TECHNICAL REPORT
PEMROGRAMAN DESKTOP
MODUL 3

Disusun Oleh :

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BAB I
TUJUAN DAN DASAR TEORI

A. TUJUAN

Pada praktikum kali ini bertujuan untuk memahami tentang cara pembuatan UI dan Layout dengan menggunakan Qt Designer sekaligus membuat fungsi menggunakan konsep signal dan slot.

B. DASAR TEORI

Setiap widget PyQt, yang diturunkan dari kelas QObject, dirancang untuk memancarkan signal sebagai respons terhadap satu atau lebih peristiwa. Signal tersebut memberikan sinyal kepada slot. Sementara slot tersebut dapat berupa fungsi Python apa pun yang dapat dipanggil dan akan di eksekusi.

BAB II

PEMBAHASAN

A. SOAL

1. Membuat aplikasi Calculator beserta signal dan slot fungsi calculator

B. JAWABAN

1.

```
# -*- coding: utf-8 -*-

# Form implementation generated from reading ui file
'Calculator_Fix.ui'
#
# Created by: PyQt5 UI code generator 5.15.1
#
# WARNING: Any manual changes made to this file will be lost when
pyuic5 is
# run again.  Do not edit this file unless you know what you are
doing.


from PyQt5 import QtCore, QtGui, QtWidgets


class Ui_Form(object):
    def setupUi(self, Form):
        Form.setObjectName("Form")
        Form.resize(410, 327)
        self.lineEdit = QtWidgets.QLineEdit(Form)
        self.lineEdit.setGeometry(QtCore.QRect(10, 10, 381, 41))
        self.lineEdit.setObjectName("lineEdit")
        self.pushBack = QtWidgets.QPushButton(Form)
        self.pushBack.setGeometry(QtCore.QRect(10, 70, 121, 41))
        self.pushBack.setObjectName("pushBack")
        self.pushCE = QtWidgets.QPushButton(Form)
        self.pushCE.setGeometry(QtCore.QRect(150, 70, 111, 41))
        self.pushCE.setObjectName("pushCE")
        self.pushC = QtWidgets.QPushButton(Form)
        self.pushC.setGeometry(QtCore.QRect(280, 70, 111, 41))
        self.pushC.setObjectName("pushC")
```

```
self.push7 = QtWidgets.QPushButton(Form)
self.push7.setGeometry(QtCore.QRect(10, 120, 61, 41))
self.push7.setObjectName("push7")
self.push4 = QtWidgets.QPushButton(Form)
self.push4.setGeometry(QtCore.QRect(10, 170, 61, 41))
self.push4.setObjectName("push4")
self.push1 = QtWidgets.QPushButton(Form)
self.push1.setGeometry(QtCore.QRect(10, 220, 61, 41))
self.push1.setObjectName("push1")
self.push0 = QtWidgets.QPushButton(Form)
self.push0.setGeometry(QtCore.QRect(10, 270, 61, 41))
self.push0.setObjectName("push0")
self.push8 = QtWidgets.QPushButton(Form)
self.push8.setGeometry(QtCore.QRect(90, 120, 61, 41))
self.push8.setObjectName("push8")
self.push5 = QtWidgets.QPushButton(Form)
self.push5.setGeometry(QtCore.QRect(90, 170, 61, 41))
self.push5.setObjectName("push5")
self.push2 = QtWidgets.QPushButton(Form)
self.push2.setGeometry(QtCore.QRect(90, 220, 61, 41))
self.push2.setObjectName("push2")
self.pushplusminus = QtWidgets.QPushButton(Form)
self.pushplusminus.setGeometry(QtCore.QRect(90, 270, 61, 41))
self.pushplusminus.setObjectName("pushplusminus")
self.push9 = QtWidgets.QPushButton(Form)
self.push9.setGeometry(QtCore.QRect(170, 120, 61, 41))
self.push9.setObjectName("push9")
self.push6 = QtWidgets.QPushButton(Form)
self.push6.setGeometry(QtCore.QRect(170, 170, 61, 41))
self.push6.setObjectName("push6")
self.push3 = QtWidgets.QPushButton(Form)
self.push3.setGeometry(QtCore.QRect(170, 220, 61, 41))
self.push3.setObjectName("push3")
self.pushdot = QtWidgets.QPushButton(Form)
self.pushdot.setGeometry(QtCore.QRect(170, 270, 61, 41))
self.pushdot.setObjectName("pushdot")
self.pushbagi = QtWidgets.QPushButton(Form)
self.pushbagi.setGeometry(QtCore.QRect(250, 120, 61, 41))
self.pushbagi.setObjectName("pushbagi")
self.pushkali = QtWidgets.QPushButton(Form)
```

```
self.pushkali.setGeometry(QtCore.QRect(250, 170, 61, 41))
self.pushkali.setObjectName("pushkali")
self.pushminus = QtWidgets.QPushButton(Form)
self.pushminus.setGeometry(QtCore.QRect(250, 220, 61, 41))
self.pushminus.setObjectName("pushminus")
self.pushplus = QtWidgets.QPushButton(Form)
self.pushplus.setGeometry(QtCore.QRect(250, 270, 61, 41))
self.pushplus.setObjectName("pushplus")
self.pushakar = QtWidgets.QPushButton(Form)
self.pushakar.setGeometry(QtCore.QRect(330, 120, 61, 41))
self.pushakar.setObjectName("pushakar")
self.pushkuadrat = QtWidgets.QPushButton(Form)
self.pushkuadrat.setGeometry(QtCore.QRect(330, 170, 61, 41))
self.pushkuadrat.setObjectName("pushkuadrat")
self.pushequal = QtWidgets.QPushButton(Form)
self.pushequal.setGeometry(QtCore.QRect(330, 220, 61, 91))
self.pushequal.setObjectName("pushequal")

self.retranslateUi(Form)
QtCore.QMetaObject.connectSlotsByName(Form)

self.push1.clicked.connect(self.function1)
self.push2.clicked.connect(self.function2)
self.push3.clicked.connect(self.function3)
self.push4.clicked.connect(self.function4)
self.push5.clicked.connect(self.function5)
self.push6.clicked.connect(self.function6)
self.push7.clicked.connect(self.function7)
self.push8.clicked.connect(self.function8)
self.push9.clicked.connect(self.function9)
self.push0.clicked.connect(self.function0)
self.pushdot.clicked.connect(self.functionDot)
self.pushplus.clicked.connect(self.functionPlus)
self.pushminus.clicked.connect(self.functionMinus)
self.pushplusminus.clicked.connect(self.functionPlusMinus)
self.pushkali.clicked.connect(self.functionKali)
self.pushbagi.clicked.connect(self.functionBagi)
self.pushakar.clicked.connect(self.functionAkar)
self.pushkuadrat.clicked.connect(self.functionKuadrat)
self.pushequal.clicked.connect(self.functionEqual)
```

```
    self.pushC.clicked.connect(self.functionC)
    self.pushCE.clicked.connect(self.functionCE)
    self.pushBack.clicked.connect(self.functionBack)

def function1(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"1")

def function2(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"2")

def function3(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"3")

def function4(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"4")

def function5(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"5")

def function6(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"6")

def function7(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"7")

def function8(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"8")

def function9(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"9")
```

```
def function0(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"0")

def functionDot(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+".")

def functionPlus(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"+")

def functionMinus(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"-")

def functionPlusMinus(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText("-"+inputEdit)

def functionKali(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"*")

def functionBagi(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"/")

def functionAkar(self):
    inputEdit = self.lineEdit.text()
    hasil = int(inputEdit) ** (0.5)
    self.lineEdit.setText(str(hasil))

def functionKuadrat(self):
    inputEdit = int(self.lineEdit.text())
    hasil = inputEdit * inputEdit
    self.lineEdit.setText(str(hasil))
    #self.lineEdit.setText(inputEdit+"²")

def functionC(self):
```

```
    self.lineEdit.setText("")

def functionCE(self):
    self.lineEdit.setText("")

def functionBack(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit[:len(inputEdit)-1])

def functionEqual(self):
    inputEdit = self.lineEdit.text()
    try:
        hasil = eval(inputEdit)
        self.lineEdit.setText(str(hasil))
    except:
        self.lineEdit.setText("INVALID")

def retranslateUi(self, Form):
    _translate = QtCore.QCoreApplication.translate
    Form.setWindowTitle(_translate("Form", "Calculator"))
    self.pushBack.setText(_translate("Form", "Back"))
    self.pushCE.setText(_translate("Form", "CE"))
    self.pushC.setText(_translate("Form", "C"))
    self.push7.setText(_translate("Form", "7"))
    self.push4.setText(_translate("Form", "4"))
    self.push1.setText(_translate("Form", "1"))
    self.push0.setText(_translate("Form", "0"))
    self.push8.setText(_translate("Form", "8"))
    self.push5.setText(_translate("Form", "5"))
    self.push2.setText(_translate("Form", "2"))
    self.pushplusminus.setText(_translate("Form", "+/-"))
    self.push9.setText(_translate("Form", "9"))
    self.push6.setText(_translate("Form", "6"))
    self.push3.setText(_translate("Form", "3"))
    self.pushdot.setText(_translate("Form", "."))
    self.pushbagi.setText(_translate("Form", "/"))
    self.pushkali.setText(_translate("Form", "*"))
    self.pushminus.setText(_translate("Form", "-"))
    self.pushplus.setText(_translate("Form", "+"))
    self.pushakar.setText(_translate("Form", "√"))
```

```
        self.pushkuadrat.setText(_translate("Form", "x²"))
        self.pushequal.setText(_translate("Form", "="))


if __name__ == "__main__":
    import sys
    app = QtWidgets.QApplication(sys.argv)
    Form = QtWidgets.QWidget()
    ui = Ui_Form()
    ui.setupUi(Form)
    Form.show()
    sys.exit(app.exec_())
```

2. Penjelasan Kode Program

- *class Ui_Form(object):*

  def setupUi(self, Form):

  Form.setObjectName("Form")

  Form.resize(410, 327)

  Membuat sebuah class dan sebuah fungsi yang berisi beberapa widgets didalamnya

- *self.lineEdit = QtWidgets.QLineEdit(Form)*

  self.lineEdit.setGeometry(QtCore.QRect(10, 10, 381, 41))

  self.lineEdit.setObjectName("lineEdit")

  self.pushBack = QtWidgets.QPushButton(Form)

  self.pushBack.setGeometry(QtCore.QRect(10, 70, 121, 41))

  self.pushBack.setObjectName("pushBack")

  self.pushCE = QtWidgets.QPushButton(Form)

  self.pushCE.setGeometry(QtCore.QRect(150, 70, 111, 41))

  self.pushCE.setObjectName("pushCE")

  self.pushC = QtWidgets.QPushButton(Form)

  self.pushC.setGeometry(QtCore.QRect(280, 70, 111, 41))

  self.pushC.setObjectName("pushC")

  self.push7 = QtWidgets.QPushButton(Form)

```
self.push7.setGeometry(QtCore.QRect(10, 120, 61, 41))
self.push7.setObjectName("push7")
self.push4 = QtWidgets.QPushButton(Form)
self.push4.setGeometry(QtCore.QRect(10, 170, 61, 41))
self.push4.setObjectName("push4")
self.push1 = QtWidgets.QPushButton(Form)
self.push1.setGeometry(QtCore.QRect(10, 220, 61, 41))
self.push1.setObjectName("push1")
self.push0 = QtWidgets.QPushButton(Form)
self.push0.setGeometry(QtCore.QRect(10, 270, 61, 41))
self.push0.setObjectName("push0")
self.push8 = QtWidgets.QPushButton(Form)
self.push8.setGeometry(QtCore.QRect(90, 120, 61, 41))
self.push8.setObjectName("push8")
self.push5 = QtWidgets.QPushButton(Form)
self.push5.setGeometry(QtCore.QRect(90, 170, 61, 41))
self.push5.setObjectName("push5")
self.push2 = QtWidgets.QPushButton(Form)
self.push2.setGeometry(QtCore.QRect(90, 220, 61, 41))
self.push2.setObjectName("push2")
self.pushplusminus = QtWidgets.QPushButton(Form)
self.pushplusminus.setGeometry(QtCore.QRect(90, 270, 61, 41))
self.pushplusminus.setObjectName("pushplusminus")
self.push9 = QtWidgets.QPushButton(Form)
self.push9.setGeometry(QtCore.QRect(170, 120, 61, 41))
self.push9.setObjectName("push9")
self.push6 = QtWidgets.QPushButton(Form)
self.push6.setGeometry(QtCore.QRect(170, 170, 61, 41))
self.push6.setObjectName("push6")
self.push3 = QtWidgets.QPushButton(Form)
```

self.push3.setGeometry(QtCore.QRect(170, 220, 61, 41))

self.push3.setObjectName("push3")

self.pushdot = QtWidgets.QPushButton(Form)

self.pushdot.setGeometry(QtCore.QRect(170, 270, 61, 41))

self.pushdot.setObjectName("pushdot")

self.pushbagi = QtWidgets.QPushButton(Form)

self.pushbagi.setGeometry(QtCore.QRect(250, 120, 61, 41))

self.pushbagi.setObjectName("pushbagi")

self.pushkali = QtWidgets.QPushButton(Form)

self.pushkali.setGeometry(QtCore.QRect(250, 170, 61, 41))

self.pushkali.setObjectName("pushkali")

self.pushminus = QtWidgets.QPushButton(Form)

self.pushminus.setGeometry(QtCore.QRect(250, 220, 61, 41))

self.pushminus.setObjectName("pushminus")

self.pushplus = QtWidgets.QPushButton(Form)

self.pushplus.setGeometry(QtCore.QRect(250, 270, 61, 41))

self.pushplus.setObjectName("pushplus")

self.pushakar = QtWidgets.QPushButton(Form)

self.pushakar.setGeometry(QtCore.QRect(330, 120, 61, 41))

self.pushakar.setObjectName("pushakar")

self.pushkuadrat = QtWidgets.QPushButton(Form)

self.pushkuadrat.setGeometry(QtCore.QRect(330, 170, 61, 41))

self.pushkuadrat.setObjectName("pushkuadrat")

self.pushequal = QtWidgets.QPushButton(Form)

self.pushequal.setGeometry(QtCore.QRect(330, 220, 61, 91))

self.pushequal.setObjectName("pushequal")

Membuat sebuah line edit dan beberapa push button, sekaligus mengatur posisinya.

- *self.retranslateUi(Form)*

  QtCore.QMetaObject.connectSlotsByName(Form)

self.push1.clicked.connect(self.function1)

self.push2.clicked.connect(self.function2)

self.push3.clicked.connect(self.function3)

self.push4.clicked.connect(self.function4)

self.push5.clicked.connect(self.function5)

self.push6.clicked.connect(self.function6)

self.push7.clicked.connect(self.function7)

self.push8.clicked.connect(self.function8)

self.push9.clicked.connect(self.function9)

self.push0.clicked.connect(self.function0)

self.pushdot.clicked.connect(self.functionDot)

self.pushplus.clicked.connect(self.functionPlus)

self.pushminus.clicked.connect(self.functionMinus)

self.pushplusminus.clicked.connect(self.functionPlusMinus)

self.pushkali.clicked.connect(self.functionKali)

self.pushbagi.clicked.connect(self.functionBagi)

self.pushakar.clicked.connect(self.functionAkar)

self.pushkuadrat.clicked.connect(self.functionKuadrat)

self.pushequal.clicked.connect(self.functionEqual)

self.pushC.clicked.connect(self.functionC)

self.pushCE.clicked.connect(self.functionCE)

self.pushBack.clicked.connect(self.functionBack)

Membuat sebuah signal pada push button dan yang akan terhubung ke fungsi masing – masing untuk melakukan suatu action.

- *def function1(self):*

  inputEdit = self.lineEdit.text()

  self.lineEdit.setText(inputEdit+"1")

def function2(self):

```
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"2")

def function3(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"3")

def function4(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"4")

def function5(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"5")

def function6(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"6")

def function7(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"7")

def function8(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"8")

def function9(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"9")
```

```
def function0(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"0")

def functionDot(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+".")

def functionPlus(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"+")

def functionMinus(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"-")

def functionPlusMinus(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText("-"+inputEdit)

def functionKali(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"*")

def functionBagi(self):
    inputEdit = self.lineEdit.text()
    self.lineEdit.setText(inputEdit+"/")

def functionAkar(self):
```

```
        inputEdit = self.lineEdit.text()
        hasil = int(inputEdit) ** (0.5)
        self.lineEdit.setText(str(hasil)))

    def functionKuadrat(self):
        inputEdit = int(self.lineEdit.text())
        hasil = inputEdit * inputEdit
        self.lineEdit.setText(str(hasil))
        #self.lineEdit.setText(inputEdit+"²")

    def functionC(self):
        self.lineEdit.setText("")

    def functionCE(self):
        self.lineEdit.setText("")

    def functionBack(self):
        inputEdit = self.lineEdit.text()
        self.lineEdit.setText(inputEdit[:len(inputEdit)-1])

    def functionEqual(self):
        inputEdit = self.lineEdit.text()
        try:
            hasil = eval(inputEdit)
            self.lineEdit.setText(str(hasil))
        except:
            self.lineEdit.setText("INVALID")
```

Membuat sebuah slot berupa fungsi yang menerima signal dari masing - masing button yang sudah klik

- *def retranslateUi(self, Form):*

_translate = QtCore.QCoreApplication.translate

Form.setWindowTitle(_translate("Form", "Calculator"))

self.pushBack.setText(_translate("Form", "Back"))

self.pushCE.setText(_translate("Form", "CE"))

self.pushC.setText(_translate("Form", "C"))

self.push7.setText(_translate("Form", "7"))

self.push4.setText(_translate("Form", "4"))

self.push1.setText(_translate("Form", "1"))

self.push0.setText(_translate("Form", "0"))

self.push8.setText(_translate("Form", "8"))

self.push5.setText(_translate("Form", "5"))

self.push2.setText(_translate("Form", "2"))

self.pushplusminus.setText(_translate("Form", "+/-"))

self.push9.setText(_translate("Form", "9"))

self.push6.setText(_translate("Form", "6"))

self.push3.setText(_translate("Form", "3"))

self.pushdot.setText(_translate("Form", "."))

self.pushbagi.setText(_translate("Form", "/"))

self.pushkali.setText(_translate("Form", ""))*

self.pushminus.setText(_translate("Form", "-"))

self.pushplus.setText(_translate("Form", "+"))

self.pushakar.setText(_translate("Form", "√"))

self.pushkuadrat.setText(_translate("Form", "x²"))

self.pushequal.setText(_translate("Form", "="))

Menamai kemebali tampilan yang ada pada masing – masing button sesuai dengan keinginan kita.

- *if __name__ == "__main__":*

  import sys

  app = QtWidgets.QApplication(sys.argv)

  Form = QtWidgets.QWidget()

ui = Ui_Form()

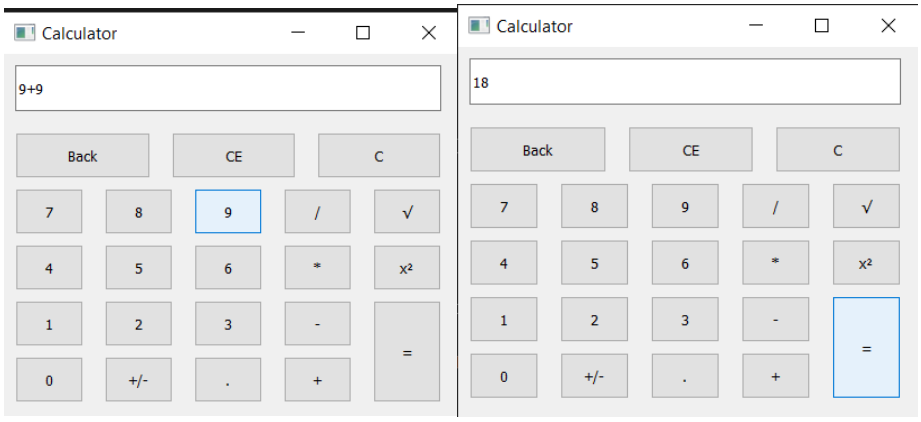
ui.setupUi(Form)

Form.show()

sys.exit(app.exec_())

Mendeklarasikan QApplication di dalam variable app, memasukkan value yang ada di class Ui_Form ke dalam variable ui. Kemudian menampilkan variable tersebut dengan fungsi show(), dan membuat system exit.

3. **Hasil Running Program**



BAB II
PENUTUP

A. Kesimpulan

1. Qt Designer adalah tools untuk mendesain dan membuild Graphical User Interfaces menggunakan QtComponents.
2. Qt Designer tidak hanya dapat digunakan untuk membuat aplikasi desktop, untuk aplikasi mobile juga bisa.
3. kelebihan Qt Designer adalah memungkinkan sebuah team pengembang aplikasi bekerja sama mengembangkan aplikasi dari berbagai platform dengan menggunakan tool-tool dan debugging yang sama
4. dengan adanya signal dan slot dapat membuat aplikasi yang di buat berfungsi lebih baik

B. Saran

Banyak mencoba dan mengekplorasi widget yang lain agar lebih paham