**Федеральное агентство связи**

**Ордена Трудового Красного Знамени федеральное государственное бюджетное**

**образовательное учреждение высшего образования**

**«Московский технический университет связи и информатики»**

**Лабораторная работа**

**«Калькулятор»**

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Код программы:

import sys

from PyQt5.QtWidgets import QApplication, QWidget, QLineEdit, QHBoxLayout, QVBoxLayout, QPushButton

class Calculator(QWidget):

def \_\_init\_\_(self):

super(Calculator, self).\_\_init\_\_()

self.vbox = QVBoxLayout(self)

self.hbox\_input = QHBoxLayout()

self.hbox\_first = QHBoxLayout()

self.hbox\_second = QHBoxLayout()

self.hbox\_third = QHBoxLayout()

self.hbox\_fourth = QHBoxLayout()

self.hbox\_result = QHBoxLayout()

self.vbox.addLayout(self.hbox\_input)

self.vbox.addLayout(self.hbox\_first)

self.vbox.addLayout(self.hbox\_second)

self.vbox.addLayout(self.hbox\_third)

self.vbox.addLayout(self.hbox\_fourth)

self.vbox.addLayout(self.hbox\_result)

self.input = QLineEdit(self)

self.hbox\_input.addWidget(self.input)

self.b\_1 = QPushButton("1", self)

self.hbox\_first.addWidget(self.b\_1)

self.b\_2 = QPushButton("2", self)

self.hbox\_first.addWidget(self.b\_2)

self.b\_3 = QPushButton("3", self)

self.hbox\_first.addWidget(self.b\_3)

self.b\_4 = QPushButton("4", self)

self.hbox\_second.addWidget(self.b\_4)

self.b\_5 = QPushButton("5", self)

self.hbox\_second.addWidget(self.b\_5)

self.b\_6 = QPushButton("6", self)

self.hbox\_second.addWidget(self.b\_6)

self.b\_7 = QPushButton("7", self)

self.hbox\_third.addWidget(self.b\_7)

self.b\_8 = QPushButton("8", self)

self.hbox\_third.addWidget(self.b\_8)

self.b\_9 = QPushButton("9", self)

self.hbox\_third.addWidget(self.b\_9)

self.b\_0 = QPushButton("0", self)

self.hbox\_fourth.addWidget(self.b\_0)

self.b\_zap = QPushButton(",", self)

self.hbox\_fourth.addWidget(self.b\_zap)

self.b\_del = QPushButton("/", self)

self.hbox\_first.addWidget(self.b\_del)

self.b\_ymn = QPushButton("x", self)

self.hbox\_second.addWidget(self.b\_ymn)

self.b\_min = QPushButton("-", self)

self.hbox\_third.addWidget(self.b\_min)

self.b\_plus = QPushButton("+", self)

self.hbox\_fourth.addWidget(self.b\_plus)

self.b\_result = QPushButton("=", self)

self.hbox\_result.addWidget(self.b\_result)

self.b\_plus.clicked.connect(lambda: self.\_operation("+"))

self.b\_min.clicked.connect(lambda: self.\_operation("-"))

self.b\_del.clicked.connect(lambda: self.\_operation("/"))

self.b\_ymn.clicked.connect(lambda: self.\_operation("x"))

self.b\_result.clicked.connect(self.\_result)

self.b\_1.clicked.connect(lambda: self.\_button("1"))

self.b\_2.clicked.connect(lambda: self.\_button("2"))

self.b\_3.clicked.connect(lambda: self.\_button("3"))

self.b\_4.clicked.connect(lambda: self.\_button("4"))

self.b\_5.clicked.connect(lambda: self.\_button("5"))

self.b\_6.clicked.connect(lambda: self.\_button("6"))

self.b\_7.clicked.connect(lambda: self.\_button("7"))

self.b\_8.clicked.connect(lambda: self.\_button("8"))

self.b\_9.clicked.connect(lambda: self.\_button("9"))

self.b\_0.clicked.connect(lambda: self.\_button("0"))

self.b\_zap.clicked.connect(lambda: self.\_button(","))

def \_button(self, param):

line = self.input.text()

self.input.setText(line + param)

def \_operation(self, op):

try:

self.num\_1 = float(self.input.text().replace(",", "."))

except ValueError:

self.input.setText('Ошибка: Введите число')

else:

self.op = op

self.input.setText("")

def \_result(self):

try:

self.num\_2 = float(self.input.text().replace(",", "."))

except ValueError:

self.input.setText('Ошибка: Введите число')

else:

if self.op == "+":

self.input.setText(str(self.num\_1 + self.num\_2))

if self.op == "-":

self.input.setText(str(self.num\_1 - self.num\_2))

if self.op == "/":

if self.num\_2 == 0:

self.input.setText('Ошибка: на ноль делить нельзя')

else:

self.input.setText(str(self.num\_1 / self.num\_2))

if self.op == "x":

self.input.setText(str(self.num\_1 \* self.num\_2))

app = QApplication(sys.argv)

win = Calculator()

win.show()

sys.exit(app.exec\_())

Работа программы:

