Free & Open Source Software
Lab Report

GUI

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1.1 Aim

Write a calculator GUI using any one of Gambas, GTK, QT.

1.2 Source Code

```
printf "%s\n" "Written By: "
printf "%s\n" "Arun Jose"
printf "%s\n" "S4CS"
printf "%s\n" "Roll No. 12"
import sys
from PyQt4 import QtGui, QtCore
from PyQt4.QtCore import Qt
import random
from math import sqrt
from math import factorial

num = 0.0
newNum = 0.0
sumAll = 0.0
operator = ""

opVar = False
sumIt = 0
positions = [[10, 145], [50, 145], [90, 145], [10, 110], [50, 110], [90, 110], [1
random.shuffle(positions)

class Main(QtGui.QMainWindow):

    def __init__(self):
        QtGui.QMainWindow.__init__(self)
        self.initUI()

    def initUI(self):

        self.line = QtGui.QLineEdit(self)
        self.line.move(5,5)
        self.line.setReadOnly(True)
        self.line.setAlignment(Qt.AlignRight)
        self.line.resize(200,25)

        zero = QtGui.QPushButton("0",self)
```

```
zero.move(10,180)
zero.resize(35,30)

one = QtGui.QPushButton("1",self)
one.move(positions[0][0],positions[0][1])
one.resize(35,30)

two = QtGui.QPushButton("2",self)
two.move(positions[1][0],positions[1][1])
two.resize(35,30)

three = QtGui.QPushButton("3",self)
three.move(positions[2][0],positions[2][1])
three.resize(35,30)

four = QtGui.QPushButton("4",self)
four.move(positions[3][0],positions[3][1])
four.resize(35,30)

five = QtGui.QPushButton("5",self)
five.move(positions[4][0],positions[4][1])
five.resize(35,30)

six = QtGui.QPushButton("6",self)
six.move(positions[5][0],positions[5][1])
six.resize(35,30)

seven = QtGui.QPushButton("7",self)
seven.move(positions[6][0],positions[6][1])
seven.resize(35,30)

eight = QtGui.QPushButton("8",self)
eight.move(positions[7][0],positions[7][1])
eight.resize(35,30)

nine = QtGui.QPushButton("9",self)
nine.move(positions[8][0],positions[8][1])
nine.resize(35,30)

switch = QtGui.QPushButton("+/-",self)
switch.move(50,180)
switch.resize(35,30)
switch.clicked.connect(self.Switch)
```

```
point = QtGui.QPushButton(".",self)
point.move(90,180)
point.resize(35,30)
point.clicked.connect(self.pointClicked)

div = QtGui.QPushButton("/",self)
div.move(130,75)
div.resize(35,30)

mult = QtGui.QPushButton("*",self)
mult.move(130,110)
mult.resize(35,30)

minus = QtGui.QPushButton("-",self)
minus.move(130,145)
minus.resize(35,30)

plus = QtGui.QPushButton("+",self)
plus.move(130,180)
plus.resize(35,30)

sqrt = QtGui.QPushButton("fact",self)
sqrt.move(170,75)
sqrt.resize(35,30)
sqrt.clicked.connect(self.Fact)

squared = QtGui.QPushButton("^2",self)
squared.move(170,110)
squared.resize(35,30)
squared.clicked.connect(self.Squared)

equal = QtGui.QPushButton("=",self)
equal.move(170,145)
equal.resize(35,65)
equal.clicked.connect(self.Equal)

c = QtGui.QPushButton("C",self)
c.move(145,35)
c.resize(60,30)
c.clicked.connect(self.C)

ce = QtGui.QPushButton("CE",self)
```

```
        ce.move(77,35)
        ce.resize(60,30)
        ce.clicked.connect(self.CE)

        back = QtGui.QPushButton("Back",self)
        back.move(10,35)
        back.resize(60,30)
        back.clicked.connect(self.Back)

        nums = [zero,one,two,three,four,five,six,seven,eight,nine]

        ops = [back,c,ce,div,mult,minus,plus,equal]

        rest = [switch,squared,sqrt,point]

        for i in nums:
            i.setStyleSheet("color:black;")
            i.clicked.connect(self.Nums)

        for i in ops:
            i.setStyleSheet("color:green;")

        for i in ops[3:7]:
            i.clicked.connect(self.Operator)


#---------Window settings --------------------------------

        self.setGeometry(400,400,240,250)
        self.setFixedSize(210,220)
        self.setWindowTitle("")
        self.setWindowIcon(QtGui.QIcon(""))
        self.show()

    def Nums(self):
        global num
        global newNum
        global opVar

        sender = self.sender()

        newNum = int(sender.text())
        setNum = str(newNum)
```

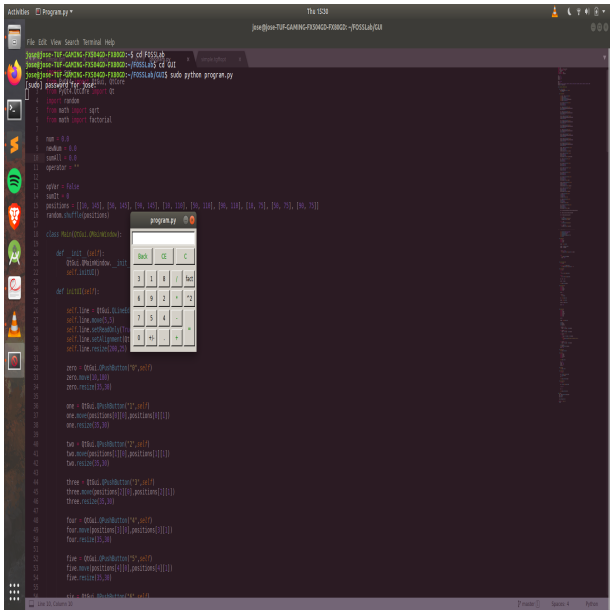
```
        if opVar == False:
            self.line.setText(self.line.text() + setNum)


        else:
            self.line.setText(setNum)
            opVar = False



    def pointClicked(self):
        global opVar

        if "." not in self.line.text():
            self.line.setText(self.line.text() + ".")

    def Switch(self):
        global num

        try:
            num = int(self.line.text())

        except:
            num = float(self.line.text())

        num = num - num * 2

        numStr = str(num)

        self.line.setText(numStr)

    def Operator(self):
        global num
        global opVar
        global operator
        global sumIt

        sumIt += 1

        if sumIt > 1:
            self.Equal()
```

```
        num = self.line.text()

        sender = self.sender()

        operator = sender.text()

        opVar = True



    def Equal(self):
        global num
        global newNum
        global sumAll
        global operator
        global opVar
        global sumIt

        sumIt = 0

        newNum = self.line.text()

        print(num)
        print(newNum)
        print(operator)

        if operator == "+":
            sumAll = float(num) + float(newNum)

        elif operator == "-":
            sumAll = float(num) - float(newNum)

        elif operator == "/":
            try:
                sumAll = float(num) / float(newNum)
            except:
                self.line.setText("Bad human. No division by zero.")
                return

        elif operator == "*":
            sumAll = float(num) * float(newNum)
```

```
        print(sumAll)
        self.line.setText(str(sumAll))
        opVar = True

    def Back(self):
        self.line.backspace()

    def C(self):
        global newNum
        global sumAll
        global operator
        global num

        self.line.clear()

        num = 0.0
        newNum = 0.0
        sumAll = 0.0
        operator = ""

    def CE(self):
        self.line.clear()

    def Fact(self):
        global num

        num = float(self.line.text())
        n = factorial(num)
        num = n

        self.line.setText(str(num))

    def Squared(self):
        global num

        num = float(self.line.text())

        n = num ** 2

        num = n

        self.line.setText(str(n))
```

```
def main():
    app = QtGui.QApplication(sys.argv)
    main= Main()
    main.show()

    sys.exit(app.exec_())

if __name__ == "__main__":
    main()
```

1.3 Sample



1.4 Result

The shell script was made and the output was verified. The script was run on Ubuntu 18.04.3 LTS.