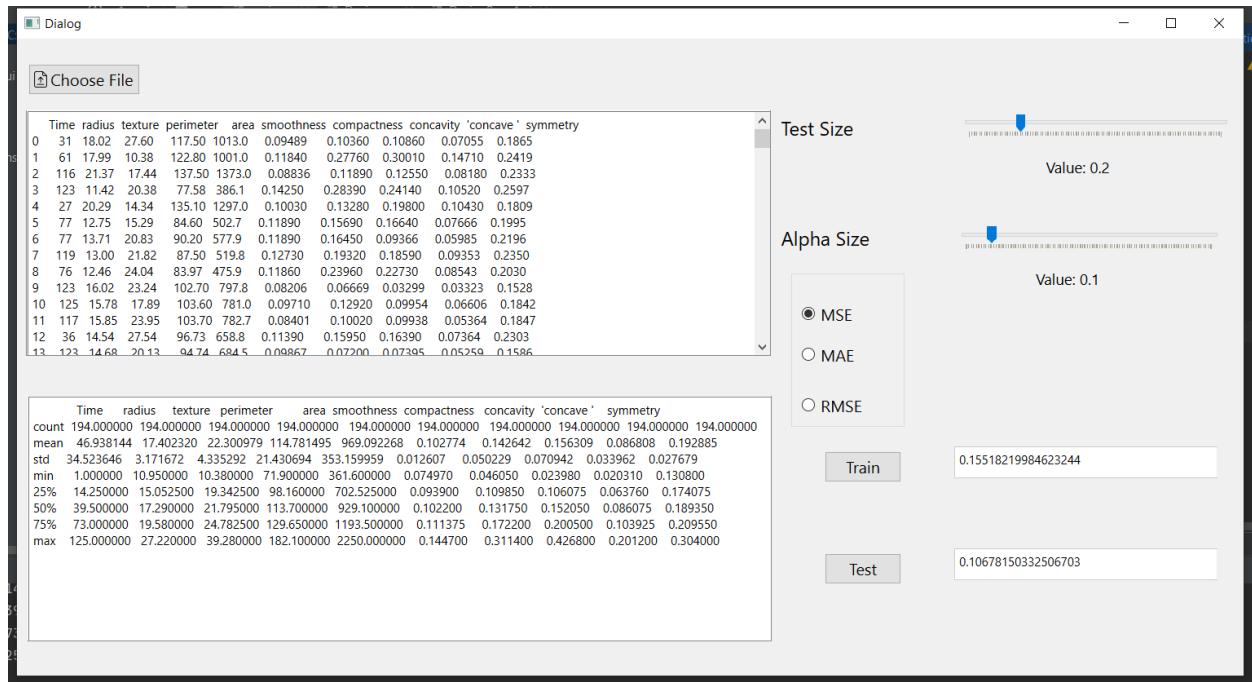# ML Task

Output

Design

```
# Form implementation generated from reading ui file 'DesignPage1.ui'
#
# Created by: PyQt6 UI code generator 6.5.0
#
# WARNING: Any manual changes made to this file will be lost when pyuic6 is
# run again.  Do not edit this file unless you know what you are doing.


from PyQt6 import QtCore, QtGui, QtWidgets


class Ui_Dialog(object):
    def setupUi(self, Dialog):
        Dialog.setObjectName("Dialog")
        Dialog.resize(1204, 625)
        self.horizontalLayoutWidget = QtWidgets.QWidget(parent=Dialog)
        self.horizontalLayoutWidget.setGeometry(QtCore.QRect(10, 20, 112,
41))
        self.horizontalLayoutWidget.setObjectName("horizontalLayoutWidget")
        self.horizontalLayout =
```

```python
QtWidgets.QHBoxLayout(self.horizontalLayoutWidget)
        self.horizontalLayout.setContentsMargins(0, 0, 0, 0)
        self.horizontalLayout.setObjectName("horizontalLayout")
        self.UploadFile =
QtWidgets.QPushButton(parent=self.horizontalLayoutWidget)
        self.UploadFile.setEnabled(True)
        sizePolicy =
QtWidgets.QSizePolicy(QtWidgets.QSizePolicy.Policy.Fixed,
QtWidgets.QSizePolicy.Policy.Fixed)
        sizePolicy.setHorizontalStretch(0)
        sizePolicy.setVerticalStretch(0)

sizePolicy.setHeightForWidth(self.UploadFile.sizePolicy().hasHeightForWidth()
)
        self.UploadFile.setSizePolicy(sizePolicy)
        font = QtGui.QFont()
        font.setPointSize(12)
        self.UploadFile.setFont(font)
        self.UploadFile.setAutoFillBackground(False)
        icon = QtGui.QIcon()
        icon.addPixmap(QtGui.QPixmap("upload.png"), QtGui.QIcon.Mode.Normal,
QtGui.QIcon.State.Off)
        self.UploadFile.setIcon(icon)
        self.UploadFile.setObjectName("UploadFile")
        self.horizontalLayout.addWidget(self.UploadFile)
        self.gridLayoutWidget = QtWidgets.QWidget(parent=Dialog)
        self.gridLayoutWidget.setGeometry(QtCore.QRect(9, 70, 731, 241))
        self.gridLayoutWidget.setObjectName("gridLayoutWidget")
        self.gridLayout = QtWidgets.QGridLayout(self.gridLayoutWidget)
        self.gridLayout.setContentsMargins(0, 0, 0, 0)
        self.gridLayout.setObjectName("gridLayout")
        self.showData = QtWidgets.QScrollArea(parent=self.gridLayoutWidget)
        self.showData.setWidgetResizable(True)
        self.showData.setObjectName("showData")
        self.scrollAreaWidgetContents = QtWidgets.QWidget()
        self.scrollAreaWidgetContents.setGeometry(QtCore.QRect(0, 0, 727,
237))

self.scrollAreaWidgetContents.setObjectName("scrollAreaWidgetContents")
        self.ShowData =
QtWidgets.QTextBrowser(parent=self.scrollAreaWidgetContents)
        self.ShowData.setEnabled(False)
        self.ShowData.setGeometry(QtCore.QRect(0, 0, 731, 241))
        self.ShowData.setObjectName("ShowData")
        self.showData.setWidget(self.scrollAreaWidgetContents)
        self.gridLayout.addWidget(self.showData, 0, 0, 1, 1)
        self.gridLayoutWidget_2 = QtWidgets.QWidget(parent=Dialog)
        self.gridLayoutWidget_2.setGeometry(QtCore.QRect(10, 350, 731, 241))
        self.gridLayoutWidget_2.setObjectName("gridLayoutWidget_2")
        self.gridLayout_2 = QtWidgets.QGridLayout(self.gridLayoutWidget_2)
        self.gridLayout_2.setContentsMargins(0, 0, 0, 0)
        self.gridLayout_2.setObjectName("gridLayout_2")
        self.desc_data =
QtWidgets.QScrollArea(parent=self.gridLayoutWidget_2)
        self.desc_data.setWidgetResizable(True)
        self.desc_data.setObjectName("desc_data")
        self.scrollAreaWidgetContents_2 = QtWidgets.QWidget()
```

```python
        self.scrollAreaWidgetContents_2.setGeometry(QtCore.QRect(0, 0, 727,
237))
self.scrollAreaWidgetContents_2.setObjectName("scrollAreaWidgetContents_2")
        self.Datadesc =
QtWidgets.QTextBrowser(parent=self.scrollAreaWidgetContents_2)
        self.Datadesc.setEnabled(True)
        self.Datadesc.setGeometry(QtCore.QRect(0, 0, 731, 241))
        self.Datadesc.setAccessibleDescription("")
        self.Datadesc.setObjectName("Datadesc")
        self.desc_data.setWidget(self.scrollAreaWidgetContents_2)
        self.gridLayout_2.addWidget(self.desc_data, 0, 0, 1, 1)
        self.horizontalLayoutWidget_2 = QtWidgets.QWidget(parent=Dialog)
        self.horizontalLayoutWidget_2.setGeometry(QtCore.QRect(930, 70, 258,
31))
self.horizontalLayoutWidget_2.setObjectName("horizontalLayoutWidget_2")
        self.horizontalLayout_2 =
QtWidgets.QHBoxLayout(self.horizontalLayoutWidget_2)
        self.horizontalLayout_2.setContentsMargins(0, 0, 0, 0)
        self.horizontalLayout_2.setObjectName("horizontalLayout_2")
        self.Test_Size =
QtWidgets.QSlider(parent=self.horizontalLayoutWidget_2)
        self.Test_Size.setEnabled(False)
        self.Test_Size.setOrientation(QtCore.Qt.Orientation.Horizontal)
        self.Test_Size.setObjectName("Test_Size")
        self.horizontalLayout_2.addWidget(self.Test_Size)
        self.horizontalLayoutWidget_3 = QtWidgets.QWidget(parent=Dialog)
        self.horizontalLayoutWidget_3.setGeometry(QtCore.QRect(750, 70, 151,
35))
self.horizontalLayoutWidget_3.setObjectName("horizontalLayoutWidget_3")
        self.horizontalLayout_3 =
QtWidgets.QHBoxLayout(self.horizontalLayoutWidget_3)
        self.horizontalLayout_3.setContentsMargins(0, 0, 0, 0)
        self.horizontalLayout_3.setObjectName("horizontalLayout_3")
        self.label = QtWidgets.QLabel(parent=self.horizontalLayoutWidget_3)
        font = QtGui.QFont()
        font.setPointSize(14)
        self.label.setFont(font)
        self.label.setScaledContents(False)
        self.label.setObjectName("label")
        self.horizontalLayout_3.addWidget(self.label)
        self.horizontalLayoutWidget_4 = QtWidgets.QWidget(parent=Dialog)
        self.horizontalLayoutWidget_4.setGeometry(QtCore.QRect(750, 180, 131,
31))
self.horizontalLayoutWidget_4.setObjectName("horizontalLayoutWidget_4")
        self.horizontalLayout_5 =
QtWidgets.QHBoxLayout(self.horizontalLayoutWidget_4)
        self.horizontalLayout_5.setContentsMargins(0, 0, 0, 0)
        self.horizontalLayout_5.setObjectName("horizontalLayout_5")
        self.label_3 = QtWidgets.QLabel(parent=self.horizontalLayoutWidget_4)
        font = QtGui.QFont()
        font.setPointSize(14)
        self.label_3.setFont(font)
        self.label_3.setObjectName("label_3")
```

```python
        self.horizontalLayout_5.addWidget(self.label_3)
        self.horizontalLayoutWidget_5 = QtWidgets.QWidget(parent=Dialog)
        self.horizontalLayoutWidget_5.setGeometry(QtCore.QRect(927, 180, 251,
31))

self.horizontalLayoutWidget_5.setObjectName("horizontalLayoutWidget_5")
        self.horizontalLayout_6 =
QtWidgets.QHBoxLayout(self.horizontalLayoutWidget_5)
        self.horizontalLayout_6.setContentsMargins(0, 0, 0, 0)
        self.horizontalLayout_6.setObjectName("horizontalLayout_6")
        self.Alpha_Size =
QtWidgets.QSlider(parent=self.horizontalLayoutWidget_5)
        self.Alpha_Size.setEnabled(False)
        self.Alpha_Size.setOrientation(QtCore.Qt.Orientation.Horizontal)
        self.Alpha_Size.setObjectName("Alpha_Size")
        self.horizontalLayout_6.addWidget(self.Alpha_Size)
        self.groupBox = QtWidgets.QGroupBox(parent=Dialog)
        self.groupBox.setEnabled(True)
        self.groupBox.setGeometry(QtCore.QRect(760, 230, 111, 151))
        self.groupBox.setTitle("")
        self.groupBox.setObjectName("groupBox")
        self.MSE = QtWidgets.QRadioButton(parent=self.groupBox)
        self.MSE.setEnabled(False)
        self.MSE.setGeometry(QtCore.QRect(10, 30, 95, 20))
        font = QtGui.QFont()
        font.setPointSize(12)
        font.setBold(False)
        self.MSE.setFont(font)
        self.MSE.setObjectName("MSE")
        self.MAE = QtWidgets.QRadioButton(parent=self.groupBox)
        self.MAE.setEnabled(False)
        self.MAE.setGeometry(QtCore.QRect(10, 70, 95, 20))
        font = QtGui.QFont()
        font.setPointSize(12)
        font.setBold(False)
        self.MAE.setFont(font)
        self.MAE.setObjectName("MAE")
        self.RMSE = QtWidgets.QRadioButton(parent=self.groupBox)
        self.RMSE.setEnabled(False)
        self.RMSE.setGeometry(QtCore.QRect(10, 120, 95, 20))
        font = QtGui.QFont()
        font.setPointSize(12)
        font.setBold(False)
        self.RMSE.setFont(font)
        self.RMSE.setObjectName("RMSE")
        self.horizontalLayoutWidget_6 = QtWidgets.QWidget(parent=Dialog)
        self.horizontalLayoutWidget_6.setGeometry(QtCore.QRect(780, 400, 101,
41))

self.horizontalLayoutWidget_6.setObjectName("horizontalLayoutWidget_6")
        self.horizontalLayout_7 =
QtWidgets.QHBoxLayout(self.horizontalLayoutWidget_6)
        self.horizontalLayout_7.setContentsMargins(0, 0, 0, 0)
        self.horizontalLayout_7.setObjectName("horizontalLayout_7")
        self.train =
QtWidgets.QPushButton(parent=self.horizontalLayoutWidget_6)
        self.train.setEnabled(False)
```

```python
        sizePolicy =
QtWidgets.QSizePolicy(QtWidgets.QSizePolicy.Policy.Fixed,
QtWidgets.QSizePolicy.Policy.Fixed)
        sizePolicy.setHorizontalStretch(0)
        sizePolicy.setVerticalStretch(0)

sizePolicy.setHeightForWidth(self.train.sizePolicy().hasHeightForWidth())
        self.train.setSizePolicy(sizePolicy)
        font = QtGui.QFont()
        font.setPointSize(12)
        self.train.setFont(font)
        self.train.setObjectName("train")
        self.horizontalLayout_7.addWidget(self.train)
        self.horizontalLayoutWidget_7 = QtWidgets.QWidget(parent=Dialog)
        self.horizontalLayoutWidget_7.setGeometry(QtCore.QRect(780, 500, 101,
41))

self.horizontalLayoutWidget_7.setObjectName("horizontalLayoutWidget_7")
        self.horizontalLayout_8 =
QtWidgets.QHBoxLayout(self.horizontalLayoutWidget_7)
        self.horizontalLayout_8.setContentsMargins(0, 0, 0, 0)
        self.horizontalLayout_8.setObjectName("horizontalLayout_8")
        self.test =
QtWidgets.QPushButton(parent=self.horizontalLayoutWidget_7)
        self.test.setEnabled(False)
        sizePolicy =
QtWidgets.QSizePolicy(QtWidgets.QSizePolicy.Policy.Fixed,
QtWidgets.QSizePolicy.Policy.Fixed)
        sizePolicy.setHorizontalStretch(0)
        sizePolicy.setVerticalStretch(0)

sizePolicy.setHeightForWidth(self.test.sizePolicy().hasHeightForWidth())
        self.test.setSizePolicy(sizePolicy)
        font = QtGui.QFont()
        font.setPointSize(12)
        self.test.setFont(font)
        self.test.setObjectName("test")
        self.horizontalLayout_8.addWidget(self.test)
        self.horizontalLayoutWidget_8 = QtWidgets.QWidget(parent=Dialog)
        self.horizontalLayoutWidget_8.setGeometry(QtCore.QRect(920, 400, 258,
31))

self.horizontalLayoutWidget_8.setObjectName("horizontalLayoutWidget_8")
        self.horizontalLayout_9 =
QtWidgets.QHBoxLayout(self.horizontalLayoutWidget_8)
        self.horizontalLayout_9.setContentsMargins(0, 0, 0, 0)
        self.horizontalLayout_9.setObjectName("horizontalLayout_9")
        self.train_error =
QtWidgets.QPlainTextEdit(parent=self.horizontalLayoutWidget_8)
        self.train_error.setEnabled(False)
        sizePolicy =
QtWidgets.QSizePolicy(QtWidgets.QSizePolicy.Policy.Minimum,
QtWidgets.QSizePolicy.Policy.Fixed)
        sizePolicy.setHorizontalStretch(0)
        sizePolicy.setVerticalStretch(0)

sizePolicy.setHeightForWidth(self.train_error.sizePolicy().hasHeightForWidth(
```

```python
))
        self.train_error.setSizePolicy(sizePolicy)
        self.train_error.setAccessibleDescription("")
        self.train_error.setUndoRedoEnabled(False)
        self.train_error.setObjectName("train_error")
        self.horizontalLayout_9.addWidget(self.train_error)
        self.horizontalLayoutWidget_9 = QtWidgets.QWidget(parent=Dialog)
        self.horizontalLayoutWidget_9.setGeometry(QtCore.QRect(920, 500, 258,
31))

self.horizontalLayoutWidget_9.setObjectName("horizontalLayoutWidget_9")
        self.horizontalLayout_10 =
QtWidgets.QHBoxLayout(self.horizontalLayoutWidget_9)
        self.horizontalLayout_10.setContentsMargins(0, 0, 0, 0)
        self.horizontalLayout_10.setObjectName("horizontalLayout_10")
        self.test_error =
QtWidgets.QPlainTextEdit(parent=self.horizontalLayoutWidget_9)
        self.test_error.setEnabled(False)
        sizePolicy =
QtWidgets.QSizePolicy(QtWidgets.QSizePolicy.Policy.Minimum,
QtWidgets.QSizePolicy.Policy.Fixed)
        sizePolicy.setHorizontalStretch(0)
        sizePolicy.setVerticalStretch(0)

sizePolicy.setHeightForWidth(self.test_error.sizePolicy().hasHeightForWidth()
)
        self.test_error.setSizePolicy(sizePolicy)
        self.test_error.setUndoRedoEnabled(False)
        self.test_error.setObjectName("test_error")
        self.horizontalLayout_10.addWidget(self.test_error)
        self.gridLayoutWidget_3 = QtWidgets.QWidget(parent=Dialog)
        self.gridLayoutWidget_3.setGeometry(QtCore.QRect(1010, 110, 131, 31))
        self.gridLayoutWidget_3.setObjectName("gridLayoutWidget_3")
        self.gridLayout_3 = QtWidgets.QGridLayout(self.gridLayoutWidget_3)
        self.gridLayout_3.setContentsMargins(0, 0, 0, 0)
        self.gridLayout_3.setObjectName("gridLayout_3")
        self.Test_Volume = QtWidgets.QLabel(parent=self.gridLayoutWidget_3)
        font = QtGui.QFont()
        font.setPointSize(11)
        self.Test_Volume.setFont(font)
        self.Test_Volume.setObjectName("Test_Volume")
        self.gridLayout_3.addWidget(self.Test_Volume, 0, 0, 1, 1)
        self.gridLayoutWidget_4 = QtWidgets.QWidget(parent=Dialog)
        self.gridLayoutWidget_4.setGeometry(QtCore.QRect(1000, 220, 141, 31))
        self.gridLayoutWidget_4.setObjectName("gridLayoutWidget_4")
        self.gridLayout_4 = QtWidgets.QGridLayout(self.gridLayoutWidget_4)
        self.gridLayout_4.setContentsMargins(0, 0, 0, 0)
        self.gridLayout_4.setObjectName("gridLayout_4")
        self.Alpha_Volume = QtWidgets.QLabel(parent=self.gridLayoutWidget_4)
        font = QtGui.QFont()
        font.setPointSize(11)
        self.Alpha_Volume.setFont(font)
        self.Alpha_Volume.setObjectName("Alpha_Volume")
        self.gridLayout_4.addWidget(self.Alpha_Volume, 0, 0, 1, 1)

        self.retranslateUi(Dialog)
        QtCore.QMetaObject.connectSlotsByName(Dialog)
```

```python
    def retranslateUi(self, Dialog):
        _translate = QtCore.QCoreApplication.translate
        Dialog.setWindowTitle(_translate("Dialog", "Dialog"))
        self.UploadFile.setText(_translate("Dialog", "Choose File"))
        self.label.setText(_translate("Dialog", "Test Size"))
        self.label_3.setText(_translate("Dialog", "Alpha Size"))
        self.MSE.setText(_translate("Dialog", "MSE"))
        self.MAE.setText(_translate("Dialog", "MAE"))
        self.RMSE.setText(_translate("Dialog", "RMSE"))
        self.train.setText(_translate("Dialog", "Train"))
        self.test.setText(_translate("Dialog", "Test"))
        self.Test_Volume.setText(_translate("Dialog", "Value: 0"))
        self.Alpha_Volume.setText(_translate("Dialog", "Value: 0"))


if __name__ == "__main__":
    import sys
    app = QtWidgets.QApplication(sys.argv)
    Dialog = QtWidgets.QDialog()
    ui = Ui_Dialog()
    ui.setupUi(Dialog)
    Dialog.show()
    sys.exit(app.exec())
```

Code

```python
import pandas as pd
import numpy as np
import sys
import tkinter as tk
from PyQt6.QtWidgets import QApplication, QWidget, QSlider
from tkinter import filedialog
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression, Lasso
from sklearn import metrics
from Design import Ui_Dialog
class Window(QWidget):
    def __init__(self):
        super().__init__()
        self.df = None
        self.ui = Ui_Dialog()
        self.ui.setupUi(self)
        self.ui.UploadFile.clicked.connect(self.buttonClick)
        self.ui.Test_Size.setTickPosition(QSlider.TickPosition.TicksBelow)
        self.ui.Test_Size.setTickInterval(1)
        self.ui.Test_Size.valueChanged.connect(self.tsize)
        self.ui.Alpha_Size.setTickPosition(QSlider.TickPosition.TicksBelow)
        self.ui.Alpha_Size.setTickInterval(1)
        self.ui.Alpha_Size.valueChanged.connect(self.Asize)
        self.ui.MAE.clicked.connect(self.showtrain)
```

```python
        self.ui.MSE.clicked.connect(self.showtrain)
        self.ui.RMSE.clicked.connect(self.showtrain)
        self.ui.train.clicked.connect(self.TRAIN)
        self.ui.test.clicked.connect(self.TEST)
    def buttonClick(self):
        file_path = filedialog.askopenfilename(filetypes=[("CSV Files",
"*.csv")])
        self.df = pd.read_csv(file_path)
        self.x = self.df.iloc[:,:-1].values
        self.y = self.df.iloc[:,1].values
        self.ui.ShowData.setEnabled(True)
        self.ui.ShowData.setText(self.df.to_string())
        report = self.df.describe()
        print(report)
        self.ui.Datadesc.setText(report.to_string())
        self.ui.Test_Size.setEnabled(True)
    def TRAIN(self):
        self.ui.train_error.setPlainText(str(self.error_train))
        self.ui.test.setEnabled(True)
    def TEST(self):
        # self.ui.train_t.setPlainText(str(self.error_train))
        self.ui.test_error.setPlainText(str(self.error_test))
        self.ui.test.setEnabled(True)
        # self.ui.train_error.setPlainText("assd")
    def showtrain(self):
        self.ui.train.setEnabled(True)
        self.lasso = Lasso(alpha=self.alpha)
        self.lasso.fit(self.X_train, self.y_train)
        self.y_pred = self.lasso.predict(self.X_test)
        self.train_pred = self.lasso.predict(self.X_train)
        if self.ui.MAE.isChecked():
            self.error_train =
metrics.mean_absolute_error(self.y_train,self.train_pred)
            self.error_test =
metrics.mean_absolute_error(self.y_test,self.y_pred)
        elif self.ui.MSE:
            self.error_train =
metrics.mean_squared_error(self.y_train,self.train_pred)
            self.error_test
=metrics.mean_squared_error(self.y_test,self.y_pred)
        elif self.ui.RMSE:
            self.error_train =
np.sqrt(metrics.mean_squared_error(self.y_train,self.train_pred))
            self.error_test
=np.sqrt(metrics.mean_squared_error(self.y_train,self.train_pred))
    def showtest(self):
        self.ui.test.setEnabled(True)
        print(self.x)
        print(self.y)
        print(self.test_size)
    def tsize(self):
        self.test_size=self.sender().value()/100
        # self.y_test = train_test_split(self.x, self.y,
test_size=self.test_size, random_state=0)
        self.ui.Test_Volume.setText("Value: "+str(self.test_size))
        self.ui.Test_Volume.adjustSize()  # Expands label size as numbers get
larger
```

```python
        self.ui.Alpha_Size.setEnabled(True)
    def Asize(self):
        self.alpha = self.sender().value()
        self.ui.Alpha_Volume.setText("Value: " +str(self.alpha/100))
        self.ui.Alpha_Volume.adjustSize()  # Expands label size as numbers
get larger
        self.ui.MSE.setEnabled(True)
        self.ui.MAE.setEnabled(True)
        self.ui.RMSE.setEnabled(True)
        self.X_train, self.X_test, self.y_train, self.y_test =
train_test_split(self.x, self.y,test_size=self.test_size,random_state=0)
        self.regressor = LinearRegression()
        self.regressor.fit(self.X_train, self.y_train)
        self.y_pred = self.regressor.predict(self.X_test)
app = QApplication(sys.argv)
window = Window()
window.show()
sys.exit(app.exec())
```