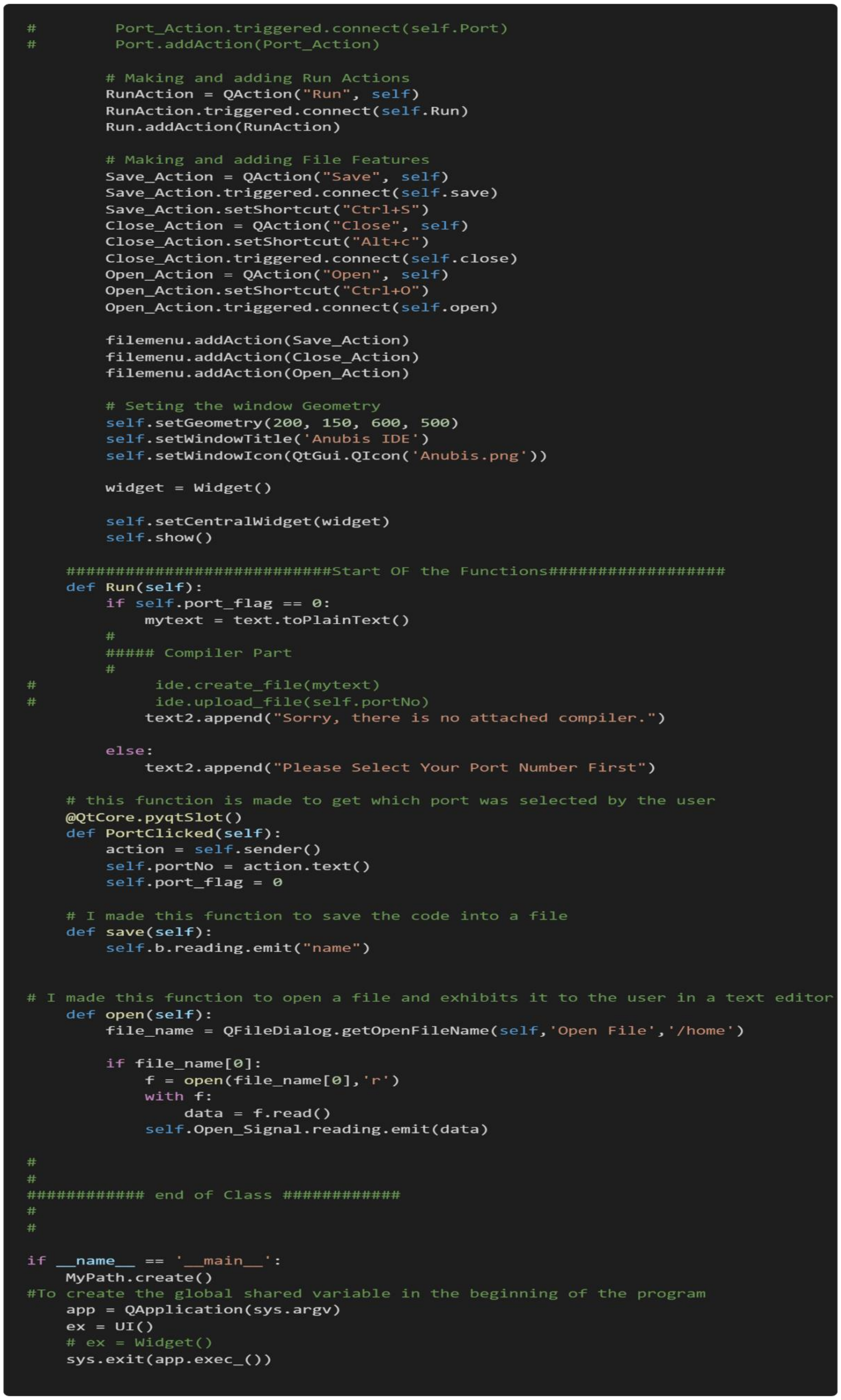


```
#
#
#
#
############ Widget Class ############
#
#
#
#
class Widget(QWidget):

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

    def initUI(self):

        # This widget is responsible of making Tab in IDE which makes the
        # Text editor looks nice
        tab = QTabWidget()
        tx = text_widget()
        tab.addTab(tx, "Tab"+"1")


# second editor in which the error messeges and succeeded connections will be shown
        global text2
        text2 = QTextEdit()
        text2.setReadOnly(True)

# defining a Treeview variable to use it in showing the directory included files
        self.treeview = QTreeView()

        # making a variable (path) and setting it to the root path
        # (surely I can set it to whatever the root I want, not the default)
        #path = QDir.rootPath()

        path = QDir.currentPath()


# making a Filesystem variable, setting its root path and applying somefilters
        # (which I need) on it
        self.dirModel = QFileSystemModel()
        self.dirModel.setRootPath(QDir.rootPath())

        # NoDotAndDotDot => Do not list the special entries "." and "..".

# AllDirs =>List all directories; i.e. don't apply the filters to directory names.
        # Files => List files.
        self.dirModel.setFilter(QDir.NoDotAndDotDot | QDir.AllDirs | QDir.Files)
        self.treeview.setModel(self.dirModel)
        self.treeview.setRootIndex(self.dirModel.index(path))
        self.treeview.clicked.connect(self.on_clicked)

        vbox = QVBoxLayout()
        Left_hbox = QHBoxLayout()
        Right_hbox = QHBoxLayout()

        # after defining variables of type QVBox and QHBox

# I will Assign treevies variable to the left one and the first text editor
        # in which the code will be written to the right one
        Left_hbox.addWidget(self.treeview)
        Right_hbox.addWidget(tab)


# defining another variable of type Qwidget to set its layout as an QHBoxLayout
        # I will do the same with the right one
        Left_hbox_Layout = QWidget()
        Left_hbox_Layout.setLayout(Left_hbox)

        Right_hbox_Layout = QWidget()
        Right_hbox_Layout.setLayout(Right_hbox)
```

```
 # I defined a splitter to seperate the two variables (left, right) and
        # make it more easily to change the space between them
        H_splitter = QSplitter(Qt.Horizontal)
        H_splitter.addWidget(Left_hbox_Layout)
        H_splitter.addWidget(Right_hbox_Layout)
        H_splitter.setStretchFactor(1, 1)

        # I defined a new splitter to seperate between the upper
        # and lower sides of the window
        V_splitter = QSplitter(Qt.Vertical)
        V_splitter.addWidget(H_splitter)
        V_splitter.addWidget(text2)

        Final_Layout = QHBoxLayout(self)
        Final_Layout.addWidget(V_splitter)

        self.setLayout(Final_Layout)

    # defining a new Slot (takes string) to save the text inside
    # the first text editor
    @pyqtSlot(str)
    def Saving(s):
        with open('main.py', 'w') as f:
            TEXT = text.toPlainText()
            f.write(TEXT)

    # defining a new Slot (takes string) to set the string to the text editor
    @pyqtSlot(str)
    def Open(s):
        global text
        text.setText(s)

    def on_clicked(self, index):

        #Getting Path in a shared module for Extension deffering in Coloring
        MyPath.nn = self.sender().model().filePath(index)
        MyPath.nn = tuple([MyPath.nn])

        if MyPath.nn[0]:
            f = open(MyPath.nn[0],'r')
            with f:
                data = f.read()
                text.setText(data)

#
#
############ end of Class ############
#
#
```



```
# defining a new Slot (takes string)
# Actually I could connect the (mainwindow) class directly
# to the (widget class) but I've made this function in between for futuer use
# All what it do is to take the (input string) and establish
# a connection with the widget class, send the string to it
@pyqtSlot(str)
def reading(s):
    b = Signal()
    b.reading.connect(Widget.Saving)
    b.reading.emit(s)

# same as reading Function
@pyqtSlot(str)
def Openning(s):
    b = Signal()
    b.reading.connect(Widget.Open)
    b.reading.emit(s)
#
#
#
#
############ MainWindow Class ############
#
#
#
#
class UI(QMainWindow):
    def __init__(self):
        super().__init__()
        self.intUI()

    def intUI(self):
        self.port_flag = 1
        self.b = Signal()

        self.Open_Signal = Signal()

        # connecting (self.Open_Signal) with Openning function
        self.Open_Signal.reading.connect(Openning)

        # connecting (self.b) with reading function
        self.b.reading.connect(reading)

        # creating menu items
        menu = self.menuBar()

        # I have three menu items
        filemenu = menu.addMenu('File')
        Port = menu.addMenu('Port')
        Run = menu.addMenu('Run')


# As any PC or laptop have many ports, so I need to list them to the User

# so I made (Port_Action) to add the Ports got from (serial_ports()) function

# copyrights of serial_ports() function goes back to a guy from stackoverflow
        # (whome I can't remember his name), so thank you (unknown)
        Port_Action = QMenu('port', self)

        res = serial_ports()

        for i in range(len(res)):
            s = res[i]
            Port_Action.addAction(s, self.PortClicked)

        # adding the menu which I made to the original (Port menu)
        Port.addMenu(Port_Action)
```



```
#        Port_Action.triggered.connect(self.Port)
#        Port.addAction(Port_Action)

        # Making and adding Run Actions
        RunAction = QAction("Run", self)
        RunAction.triggered.connect(self.Run)
        Run.addAction(RunAction)

        # Making and adding File Features
        Save_Action = QAction("Save", self)
        Save_Action.triggered.connect(self.save)
        Save_Action.setShortcut("Ctrl+S")
        Close_Action = QAction("Close", self)
        Close_Action.setShortcut("Alt+c")
        Close_Action.triggered.connect(self.close)
        Open_Action = QAction("Open", self)
        Open_Action.setShortcut("Ctrl+O")
        Open_Action.triggered.connect(self.open)

        filemenu.addAction(Save_Action)
        filemenu.addAction(Close_Action)
        filemenu.addAction(Open_Action)

        # Seting the window Geometry
        self.setGeometry(200, 150, 600, 500)
        self.setWindowTitle('Anubis IDE')
        self.setWindowIcon(QtGui.QIcon('Anubis.png'))

        widget = Widget()

        self.setCentralWidget(widget)
        self.show()

    ###########################Start OF the Functions##################
    def Run(self):
        if self.port_flag == 0:
            mytext = text.toPlainText()
        #
        ##### Compiler Part
        #
#            ide.create_file(mytext)
#            ide.upload_file(self.portNo)
            text2.append("Sorry, there is no attached compiler.")

        else:
            text2.append("Please Select Your Port Number First")

    # this function is made to get which port was selected by the user
    @QtCore.pyqtSlot()
    def PortClicked(self):
        action = self.sender()
        self.portNo = action.text()
        self.port_flag = 0

    # I made this function to save the code into a file
    def save(self):
        self.b.reading.emit("name")


# I made this function to open a file and exhibits it to the user in a text editor
    def open(self):
        file_name = QFileDialog.getOpenFileName(self,'Open File','/home')

        if file_name[0]:
            f = open(file_name[0],'r')
            with f:
                data = f.read()
            self.Open_Signal.reading.emit(data)

#
#
############ end of Class ############
#
#

if __name__ == '__main__':
    MyPath.create()
#To create the global shared variable in the beginning of the program
    app = QApplication(sys.argv)
    ex = UI()
    # ex = Widget()
    sys.exit(app.exec_())
```