**Федеральное агентство связи**

**Ордена Трудового Красного Знамени федеральное государственное бюджетное**

**образовательное учреждение высшего образования**

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

**Кафедра информатики**

**ЛАБОРАТОРНАЯ РАБОТА**

**«Калькулятор»**

**по Введению в ИТ**

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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('ValueError: 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('ValueError: 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('Error: 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\_()) |

Таблица 1. Код программы

ИНТЕРФЕЙС КАЛЬКУЛЯТОРА

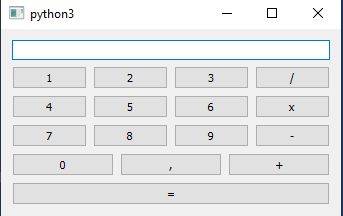


Рисунок 1. Интерфейс калькулятора