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# Created by: PyQt5 UI code generator 5.11.3
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# @topic: Stopwatch
# @date: May 24, 2019


from PyQt5 import QtCore, QtGui, QtWidgets
from PyQt5 import Qt
from PyQt5.uic import loadUi
from PyQt5.QtGui import QIcon
from PyQt5.QtWidgets import *
import sys
import winsound


TICK_TIME = 2**6      #affects accuracy of timer


class Ui_MainWindow(object):

    onRunning= False    #to control when the start, pause, lap, and reset button will work

    def setupUi(self, MainWindow):
        MainWindow.setObjectName("MainWindow")
        MainWindow.resize(421, 370)
        self.centralwidget = QtWidgets.QWidget(MainWindow)
        self.centralwidget.setObjectName("centralwidget")



        self.StartButton = QtWidgets.QPushButton(self.centralwidget)
        self.StartButton.setGeometry(QtCore.QRect(20, 110, 131, 51))
        font = QtGui.QFont()
        font.setFamily("Gotham Bold")
        font.setPointSize(14)
        font.setBold(True)
        font.setWeight(75)
        self.StartButton.setFont(font)
        self.StartButton.setObjectName("StartButton")
        self.StartButton.clicked.connect(self.do_start)     #START BUTTON!!



        self.LapButton = QtWidgets.QPushButton(self.centralwidget)
        self.LapButton.setGeometry(QtCore.QRect(20, 160, 131, 51))
        font = QtGui.QFont()
        font.setFamily("Gotham Bold")
        font.setPointSize(14)
        font.setBold(True)
        font.setWeight(75)
        self.LapButton.setFont(font)
        self.LapButton.setObjectName("LapButton")       #LAP BUTTON!
        self.LapButton.clicked.connect(self.InsertData)



        self.StopButton = QtWidgets.QPushButton(self.centralwidget)
        self.StopButton.setGeometry(QtCore.QRect(20, 210, 131, 51))
        font = QtGui.QFont()
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```
        font.setFamily("Gotham Bold")
        font.setPointSize(14)
        font.setBold(True)
        font.setWeight(75)
        self.StopButton.setFont(font)
        self.StopButton.setObjectName("StopButton")
        self.StopButton.clicked.connect(self.do_reset)          #RESET BUTTON



        self.tableWidget = QtWidgets.QTableWidget(self.centralwidget)
        self.tableWidget.setGeometry(QtCore.QRect(160, 110, 241, 201))
        self.tableWidget.setRowCount(0)
        self.tableWidget.setColumnCount(2)
        self.tableWidget.setObjectName("tableWidget")
        item = QtWidgets.QTableWidgetItem()
        self.tableWidget.setHorizontalHeaderItem(0, item)
        item = QtWidgets.QTableWidgetItem()
        self.tableWidget.setHorizontalHeaderItem(1, item)
        item = QtWidgets.QTableWidgetItem()
        self.tableWidget.setHorizontalHeaderItem(2, item)



        self.LDCDisplay = QtWidgets.QLCDNumber(self.centralwidget)
        self.LDCDisplay.setGeometry(QtCore.QRect(10, 10, 391, 81))
        self.LDCDisplay.setLayoutDirection(QtCore.Qt.LeftToRight)
        self.LDCDisplay.setFrameShape(QtWidgets.QFrame.NoFrame)
        self.LDCDisplay.setLineWidth(1)
        self.LDCDisplay.setSmallDecimalPoint(True)
        self.LDCDisplay.setDigitCount(14)
        self.LDCDisplay.display("00:00:00 . 00")
        self.LDCDisplay.setObjectName("LDCDisplay")



        self.StartButton_2 = QtWidgets.QPushButton(self.centralwidget)
        self.StartButton_2.setGeometry(QtCore.QRect(20, 260, 131, 50))
        font = QtGui.QFont()
        font.setFamily("Gotham Bold")
        font.setPointSize(14)
        font.setBold(True)
        font.setWeight(75)
        self.StartButton_2.setFont(font)
        self.StartButton_2.setObjectName("StartButton_2")               #SAVE RECORD
        self.StartButton_2.clicked.connect(self.save_file)



        self.InputName = QtWidgets.QLineEdit(self.centralwidget)
        self.InputName.move(20,320)
        self.InputName.setPlaceholderText("Please enter file name.")



        MainWindow.setCentralWidget(self.centralwidget)
        self.menubar = QtWidgets.QMenuBar(MainWindow)
        self.menubar.setGeometry(QtCore.QRect(0, 0, 421, 21))
        self.menubar.setObjectName("menubar")
```

```
119         MainWindow.setWindowIcon(QtGui.QIcon("C:/Users/ivanc/Google Drive/1 MSU - IIT/2 First Year Second Sem/Object Oriented Programming/Mini Project/Stopwatch/The One/Without Hotkey/logo.png")) #AppIcon
120
121
122
123         MainWindow.setMenuBar(self.menubar)
124         self.statusbar = QtWidgets.QStatusBar(MainWindow)
125         self.statusbar.setObjectName("statusbar")
126         MainWindow.setStatusBar(self.statusbar)
127         self.retranslateUi(MainWindow)
128         QtCore.QMetaObject.connectSlotsByName(MainWindow)
129
130
131
132         self.timer= Qt.QTimer()
133         self.timer.setInterval(TICK_TIME)
134         self.timer.timeout.connect(self.tick)   #SELF.TIMER     #timeout sends repititive signals at a constant interval
135         self.time = 0                   #when timeout is called by start, self.time is added arithmetically with the d of tick/1000
136         self.x = 0
137         self.Milli =[]
138         self.y = 0
139         self.hour_display2 = 0
140         self.minute_display2 = 0
141         self.second_display2 = 0
142         self.millisecond_display2 =0
143         self.time2 = 0
144         self.records = []
145
146
147
148     def retranslateUi(self, MainWindow):
149         _translate = QtCore.QCoreApplication.translate
150         MainWindow.setWindowTitle(_translate("MainWindow", "Stopwatch"))
151         self.StartButton.setText(_translate("MainWindow", "START"))
152         self.LapButton.setText(_translate("MainWindow", "LAP"))
153         self.StopButton.setText(_translate("MainWindow", "RESET"))
154         item = self.tableWidget.horizontalHeaderItem(0)
155         item.setText(_translate("MainWindow", "Laps"))
156         item = self.tableWidget.horizontalHeaderItem(1)
157         item.setText(_translate("MainWindow", "Split"))
158         self.StartButton_2.setText(_translate("MainWindow", "SAVE"))
159
160
161
162     def display(self):
163         self.seconds = self.time // 60
164         self.minutes=self.seconds//60
165         self.hour_display = self.minutes // 60
166         self.minute_display = self.minutes % 60
167         self.second_display = self.seconds % 60
168         self.millisecond_display = self.time % 60
169         self.alltime = self.hour_display, self.minute_display, self.second_display, self.millisecond_display
170         self.alltime2 = [self.hour_display, self.minute_display, self.second_display, self.millisecond_display]
171         self.LDCDisplay.display("%02d:%02d:%02d . %02d" % (self.alltime))
172
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173
174
175     def do_start(self):
176         if self.onRunning == False:
177             self.onRunning=True
178             self.StartButton.setText("PAUSE")
179             self.timer.start(1)     #start() calls for the Qtimer timeout to start
    sending repititive signal
180             self.StartButton.clicked.connect(self.do_pause) #start(1) -- 1
    millisecond for the timeout interval
181
182
183
184     def tick(self):
185         self.time += TICK_TIME/1000      #self.time += 0.064 milliseconds
186         self.display()
187
188
189
190     def do_reset(self):
191         if self.onRunning==False:
192             self.LDCDisplay.display("00:00:00 . 00")
193             self.time=0
194         elif self.onRunning==True:
195             self.time=0
196         self.tableWidget.setRowCount(0)
197         self.Milli.clear()
198         self.y = 0
199         self.x = 0
200         self.records = []
201         _translate = QtCore.QCoreApplication.translate
202         MainWindow.setWindowTitle(_translate("MainWindow", "Stopwatch"))
203         self.InputName.clear()
204
205
206
207     def do_pause(self):
208         if self.onRunning==True:
209             self.onRunning=False
210             self.timer.stop()
211             self.StartButton.setText("START")
212             self.StartButton.clicked.connect(self.do_start)
213
214
215
216     def save_file(self):
217         name = self.InputName.text()
218         str1 = '\n'.join(str(e) for e in self.records)
219         saveFile = open("C:/Users/ivanc/Desktop/%s.txt" % (name), "w") #Places saved
    laps in a designated folder
220         saveFile.write(str1)
221         saveFile.close()
222
223         _translate = QtCore.QCoreApplication.translate
224         MainWindow.setWindowTitle(_translate("MainWindow", "Stopwatch (saved)"))
225
226
227
228     def InsertData(self):
229         #Adds Rows to Table Widget
```

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230
231         if self.onRunning==True :
232             self.x += 1
233
234             self.tableWidget.insertRow(self.y)
235
236
237             cell = QtWidgets.QTableWidgetItem
238
239             a = "%02d:%02d:%02d.%02d" % (self.alltime)   #setItem inputs data inside
    a cell
240
241
242             #Elapsed add
243             self.tableWidget.setItem(self.y , 0, cell(a))
244
245
246
247             #Difference add
248             self.Milli.insert(0, self.time)
249
250
251
252             if self.x == 1:
253                 self.tableWidget.setItem(self.y, 1, cell("+%02d:%02d:%02d.%02d" %
    (self.alltime)))
254
255
256
257             elif self.x > 1:
258                 self.time2 = self.Milli[0] - self.Milli[1]
259                 self.seconds2 = self.time2 //60
260                 self.minutes2 = self.seconds2 //60
261                 self.hour_display2= self.minutes2//60
262                 self.minute_display2= self.minutes2 % 60
263                 self.second_display2 = self.seconds2 % 60
264                 self.millisecond_display2 = self.time2 %60
265                 self.tableWidget.setItem(self.y, 1, cell("+%02d:%02d:%02d.%02d" %
    (self.hour_display2, self.minute_display2, self.second_display2,
    self.millisecond_display2)))
266
267             self.records.append(a)
268             self.y += 1
269             self.tableWidget.scrollToBottom()
270
271
272
273
274 if __name__ == "__main__":
275     import sys
276     app = QtWidgets.QApplication(sys.argv)
277     MainWindow = QtWidgets.QMainWindow()
278     ui = Ui_MainWindow()
279     ui.setupUi(MainWindow)
280     MainWindow.show()
281     sys.exit(app.exec_())
282
283
```