Actividad 09 (QScene).

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Seminario de Algoritmia I

Lineamientos de evaluación

- ☑ ~~El reporte está en formato Google Docs o PDF.~~
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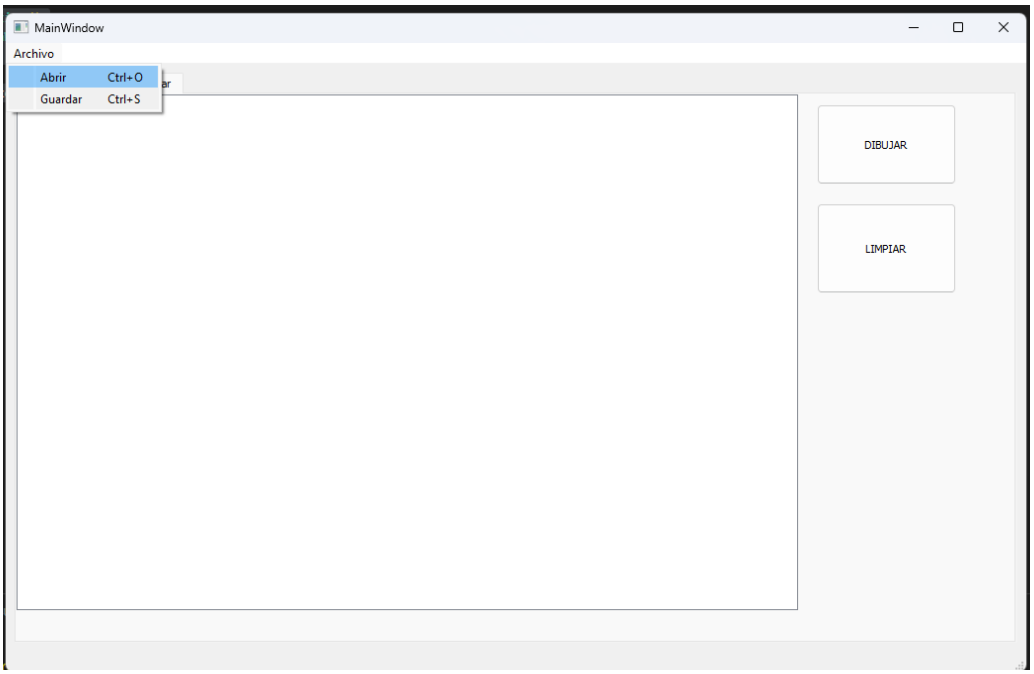
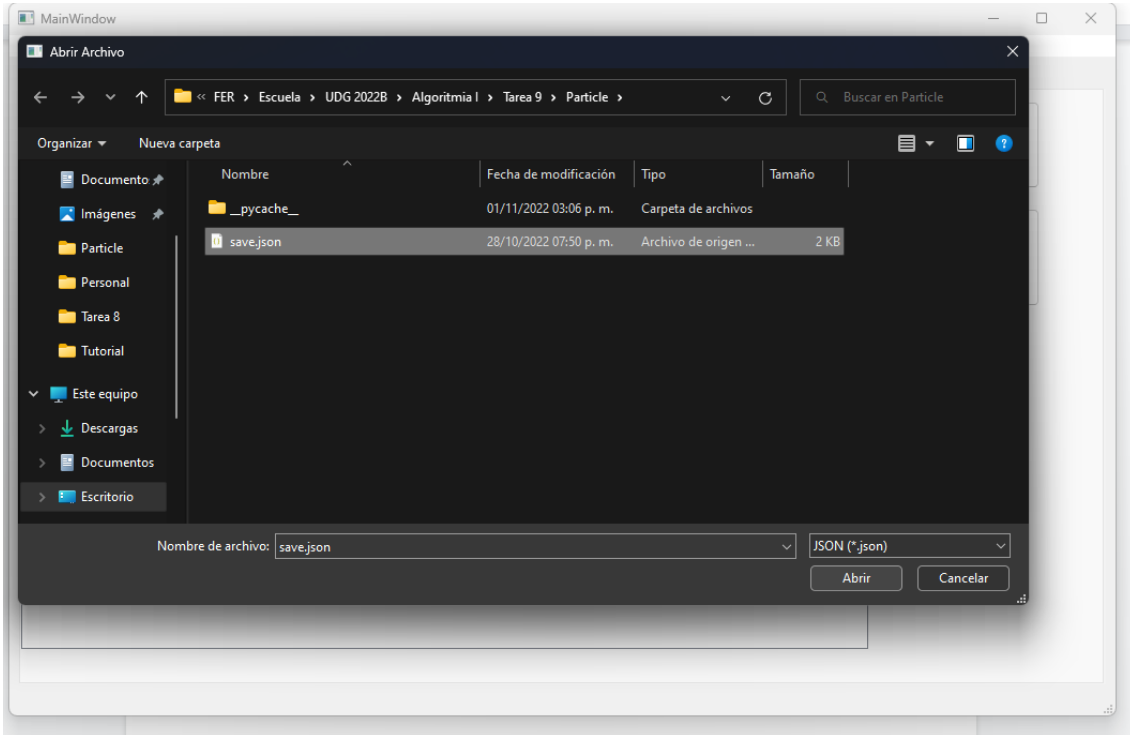
- ☑ ~~El reporte tiene desarrollada todas las pautas del Formato de Actividades~~
- ☑ ~~Se muestra captura de pantalla de lo que se pide en el punto 2.~~

Desarrollo

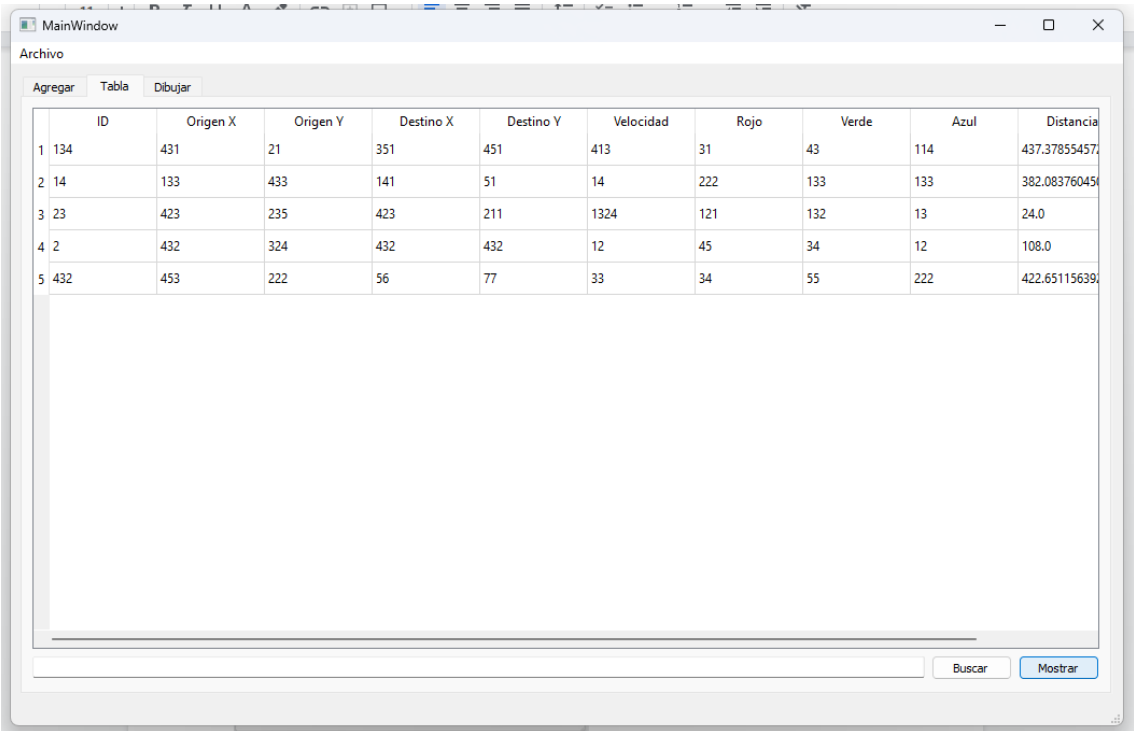
Nos dirigimos al apartado de “Archivo” y opción “Abrir”.



Seleccionamos el archivo previo con el que trabajamos, para cargar su contenido.

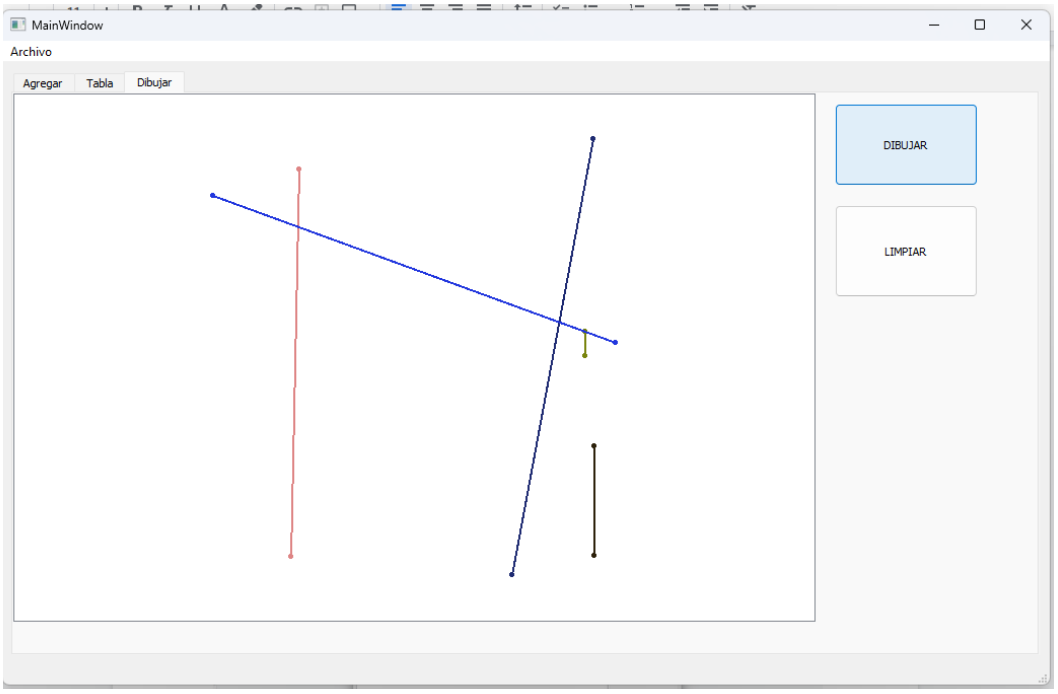


Mostramos partículas dentro del apartado de “Tabla”, y comprobamos que contamos con 5 partículas dentro de nuestra lista.



Nos dirigimos al nuevo apartado “Dibujar”, esta es donde se mostrarán las partículas dibujadas.
Cuenta con 2 botones, uno para dibujar las partículas, y la otra para limpiar los dibujos de la misma.

Damos click sobre dibujar y nos dibujara en pantalla todas las partículas que tenemos en la lista.



Conclusiones

Para esta práctica no se tuvieron problemas, gracias al conocimiento que se obtuvo de antemano, solo se necesito ingresar un nuevo apartado con el nombre de “Dibujar” , en el cual se encuentran 2 botones y una zona donde se dibujarán las partículas.

Referencias

PySide2 - QScene (Qt for Python)(VI).
Michel Dávalos:
https://youtu.be/3jHTFzPpZY8

Código

app.py

```
from PySide2.QtWidgets import QApplication
from mainWindow import MainWindow
import sys

app = QApplication()
myWindow = MainWindow()
myWindow.show()

sys.exit(app.exec_())
```

algorithms.py

```
import math

def euclidean_distance(x_1, y_1, x_2, y_2)->float:
    euclidean_Distance = math.sqrt(((x_2-x_1)**2) + ((y_2-y_1)**2))
    return euclidean_Distance
```

particle.py

```
from algorithms import euclidean_distance

class Particle:
    def __init__(self, id="", origen_x=0, origen_y=0, destino_x=0,
destino_y=0, velocidad=0, red=0, green=0, blue=0):
        self.__id = id
        self.__origen_x = origen_x
        self.__origen_y = origen_y
```

```
        self.__destino_x = destino_x
        self.__destino_y = destino_y
        self.__velocidad = velocidad
        self.__red = red
        self.__green = green
        self.__blue = blue
        self.__distancia = euclidean_distance(origen_x, origen_y,
destino_x, destino_y)

    def __str__(self) -> str:
        return(
            '\nID: ' + str(self.__id) +
            '\nOrigen X: ' + str(self.__origen_x) +
            '\nOrigen Y: ' + str(self.__origen_y) +
            '\nDestino X: ' + str(self.__destino_x) +
            '\nDestino Y: ' + str(self.__destino_y) +
            '\nVelocidad: ' + str(self.__velocidad) +
            '\nRojo: ' + str(self.__red) +
            '\nVerde: ' + str(self.__green) +
            '\nAzul: ' + str(self.__blue) +
            '\nDistancia: ' + str(self.__distancia) +
            '\n'
        )

    def to_dict(self):
        return{

            "id": self.__id,
            "origen_x": self.__origen_x,
            "origen_y": self.__origen_y,
            "destino_x": self.__destino_x,
            "destino_y": self.__destino_y,
            "velocidad": self.__velocidad,
            "red": self.__red,
            "green": self.__green,
            "blue": self.__blue

        }

    @property
    def id(self):
        return self.__id
```

```
    @property
    def origen_x(self):
        return self.__origen_x

    @property
    def origen_y(self):
        return self.__origen_y

    @property
    def destino_x(self):
        return self.__destino_x

    @property
    def destino_y(self):
        return self.__destino_y

    @property
    def velocidad(self):
        return self.__velocidad

    @property
    def red(self):
        return self.__red

    @property
    def green(self):
        return self.__green

    @property
    def blue(self):
        return self.__blue

    @property
    def distancia(self):
        return self.__distancia
```

particle_list.py

```
import json
from particle import Particle

class Particle_List:
    def __init__(self):
        self.__Particles = []
```

```
    def __len__(self):
        return len(self.__Particles)

    def __str__(self):
        return "".join(
            str(particle) for particle in self.__Particles
        )

    def __iter__(self):
        self.cont = 0
        return self

    def __next__(self):
        if(self.cont < len(self.__Particles)):
            Particle = self.__Particles[self.cont]
            self.cont += 1
            return Particle
        else:
            raise StopIteration

    def addToEnd(self, part:Particle):
        self.__Particles.append(part)

    def addFirst(self, part:Particle):
        self.__Particles.insert(0, part)

    def showAll(self):
        for part in self.__Particles:
            print(part)

    def guardar(self, ubicacion):
        try:
            with open(ubicacion, 'w') as archivo:
                lista = [particle.to_dict() for particle in
self.__Particles]
                json.dump(lista, archivo, indent=5)
            return 1
        except:
            return 0

    def abrir(self, ubicacion):
        try:
```

```
            with open(ubicacion, 'r') as archivo:
                lista = json.load(archivo)
                self.__Particles =[Particle(**part) for part in lista]

            return 1
        except:
            return 0
```

mainWindow.py

```
from PySide2.QtWidgets import QMainWindow, QFileDialog ,QMessageBox,
QTableWidgetItem, QGraphicsScene
from PySide2.QtGui import QPen, QColor
from ui_mainWindow import Ui_MainWindow
from PySide2.QtCore import Slot
from particle import Particle
from particle_list import  Particle_List

class MainWindow(QMainWindow):
    def __init__(self) -> None:
        super(MainWindow, self).__init__()
        self.particle_list = Particle_List()
        self.ui = Ui_MainWindow()
        self.ui.setupUi(self)

self.ui.addToStart_pushButton.clicked.connect(self.click_addStart)
        self.ui.addEnd_pushButton.clicked.connect(self.click_addEnd)

self.ui.showListParticle_pushButton.clicked.connect(self.click_show)
        self.ui.actionAbrir.triggered.connect(self.action_abrir)
        self.ui.actionGuardar.triggered.connect(self.action_guardar)

self.ui.search_pushButton.clicked.connect(self.search_tableParticle)

self.ui.show_pushButton.clicked.connect(self.show_tableParticle)
        self.ui.draw_pushButton.clicked.connect(self.draw_particle)
        self.ui.clearDraw_pushButton.clicked.connect(self.clear_draws)
        self.scene = QGraphicsScene()
        self.ui.graphicsView.setScene(self.scene)
```

```
    def wheelEvent(self, event):
        if (event.delta() > 0):
            self.ui.graphicsView.scale(1.2,1.2)
        else:
            self.ui.graphicsView.scale(0.8, 0.8)

    @Slot()
    def search_tableParticle(self):
        id = self.ui.search_lineEdit.text()
        encontrado = False
        for particle in self.particle_list:
            print(id)
            print(particle.id)
            if(id == str(particle.id)):
                self.ui.particle_tableWidget.clear()
                headers = [ "ID", "Origen X","Origen Y","Destino X",
                    "Destino Y", "Velocidad","Rojo", "Verde", "Azul",
                    "Distancia"]

self.ui.particle_tableWidget.setHorizontalHeaderLabels(headers)
                self.ui.particle_tableWidget.setRowCount(1)

                id_widget = QTableWidgetItem(str(particle.id))
                origen_x_widget =
QTableWidgetItem(str(particle.origen_x))
                origen_y_widget =
QTableWidgetItem(str(particle.origen_y))
                destino_x_widget =
QTableWidgetItem(str(particle.destino_x))
                destino_y_widget =
QTableWidgetItem(str(particle.destino_y))
                velocidad_widget =
QTableWidgetItem(str(particle.velocidad))
                red_widget = QTableWidgetItem(str(particle.red))
                green_widget = QTableWidgetItem(str(particle.green))
                blue_widget = QTableWidgetItem(str(particle.blue))
                distance_widget =
QTableWidgetItem(str(particle.distancia))

                self.ui.particle_tableWidget.setItem(0, 0, id_widget)
                self.ui.particle_tableWidget.setItem(0, 1,
origen_x_widget)
```

```
                self.ui.particle_tableWidget.setItem(0, 2,
origen_y_widget)
                self.ui.particle_tableWidget.setItem(0, 3,
destino_x_widget)
                self.ui.particle_tableWidget.setItem(0, 4,
destino_y_widget)
                self.ui.particle_tableWidget.setItem(0, 5,
velocidad_widget)
                self.ui.particle_tableWidget.setItem(0, 6, red_widget)
                self.ui.particle_tableWidget.setItem(0, 7,
green_widget)
                self.ui.particle_tableWidget.setItem(0, 8, blue_widget)
                self.ui.particle_tableWidget.setItem(0, 9,
distance_widget)
                encontrado = True
                return
        if not encontrado:
            QMessageBox.warning(
                self, "Atencion",
                'La particula con el id ' + id + ' no fue
encontrado...'
            )
    @Slot()
    def show_tableParticle(self):
        self.ui.particle_tableWidget.setColumnCount(10)
        headers = [ "ID", "Origen X","Origen Y","Destino X",
            "Destino Y", "Velocidad","Rojo", "Verde", "Azul",
            "Distancia"]
        self.ui.particle_tableWidget.setHorizontalHeaderLabels(headers)

self.ui.particle_tableWidget.setRowCount(len(self.particle_list))

        row = 0
        for particle in self.particle_list:
            id_widget = QTableWidgetItem(str(particle.id))
            origen_x_widget = QTableWidgetItem(str(particle.origen_x))
            origen_y_widget = QTableWidgetItem(str(particle.origen_y))
            destino_x_widget =
QTableWidgetItem(str(particle.destino_x))
            destino_y_widget =
QTableWidgetItem(str(particle.destino_y))
            velocidad_widget =
QTableWidgetItem(str(particle.velocidad))
```

```
            red_widget = QTableWidgetItem(str(particle.red))
            green_widget = QTableWidgetItem(str(particle.green))
            blue_widget = QTableWidgetItem(str(particle.blue))
            distance_widget = QTableWidgetItem(str(particle.distancia))

            self.ui.particle_tableWidget.setItem(row, 0, id_widget)
            self.ui.particle_tableWidget.setItem(row, 1,
origen_x_widget)
            self.ui.particle_tableWidget.setItem(row, 2,
origen_y_widget)
            self.ui.particle_tableWidget.setItem(row, 3,
destino_x_widget)
            self.ui.particle_tableWidget.setItem(row, 4,
destino_y_widget)
            self.ui.particle_tableWidget.setItem(row, 5,
velocidad_widget)
            self.ui.particle_tableWidget.setItem(row, 6, red_widget)
            self.ui.particle_tableWidget.setItem(row, 7, green_widget)
            self.ui.particle_tableWidget.setItem(row, 8, blue_widget)
            self.ui.particle_tableWidget.setItem(row, 9,
distance_widget)

            row += 1
    @Slot()
    def action_abrir(self):
        ubicacion = QFileDialog.getOpenFileName(
            self,
            'Abrir Archivo',
            '.',
            'JSON (*.json)'
        ) [0]
        if(self.particle_list.abrir(ubicacion)):
            QMessageBox.information(
                self,
                "Exito",
                "Se pudo abrir el archivo" + ubicacion
            )
        else:
            QMessageBox.critical(
                self,
                "Error",
                "No se pudo abrir el archivo" + ubicacion
            )
```

```
    @Slot()
    def action_guardar(self):

        ubicacion = QFileDialog.getSaveFileName(
            self,
            'Guardar Archivo',
            '.',
            'JSON (*.json)'
        ) [0]
        if(self.particle_list.guardar(ubicacion)):
            QMessageBox.information(
                self,
                "Exito",
                "Se pudo crear el archivo" + ubicacion
            )
        else:
            QMessageBox.critical(
                self,
                "Error",
                "No se pudo crear el archivo" + ubicacion
            )
    @Slot()
    def click_addStart(self):
        self.particle_list.addFirst(self.make_particle())
        self.reset_spinBoxs()
    @Slot()
    def click_addEnd(self):
        self.particle_list.addToEnd(self.make_particle())
        self.reset_spinBoxs()
    @Slot()
    def click_show(self):
        self.ui.particle_PlainText.clear()

self.ui.particle_PlainText.insertPlainText(str(self.particle_list))

    def make_particle(self)->Particle:
        id = self.ui.id_lineEdit.text()
        x1 = self.ui.originX_spinBox.value()
        y1 = self.ui.originY_spinBox.value()
        x2 = self.ui.destX_spinBox.value()
        y2 = self.ui.destY_spinBox.value()
        speed = self.ui.speed_spinBox.value()
        red = self.ui.red_spinBox.value()
```

```
        green = self.ui.green_spinBox.value()
        blue = self.ui.blue_spinBox.value()
        myParticle = Particle(id, x1, y1, x2, y2, speed, red, green,
blue)
        return myParticle

    def reset_spinBoxs(self):
        id = self.ui.id_lineEdit.setText("")
        self.ui.originX_spinBox.setValue(0)
        self.ui.originY_spinBox.setValue(0)
        self.ui.destX_spinBox.setValue(0)
        self.ui.destY_spinBox.setValue(0)
        self.ui.speed_spinBox.setValue(0)
        self.ui.red_spinBox.setValue(0)
        self.ui.green_spinBox.setValue(0)
        self.ui.blue_spinBox.setValue(0)
    @Slot()
    def draw_particle(self):
        self.scene.clear()
        for part in self.particle_list:
            pen = QPen()
            pen.setWidth(2)
            color = QColor(part.red, part.green, part.blue)
            pen.setColor(color)
            self.scene.addEllipse(part.origen_x, part.origen_y, 3, 3,
pen)
            self.scene.addEllipse(part.destino_x, part.destino_y, 3, 3,
pen)
            self.scene.addLine(part.origen_x +2, part.origen_y+2,
part.destino_x+2, part.destino_y+2, pen)


    @Slot()
    def clear_draws(self):
        self.scene.clear()
```

ui_mainWindow.py

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

################################################################################
#########
## Form generated from reading UI file 'mainWindow.ui'
##
```

```
## Created by: Qt User Interface Compiler version 5.15.2
##
## WARNING! All changes made in this file will be lost when recompiling
UI file!
################################################################################
#########

from PySide2.QtCore import *
from PySide2.QtGui import *
from PySide2.QtWidgets import *


class Ui_MainWindow(object):
    def setupUi(self, MainWindow):
        if not MainWindow.objectName():
            MainWindow.setObjectName(u"MainWindow")
        MainWindow.resize(1033, 635)
        self.actionAbrir = QAction(MainWindow)
        self.actionAbrir.setObjectName(u"actionAbrir")
        self.actionGuardar = QAction(MainWindow)
        self.actionGuardar.setObjectName(u"actionGuardar")
        self.centralwidget = QWidget(MainWindow)
        self.centralwidget.setObjectName(u"centralwidget")
        self.gridLayout_3 = QGridLayout(self.centralwidget)
        self.gridLayout_3.setObjectName(u"gridLayout_3")
        self.tabWidget = QTabWidget(self.centralwidget)
        self.tabWidget.setObjectName(u"tabWidget")
        self.tab = QWidget()
        self.tab.setObjectName(u"tab")
        self.groupBox = QGroupBox(self.tab)
        self.groupBox.setObjectName(u"groupBox")
        self.groupBox.setGeometry(QRect(30, 0, 176, 319))
        self.gridLayout_2 = QGridLayout(self.groupBox)
        self.gridLayout_2.setObjectName(u"gridLayout_2")
        self.addEnd_pushButton = QPushButton(self.groupBox)
        self.addEnd_pushButton.setObjectName(u"addEnd_pushButton")

        self.gridLayout_2.addWidget(self.addEnd_pushButton, 9, 2, 1, 1)

        self.blue_spinBox = QSpinBox(self.groupBox)
        self.blue_spinBox.setObjectName(u"blue_spinBox")
        self.blue_spinBox.setMaximum(255)
```

```
        self.gridLayout_2.addWidget(self.blue_spinBox, 8, 1, 1, 2)

        self.label = QLabel(self.groupBox)
        self.label.setObjectName(u"label")

        self.gridLayout_2.addWidget(self.label, 3, 0, 1, 1)

        self.originY_spinBox = QSpinBox(self.groupBox)
        self.originY_spinBox.setObjectName(u"originY_spinBox")
        self.originY_spinBox.setMaximum(500)

        self.gridLayout_2.addWidget(self.originY_spinBox, 2, 1, 1, 2)

        self.showListParticle_pushButton = QPushButton(self.groupBox)

self.showListParticle_pushButton.setObjectName(u"showListParticle_pushB
utton")

        self.gridLayout_2.addWidget(self.showListParticle_pushButton,
10, 0, 1, 3)

        self.originX_label = QLabel(self.groupBox)
        self.originX_label.setObjectName(u"originX_label")

        self.gridLayout_2.addWidget(self.originX_label, 1, 0, 1, 1)

        self.label_6 = QLabel(self.groupBox)
        self.label_6.setObjectName(u"label_6")

        self.gridLayout_2.addWidget(self.label_6, 8, 0, 1, 1)

        self.red_spinBox = QSpinBox(self.groupBox)
        self.red_spinBox.setObjectName(u"red_spinBox")
        self.red_spinBox.setMaximum(255)

        self.gridLayout_2.addWidget(self.red_spinBox, 6, 1, 1, 2)

        self.destY_spinBox = QSpinBox(self.groupBox)
        self.destY_spinBox.setObjectName(u"destY_spinBox")
        self.destY_spinBox.setMaximum(500)

        self.gridLayout_2.addWidget(self.destY_spinBox, 4, 1, 1, 2)
```

```
        self.destX_spinBox = QSpinBox(self.groupBox)
        self.destX_spinBox.setObjectName(u"destX_spinBox")
        self.destX_spinBox.setMaximum(500)

        self.gridLayout_2.addWidget(self.destX_spinBox, 3, 1, 1, 2)

        self.green_spinBox = QSpinBox(self.groupBox)
        self.green_spinBox.setObjectName(u"green_spinBox")
        self.green_spinBox.setMaximum(255)

        self.gridLayout_2.addWidget(self.green_spinBox, 7, 1, 1, 2)

        self.originX_label_2 = QLabel(self.groupBox)
        self.originX_label_2.setObjectName(u"originX_label_2")

        self.gridLayout_2.addWidget(self.originX_label_2, 0, 0, 1, 1)

        self.originX_spinBox = QSpinBox(self.groupBox)
        self.originX_spinBox.setObjectName(u"originX_spinBox")
        self.originX_spinBox.setMaximum(500)

        self.gridLayout_2.addWidget(self.originX_spinBox, 1, 1, 1, 2)

        self.addToStart_pushButton = QPushButton(self.groupBox)

self.addToStart_pushButton.setObjectName(u"addToStart_pushButton")

        self.gridLayout_2.addWidget(self.addToStart_pushButton, 9, 0,
1, 2)

        self.label_4 = QLabel(self.groupBox)
        self.label_4.setObjectName(u"label_4")

        self.gridLayout_2.addWidget(self.label_4, 6, 0, 1, 1)

        self.label_2 = QLabel(self.groupBox)
        self.label_2.setObjectName(u"label_2")

        self.gridLayout_2.addWidget(self.label_2, 4, 0, 1, 1)

        self.label_3 = QLabel(self.groupBox)
        self.label_3.setObjectName(u"label_3")
```

```
        self.gridLayout_2.addWidget(self.label_3, 5, 0, 1, 1)

        self.originY_label = QLabel(self.groupBox)
        self.originY_label.setObjectName(u"originY_label")

        self.gridLayout_2.addWidget(self.originY_label, 2, 0, 1, 1)

        self.label_5 = QLabel(self.groupBox)
        self.label_5.setObjectName(u"label_5")

        self.gridLayout_2.addWidget(self.label_5, 7, 0, 1, 1)

        self.speed_spinBox = QSpinBox(self.groupBox)
        self.speed_spinBox.setObjectName(u"speed_spinBox")
        self.speed_spinBox.setMaximum(99999)

        self.gridLayout_2.addWidget(self.speed_spinBox, 5, 1, 1, 2)

        self.id_lineEdit = QLineEdit(self.groupBox)
        self.id_lineEdit.setObjectName(u"id_lineEdit")

        self.gridLayout_2.addWidget(self.id_lineEdit, 0, 1, 1, 2)

        self.particle_PlainText = QPlainTextEdit(self.tab)
        self.particle_PlainText.setObjectName(u"particle_PlainText")
        self.particle_PlainText.setGeometry(QRect(280, 0, 271, 361))
        self.tabWidget.addTab(self.tab, "")
        self.Table = QWidget()
        self.Table.setObjectName(u"Table")
        self.gridLayout = QGridLayout(self.Table)
        self.gridLayout.setObjectName(u"gridLayout")
        self.particle_tableWidget = QTableWidget(self.Table)

self.particle_tableWidget.setObjectName(u"particle_tableWidget")

        self.gridLayout.addWidget(self.particle_tableWidget, 0, 0, 1,
3)

        self.search_lineEdit = QLineEdit(self.Table)
        self.search_lineEdit.setObjectName(u"search_lineEdit")

        self.gridLayout.addWidget(self.search_lineEdit, 1, 0, 1, 1)
```

```
        self.search_pushButton = QPushButton(self.Table)
        self.search_pushButton.setObjectName(u"search_pushButton")

        self.gridLayout.addWidget(self.search_pushButton, 1, 1, 1, 1)

        self.show_pushButton = QPushButton(self.Table)
        self.show_pushButton.setObjectName(u"show_pushButton")

        self.gridLayout.addWidget(self.show_pushButton, 1, 2, 1, 1)

        self.tabWidget.addTab(self.Table, "")
        self.tab_2 = QWidget()
        self.tab_2.setObjectName(u"tab_2")
        self.graphicsView = QGraphicsView(self.tab_2)
        self.graphicsView.setObjectName(u"graphicsView")
        self.graphicsView.setGeometry(QRect(0, 0, 791, 521))
        self.draw_pushButton = QPushButton(self.tab_2)
        self.draw_pushButton.setObjectName(u"draw_pushButton")
        self.draw_pushButton.setGeometry(QRect(810, 10, 141, 81))
        self.clearDraw_pushButton = QPushButton(self.tab_2)

self.clearDraw_pushButton.setObjectName(u"clearDraw_pushButton")
        self.clearDraw_pushButton.setGeometry(QRect(810, 110, 141, 91))
        self.tabWidget.addTab(self.tab_2, "")

        self.gridLayout_3.addWidget(self.tabWidget, 0, 0, 1, 1)

        MainWindow.setCentralWidget(self.centralwidget)
        self.menubar = QMenuBar(MainWindow)
        self.menubar.setObjectName(u"menubar")
        self.menubar.setGeometry(QRect(0, 0, 1033, 21))
        self.menuAbrir = QMenu(self.menubar)
        self.menuAbrir.setObjectName(u"menuAbrir")
        MainWindow.setMenuBar(self.menubar)
        self.statusbar = QStatusBar(MainWindow)
        self.statusbar.setObjectName(u"statusbar")
        MainWindow.setStatusBar(self.statusbar)

        self.menubar.addAction(self.menuAbrir.menuAction())
        self.menuAbrir.addAction(self.actionAbrir)
        self.menuAbrir.addAction(self.actionGuardar)

        self.retranslateUi(MainWindow)
```

```
        self.tabWidget.setCurrentIndex(2)


        QMetaObject.connectSlotsByName(MainWindow)
    # setupUi

    def retranslateUi(self, MainWindow):

MainWindow.setWindowTitle(QCoreApplication.translate("MainWindow",
u"MainWindow", None))

self.actionAbrir.setText(QCoreApplication.translate("MainWindow",
u"Abrir", None))
#if QT_CONFIG(shortcut)

self.actionAbrir.setShortcut(QCoreApplication.translate("MainWindow",
u"Ctrl+O", None))
#endif // QT_CONFIG(shortcut)

self.actionGuardar.setText(QCoreApplication.translate("MainWindow",
u"Guardar", None))
#if QT_CONFIG(shortcut)

self.actionGuardar.setShortcut(QCoreApplication.translate("MainWindow",
u"Ctrl+S", None))
#endif // QT_CONFIG(shortcut)
        self.groupBox.setTitle(QCoreApplication.translate("MainWindow",
u"GroupBox", None))

self.addEnd_pushButton.setText(QCoreApplication.translate("MainWindow",
u"Agregar Final", None))
        self.label.setText(QCoreApplication.translate("MainWindow",
u"Destino X:", None))

self.showListParticle_pushButton.setText(QCoreApplication.translate("Ma
inWindow", u"MOSTRAR", None))

self.originX_label.setText(QCoreApplication.translate("MainWindow",
u"Origen X:", None))
        self.label_6.setText(QCoreApplication.translate("MainWindow",
u"Azul:", None))
```

```
self.originX_label_2.setText(QCoreApplication.translate("MainWindow",
u"Id:", None))

self.addToStart_pushButton.setText(QCoreApplication.translate("MainWind
ow", u"Agregar Inicio", None))
        self.label_4.setText(QCoreApplication.translate("MainWindow",
u"Rojo:", None))
        self.label_2.setText(QCoreApplication.translate("MainWindow",
u"Destino Y:", None))
        self.label_3.setText(QCoreApplication.translate("MainWindow",
u"Velocidad:", None))

self.originY_label.setText(QCoreApplication.translate("MainWindow",
u"Origen Y:", None))
        self.label_5.setText(QCoreApplication.translate("MainWindow",
u"Verde:", None))
        self.tabWidget.setTabText(self.tabWidget.indexOf(self.tab),
QCoreApplication.translate("MainWindow", u"Agregar", None))

self.search_pushButton.setText(QCoreApplication.translate("MainWindow",
u"Buscar", None))

self.show_pushButton.setText(QCoreApplication.translate("MainWindow",
u"Mostrar", None))
        self.tabWidget.setTabText(self.tabWidget.indexOf(self.Table),
QCoreApplication.translate("MainWindow", u"Tabla", None))

self.draw_pushButton.setText(QCoreApplication.translate("MainWindow",
u"DIBUJAR", None))

self.clearDraw_pushButton.setText(QCoreApplication.translate("MainWindo
w", u"LIMPIAR", None))
        self.tabWidget.setTabText(self.tabWidget.indexOf(self.tab_2),
QCoreApplication.translate("MainWindow", u"Dibujar", None))

self.menuAbrir.setTitle(QCoreApplication.translate("MainWindow",
u"Archivo", None))
    # retranslateUi
```

mainWindow.ui

```
<?xml version="1.0" encoding="UTF-8"?>
<ui version="4.0">
 <class>MainWindow</class>
 <widget class="QMainWindow" name="MainWindow">
  <property name="geometry">
   <rect>
    <x>0</x>
    <y>0</y>
    <width>1033</width>
    <height>635</height>
   </rect>
  </property>
  <property name="windowTitle">
   <string>MainWindow</string>
  </property>
  <widget class="QWidget" name="centralwidget">
   <layout class="QGridLayout" name="gridLayout_3">
    <item row="0" column="0">
     <widget class="QTabWidget" name="tabWidget">
      <property name="currentIndex">
       <number>2</number>
      </property>
      <widget class="QWidget" name="tab">
       <attribute name="title">
        <string>Agregar</string>
       </attribute>
       <widget class="QGroupBox" name="groupBox">
        <property name="geometry">
         <rect>
          <x>30</x>
          <y>0</y>
          <width>176</width>
          <height>319</height>
         </rect>
        </property>
        <property name="title">
         <string>GroupBox</string>
        </property>
        <layout class="QGridLayout" name="gridLayout_2">
         <item row="9" column="2">
          <widget class="QPushButton" name="addEnd_pushButton">
           <property name="text">
```

```
            <string>Agregar Final</string>
           </property>
          </widget>
         </item>
         <item row="8" column="1" colspan="2">
          <widget class="QSpinBox" name="blue_spinBox">
           <property name="maximum">
            <number>255</number>
           </property>
          </widget>
         </item>
         <item row="3" column="0">
          <widget class="QLabel" name="label">
           <property name="text">
            <string>Destino X:</string>
           </property>
          </widget>
         </item>
         <item row="2" column="1" colspan="2">
          <widget class="QSpinBox" name="originY_spinBox">
           <property name="maximum">
            <number>500</number>
           </property>
          </widget>
         </item>
         <item row="10" column="0" colspan="3">
          <widget class="QPushButton"
name="showListParticle_pushButton">
           <property name="text">
            <string>MOSTRAR</string>
           </property>
          </widget>
         </item>
         <item row="1" column="0">
          <widget class="QLabel" name="originX_label">
           <property name="text">
            <string>Origen X:</string>
           </property>
          </widget>
         </item>
         <item row="8" column="0">
          <widget class="QLabel" name="label_6">
           <property name="text">
```

```
    <string>Azul:</string>
   </property>
  </widget>
 </item>
 <item row="6" column="1" colspan="2">
  <widget class="QSpinBox" name="red_spinBox">
   <property name="maximum">
    <number>255</number>
   </property>
  </widget>
 </item>
 <item row="4" column="1" colspan="2">
  <widget class="QSpinBox" name="destY_spinBox">
   <property name="maximum">
    <number>500</number>
   </property>
  </widget>
 </item>
 <item row="3" column="1" colspan="2">
  <widget class="QSpinBox" name="destX_spinBox">
   <property name="maximum">
    <number>500</number>
   </property>
  </widget>
 </item>
 <item row="7" column="1" colspan="2">
  <widget class="QSpinBox" name="green_spinBox">
   <property name="maximum">
    <number>255</number>
   </property>
  </widget>
 </item>
 <item row="0" column="0">
  <widget class="QLabel" name="originX_label_2">
   <property name="text">
    <string>Id:</string>
   </property>
  </widget>
 </item>
 <item row="1" column="1" colspan="2">
  <widget class="QSpinBox" name="originX_spinBox">
   <property name="maximum">
    <number>500</number>
```

```
  </property>
 </widget>
</item>
<item row="9" column="0" colspan="2">
 <widget class="QPushButton" name="addToStart_pushButton">
  <property name="text">
   <string>Agregar Inicio</string>
  </property>
 </widget>
</item>
<item row="6" column="0">
 <widget class="QLabel" name="label_4">
  <property name="text">
   <string>Rojo:</string>
  </property>
 </widget>
</item>
<item row="4" column="0">
 <widget class="QLabel" name="label_2">
  <property name="text">
   <string>Destino Y:</string>
  </property>
 </widget>
</item>
<item row="5" column="0">
 <widget class="QLabel" name="label_3">
  <property name="text">
   <string>Velocidad:</string>
  </property>
 </widget>
</item>
<item row="2" column="0">
 <widget class="QLabel" name="originY_label">
  <property name="text">
   <string>Origen Y:</string>
  </property>
 </widget>
</item>
<item row="7" column="0">
 <widget class="QLabel" name="label_5">
  <property name="text">
   <string>Verde:</string>
  </property>
```

```
          </widget>
         </item>
         <item row="5" column="1" colspan="2">
          <widget class="QSpinBox" name="speed_spinBox">
           <property name="maximum">
            <number>99999</number>
           </property>
          </widget>
         </item>
         <item row="0" column="1" colspan="2">
          <widget class="QLineEdit" name="id_lineEdit"/>
         </item>
        </layout>
       </widget>
       <widget class="QPlainTextEdit" name="particle_PlainText">
        <property name="geometry">
         <rect>
          <x>280</x>
          <y>0</y>
          <width>271</width>
          <height>361</height>
         </rect>
        </property>
       </widget>
      </widget>
      <widget class="QWidget" name="Table">
       <attribute name="title">
        <string>Tabla</string>
       </attribute>
       <layout class="QGridLayout" name="gridLayout">
        <item row="0" column="0" colspan="3">
         <widget class="QTableWidget" name="particle_tableWidget"/>
        </item>
        <item row="1" column="0">
         <widget class="QLineEdit" name="search_lineEdit"/>
        </item>
        <item row="1" column="1">
         <widget class="QPushButton" name="search_pushButton">
          <property name="text">
           <string>Buscar</string>
          </property>
         </widget>
        </item>
```

```
        <item row="1" column="2">
         <widget class="QPushButton" name="show_pushButton">
          <property name="text">
           <string>Mostrar</string>
          </property>
         </widget>
        </item>
       </layout>
      </widget>
      <widget class="QWidget" name="tab_2">
       <attribute name="title">
        <string>Dibujar</string>
       </attribute>
       <widget class="QGraphicsView" name="graphicsView">
        <property name="geometry">
         <rect>
          <x>0</x>
          <y>0</y>
          <width>791</width>
          <height>521</height>
         </rect>
        </property>
       </widget>
       <widget class="QPushButton" name="draw_pushButton">
        <property name="geometry">
         <rect>
          <x>810</x>
          <y>10</y>
          <width>141</width>
          <height>81</height>
         </rect>
        </property>
        <property name="text">
         <string>DIBUJAR</string>
        </property>
       </widget>
       <widget class="QPushButton" name="clearDraw_pushButton">
        <property name="geometry">
         <rect>
          <x>810</x>
          <y>110</y>
          <width>141</width>
          <height>91</height>
```

```
        </rect>
       </property>
       <property name="text">
        <string>LIMPIAR</string>
       </property>
      </widget>
     </widget>
    </widget>
   </item>
  </layout>
 </widget>
 <widget class="QMenuBar" name="menubar">
  <property name="geometry">
   <rect>
    <x>0</x>
    <y>0</y>
    <width>1033</width>
    <height>21</height>
   </rect>
  </property>
  <widget class="QMenu" name="menuAbrir">
   <property name="title">
    <string>Archivo</string>
   </property>
   <addaction name="actionAbrir"/>
   <addaction name="actionGuardar"/>
  </widget>
  <addaction name="menuAbrir"/>
 </widget>
 <widget class="QStatusBar" name="statusbar"/>
 <action name="actionAbrir">
  <property name="text">
   <string>Abrir</string>
  </property>
  <property name="shortcut">
   <string>Ctrl+O</string>
  </property>
 </action>
 <action name="actionGuardar">
  <property name="text">
   <string>Guardar</string>
  </property>
  <property name="shortcut">
```

```
    <string>Ctrl+S</string>
   </property>
  </action>
 </widget>
 <resources/>
 <connections/>
</ui>
```