Mohammad Ali Jinnah University

LIVE , LEARN AND BE INSPIRED

Program: BSCS **Section: AM**

Course: Computer Programming

Project:

Leader:

M.Hasham Khan

Team Members:

M.Saad Khan **M.Burhan Saleem**

M.Rauhaan Arif **Moiz Ahmed Siddiqui**

BMI CALCULATOR AND ANALYZER

BMI CALCULATOR AND ANALYZER

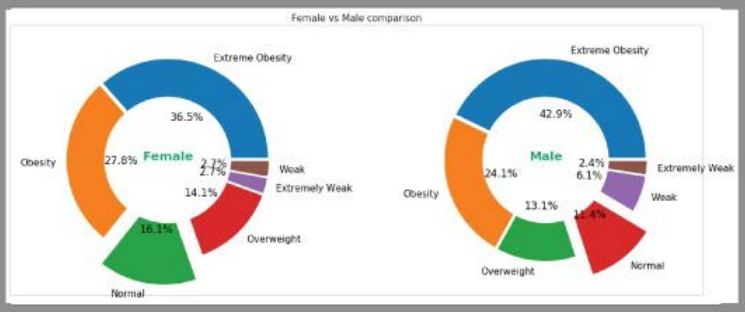
GENDER : Male

AGE : 18

WEIGHT : 54 (Weight In Kilgogram or Kg.)

HEIGHT : 5.4 (Height in Feet.Inches)

Calculate BMI



BMI : 20.58

IDEAL WEIGHT: (According To Your AGE) 45 Kg. to 58 Kg.

IDEAL HEIGHT: (According To Your AGE) 5.1 ft to 5.5 ft

RESULT:

You are Normal (Healthy Weight)

Analyze

Introduction Of The Project:

The project which we have chosen is “BMI Calculator And Analyzer”. It is a GUI based Calculator application which shows your body mass index ratio by taking your height,weight,age and gender as an input.

STEPS:

- Searching
- Task Distribution
- Libraries
- Making of GUI

SEARCHING:

First we searched about what things are required to make our project then we were able to find some features and requirements which were necessary for our project.

They are as follows:

- Graphical interface of BMI
- Different libraries for better GUI
- Codes of BMI
- Machine learning codes for graphs
- Data for comapiring ideal BMI

TASK DISTRIBUTION:

Hasham:

- Making of GUI

Rauhaan and Burhan:

- Coding of project

Saad:

- Graph Ploting with ML

Moiz:

- Push Buttons and Combo Box

LIBRARIES:

- PyQt5
- Qt Core
- Qt Widget
- Qt GUI
- Machine Learning Code

MAKING OF GUI:

We have used PyQt5 to make the GUI of our project and it is one of the favoured cross-platform Python bindings.
We make several buttons in our project which are mentioned below:

- Calculate BMI (Push button)
- Analyze (Push button)

HOW DOES IT WORKS ?

- The computer programming language which we are using in our project is Python. It is best and easy language and is very user friendly.
- If you enter your weight in kgs and your height along with your age, it will tell you that whether you are under weight, normal weight or over weight.
- It also tells that what should be your ideal weight and ideal height by comparing it with the outcome.

Conclusion:

Our BMI Calculator can keep you healthy and well maintained like it tells you that if you are under weight, you should eat more and take a proper and healthy diet. If you are over weight, you should control your diet and eat less junky. If you are normal weight, you are healthy and you should maintain your diet. In this way you can keep your record and can always access it.

Developer Guide for The GUI- Of-BMI

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

# Form implementation generated from reading ui file '.\New Bmi-gui.ui'
#
# Created by: PyQt5 UI code generator 5.11.3
#
# WARNING! All changes made in this file will be lost!

from PyQt5 import QtCore, QtGui, QtWidgets
from  matplotlib.backends.backend_qt5agg  import  ( NavigationToolbar2QT  as
NavigationToolbar )

from  matplotlib.figure  import  Figure
from  PyQt5.QtWidgets  import *

from  matplotlib.backends.backend_qt5agg  import  FigureCanvasQTAgg

from  matplotlib.figure  import  Figure


import  numpy  as  np
import  random

class  MplWidget (QWidget):

    def  __init__ ( self ,  parent  =  None ):

        QWidget . __init__ ( self ,  parent )

        self . canvas  =  FigureCanvasQTAgg ( Figure ())

        vertical_layout  =  QVBoxLayout ()
        vertical_layout . addWidget ( self . canvas )

        self . canvas . axes  =  self . canvas . figure . add_subplot ( 111 )
        self . setLayout ( vertical_layout )
                            class Ui_BMI_Calculator_and_Anaylyzer(object):
    def setupUi(self, BMI_Calculator_and_Anaylyzer):

BMI_Calculator_and_Anaylyzer.setObjectName("BMI_Calculator_and_Anaylyzer")
        BMI_Calculator_and_Anaylyzer.resize(856, 738)
```

```
        BMI_Calculator_and_Anaylyzer.setStyleSheet("background-color: rgb(141,
141, 141);\n"
"")
        self.centralwidget = QtWidgets.QWidget(BMI_Calculator_and_Anaylyzer)
        self.centralwidget.setObjectName("centralwidget")
        self.Header_2 = QtWidgets.QFrame(self.centralwidget)
        self.Header_2.setGeometry(QtCore.QRect(0, 0, 860, 60))
        self.Header_2.setStyleSheet("background-color: rgb(71, 71, 71);")
        self.Header_2.setObjectName("Header_2")
        self.Header = QtWidgets.QVBoxLayout(self.Header_2)
        self.Header.setSpacing(8)
        self.Header.setObjectName("Header")
        self.label_7 = QtWidgets.QLabel(self.Header_2)
        self.label_7.setObjectName("label_7")
        self.Header.addWidget(self.label_7)
        self.comboBox = QtWidgets.QComboBox(self.centralwidget)
        self.comboBox.setGeometry(QtCore.QRect(170, 90, 170, 41))
        self.comboBox.setStyleSheet("\n"
"font: 15pt \"MS Shell Dlg 2\";\n"
"background-color: rgb(255, 255, 255);\n"
"\n"
"")
        self.comboBox.setObjectName("comboBox")
        self.comboBox.addItem("")
        self.comboBox.addItem("")
        self.Gender = QtWidgets.QLabel(self.centralwidget)
        self.Gender.setGeometry(QtCore.QRect(40, 90, 111, 41))
        self.Gender.setStyleSheet("font: 75 16pt \"MS Shell Dlg 2\";")
        self.Gender.setObjectName("Gender")
        self.Age_2 = QtWidgets.QLabel(self.centralwidget)
        self.Age_2.setGeometry(QtCore.QRect(40, 160, 111, 41))
        self.Age_2.setStyleSheet("font: 75 16pt \"MS Shell Dlg 2\";")
        self.Age_2.setObjectName("Age_2")
        self.Height = QtWidgets.QLabel(self.centralwidget)
        self.Height.setGeometry(QtCore.QRect(40, 300, 110, 41))
        self.Height.setStyleSheet("font: 75 16pt \"MS Shell Dlg 2\";")
        self.Height.setObjectName("Height")
        self.Weight_2 = QtWidgets.QLabel(self.centralwidget)
        self.Weight_2.setGeometry(QtCore.QRect(40, 230, 110, 41))
        self.Weight_2.setStyleSheet("\n"
"font: 75 16pt \"MS Shell Dlg 2\";")

self.Weight_2.setObjectName("Weight_2")
        self.BMI = QtWidgets.QLabel(self.centralwidget)
        self.BMI.setGeometry(QtCore.QRect(680, 110, 111, 30))
        self.BMI.setStyleSheet("font: 75 18pt \"MS Shell Dlg 2\";")
        self.BMI.setObjectName("BMI")
        self.BMI_Result = QtWidgets.QTextEdit(self.centralwidget)
```

```
        self.BMI_Result.setGeometry(QtCore.QRect(630, 160, 200, 40))
        self.BMI_Result.setStyleSheet("background-color: rgb(255, 255,
255);\n"
"font: 75 18pt \"MS Shell Dlg 2\";")
        self.BMI_Result.setObjectName("BMI_Result")
        self.Ideal_Weight = QtWidgets.QTextEdit(self.centralwidget)
        self.Ideal_Weight.setGeometry(QtCore.QRect(630, 280, 210, 40))
        self.Ideal_Weight.setStyleSheet("background-color: rgb(255, 255,
255);\n"
"font: 75 18pt \"MS Shell Dlg 2\";")
        self.Ideal_Weight.setObjectName("Ideal_Weight")
        self.Ideal_weight = QtWidgets.QLabel(self.centralwidget)
        self.Ideal_weight.setGeometry(QtCore.QRect(620, 220, 230, 30))
        self.Ideal_weight.setStyleSheet("font: 75 18pt \"MS Shell Dlg 2\";\n"
"")
        self.Ideal_weight.setObjectName("Ideal_weight")
        self.Result_text = QtWidgets.QTextEdit(self.centralwidget)
        self.Result_text.setGeometry(QtCore.QRect(630, 510, 200, 100))
        self.Result_text.setStyleSheet("background-color: rgb(255, 255,
255);\n"
"font: 75 18pt \"MS Shell Dlg 2\";")
        self.Result_text.setObjectName("Result_text")
        self.Result = QtWidgets.QLabel(self.centralwidget)
        self.Result.setGeometry(QtCore.QRect(640, 460, 170, 40))
        self.Result.setStyleSheet("font: 75 16pt \"MS Shell Dlg 2\";")
        self.Result.setObjectName("Result")
        self.pushButton = QtWidgets.QPushButton(self.centralwidget)
        self.pushButton.setGeometry(QtCore.QRect(90, 380, 411, 41))
        self.pushButton.setStyleSheet("background-color: rgb(71, 71, 71);\n"
"font: 75 16pt \"MS Shell Dlg 2\";\n"
"font-weight:600; color:#ffdf5c;")
        self.pushButton.setObjectName("pushButton")
        self.lineEdit = QtWidgets.QLineEdit(self.centralwidget)
        self.lineEdit.setGeometry(QtCore.QRect(170, 160, 361, 41))
        self.lineEdit.setStyleSheet("background-color: rgb(255, 255, 255);\n"
"font: 75 18pt \"MS Shell Dlg 2\";")        <ol class="carousel-indicators">
        self.lineEdit.setObjectName("lineEdit")
        self.lineEdit_2 = QtWidgets.QLineEdit(self.centralwidget)
        self.lineEdit_2.setGeometry(QtCore.QRect(170, 300, 171, 41))
        self.lineEdit_2.setStyleSheet("background-color: rgb(255, 255,
255);\n"

       BMI_Calculator_and_Anaylyzer.setCentralWidget(self.centralwidget)
        self.statusbar = QtWidgets.QStatusBar(BMI_Calculator_and_Anaylyzer)
        self.statusbar.setObjectName("statusbar")
        BMI_Calculator_and_Anaylyzer.setStatusBar(self.statusbar)

        self.retranslateUi(BMI_Calculator_and_Anaylyzer)
```

```
        QtCore.QMetaObject.connectSlotsByName(BMI_Calculator_and_Anaylyzer)

        self.pushButton.clicked.connect(self.try_text)
        self.pushButton_2.clicked.connect(self . update_graph )




    def  update_graph ( self ):

        fs  =  500
        f  =  random . randint ( 1 ,  100 )
        ts  =  1 / fs
        length_of_signal  =  100
        t  =  np . linspace ( 0 , 1 , length_of_signal )

        cosinus_signal  =  np . cos ( 2 * np . pi * f * t )
        sinus_signal  =  np . sin ( 2 * np . pi * f * t )

        self . MplWidget . canvas . axes . clear ()
        self . MplWidget . canvas . axes . plot ( t ,  cosinus_signal )
        self . MplWidget . canvas . axes . plot ( t ,  sinus_signal )
        self . MplWidget . canvas . axes . legend (( 'cosinus' ,  'sinus'
),loc = 'upper right' )
        self . MplWidget . canvas . axes . set_title ( ' Cosinus - Sinus
Signal' )
        self . MplWidget . canvas . draw ()




    def try_text(self):
        height=float(self.lineEdit_2.text())
        height_in_meter= height*12*0.025
        weight=float(self.lineEdit_4.text())
        bmi = weight / (height_in_meter**2)
        #bmi = weight / (height**2)
        bmi=round(bmi,2)
        self.BMI_Result.setText(str(bmi))
        print ("BMI Is: " , str(bmi))
        age_tt=int(self.lineEdit.text())

        if self.comboBox.currentIndex():
                if str(age_tt) <= str(20):
                        self.Ideal_Weight.setText(str("40 Kg. to 50 Kg."))
                        self.Ideal_Height.setText(str("4.0 ft to 5.5 ft"))
                elif str(age_tt) <= str(30):
                        self.Ideal_Weight.setText(str("50 Kg. to 60 Kg."))
```

```
                        self.Ideal_Height.setText(str("5.5 ft to 5.9 ft"))
                elif str(age_tt) <= str(40):
                        self.Ideal_Weight.setText(str("60 Kg. to 65 Kg."))
                        self.Ideal_Height.setText(str("5.5 ft to 5.9 ft"))
                elif str(age_tt) <= str(50):
                        self.Ideal_Weight.setText(str("65 Kg. to 68 Kg."))
                        self.Ideal_Height.setText(str("5.5 ft to 5.9 ft"))
                elif str(age_tt) <= str(60):
                        self.Ideal_Weight.setText(str("68 Kg. to 71 Kg."))
                        self.Ideal_Height.setText(str("5.5 ft to 5.9 ft"))
                elif str(age_tt) <= str(70):
                        self.Ideal_Weight.setText(str("65 Kg. to 68 Kg."))
                        self.Ideal_Height.setText(str("5.5 ft to 5.9 ft"))
        else:
                if str(age_tt) <= str(20):
                        self.Ideal_Weight.setText(str("45 Kg. to 58 Kg."))
                        self.Ideal_Height.setText(str("4.9 ft to 5.5 ft"))
                elif str(age_tt) <= str(30):
                        self.Ideal_Weight.setText(str("59 Kg. to 70 Kg."))
                        self.Ideal_Height.setText(str("5.0 ft to 6.0 ft"))
                elif str(age_tt) <= str(40):
                        self.Ideal_Weight.setText(str("70 Kg. to 73 Kg."))
                        self.Ideal_Height.setText(str("5.0 ft to 6.0 ft"))
                elif str(age_tt) <= str(50):
                        self.Ideal_Weight.setText(str("73 Kg. to 75 Kg."))
                        self.Ideal_Height.setText(str("5.0 ft to 6.0 ft"))
                elif str(age_tt) <= str(60):
                        self.Ideal_Weight.setText(str("75 Kg. to 77 Kg."))
                        self.Ideal_Height.setText(str("5.0 ft to 6.0 ft"))
                elif str(age_tt) <= str(70):
                        self.Ideal_Weight.setText(str("75 Kg. to 77 Kg."))
                        self.Ideal_Height.setText(str("5.0 ft to 6.0 ft"))

               if str(bmi) < str(15):
                self.Result_text.setText(str("You are very severely
underweight"))
        elif str(bmi) <= str(18.5):
                self.Result_text.setText(str("severely underweight"))
        elif str(bmi) <= str(25):
                self.Result_text.setText(str("You are Normal (healthy
weight)"))
        elif str(bmi) <= str(30):
                self.Result_text.setText(str(" You are overweight."))
        elif str(bmi) <= str(35):
                self.Result_text.setText(str(" You are moderately obese."))
        elif str(bmi) <= str(40):
                self.Result_text.setText(str(" You are severely obese."))
        elif str(bmi) > str(40):
```

```
                self.Result_text.setText(str(" You are very severely obese."))
def retranslateUi(self, BMI_Calculator_and_Anaylyzer):

        _translate = QtCore.QCoreApplication.translate


BMI_Calculator_and_Anaylyzer.setWindowTitle(_translate("BMI_Calculator_and_Ana
ylyzer", "MainWindow"))

        self.label_7.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p align=\"center\"><span style=\" font-size:24pt; font-
weight:600; color:#ffdf5c;\">BMI CALCULATOR AND
ANALYZER</span></p></body></html>"))

        self.comboBox.setItemText(0,
_translate("BMI_Calculator_and_Anaylyzer", "Male"))

        self.comboBox.setItemText(1,
_translate("BMI_Calculator_and_Anaylyzer", "Female"))

        self.Gender.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p><span style=\" font-weight:600; color:#ffdf5c;\">GENDER
:</span></p></body></html>"))

        self.Age_2.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p><span style=\" font-weight:600; color:#ffdf5c;\">AGE
:</span></p></body></html>"))

        self.Height.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p><span style=\" font-weight:600; color:#ffdf5c;\">HEIGHT
:</span></p></body></html>"))

        self.Weight_2.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p><span style=\" font-weight:600; color:#ffdf5c;\">WEIGHT
:</span></p></body></html>"))

        self.BMI.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p align=\"center\"><span style=\" font-size:20pt; font-
weight:600; color:#ffdf5c;\">BMI :</span></p></body></html>"))

        self.BMI_Result.setHtml(_translate("BMI_Calculator_and_Anaylyzer",
"<!DOCTYPE HTML PUBLIC \"-//W3C//DTD HTML 4.0//EN\"
\"http://www.w3.org/TR/REC-html40/strict.dtd\">\n"

"<html><head><meta name=\"qrichtext\" content=\"1\" /><style
type=\"text/css\">\n"

"p, li { white-space: pre-wrap; }\n"

"</style></head><body style=\" font-family:\'MS Shell Dlg 2\'; font-size:18pt;
font-weight:72; font-style:normal;\">\n"
```

```
"<p align=\"center\" style=\"-qt-paragraph-type:empty; margin-top:0px; margin-
bottom:0px; margin-left:0px; margin-right:0px; -qt-block-indent:0; text-
indent:0px;\"><br /></p></body></html>"))

        self.Ideal_Weight.setHtml(_translate("BMI_Calculator_and_Anaylyzer",
"<!DOCTYPE HTML PUBLIC \"-//W3C//DTD HTML 4.0//EN\"
\"http://www.w3.org/TR/REC-html40/strict.dtd\">\n"

"<html><head><meta name=\"qrichtext\" content=\"1\" /><style
type=\"text/css\">\n"

"p, li { white-space: pre-wrap; }\n"

"</style></head><body style=\" font-family:\'MS Shell Dlg 2\'; font-size:18pt;
font-weight:72; font-style:normal;\">\n"

"<p align=\"center\" style=\"-qt-paragraph-type:empty; margin-top:0px; margin-
bottom:0px; margin-left:0px; margin-right:0px; -qt-block-indent:0; text-
indent:0px;\"><br /></p></body></html>"))

        self.Ideal_weight.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p align=\"center\"><span style=\" font-size:16pt; font-
weight:600; color:#ffdf5c;\">IDEAL WEIGHT:</span></p></body></html>"))

        self.Result_text.setHtml(_translate("BMI_Calculator_and_Anaylyzer",
"<!DOCTYPE HTML PUBLIC \"-//W3C//DTD HTML 4.0//EN\"
\"http://www.w3.org/TR/REC-html40/strict.dtd\">\n"

"<html><head><meta name=\"qrichtext\" content=\"1\" /><style
type=\"text/css\">\n"

"p, li { white-space: pre-wrap; }\n"

"</style></head><body style=\" font-family:\'MS Shell Dlg 2\'; font-size:18pt;
font-weight:72; font-style:normal;\">\n"

"<p style=\"-qt-paragraph-type:empty; margin-top:0px; margin-bottom:0px;
margin-left:0px; margin-right:0px; -qt-block-indent:0; text-indent:0px; font-
size:8.25pt; font-weight:400;\"><br /></p></body></html>"))

        self.Result.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p align=\"center\"><span style=\" font-size:20pt; font-
weight:600; color:#ffdf5c;\">RESULT:</span></p></body></html>"))


self.pushButton.setWhatsThis(_translate("BMI_Calculator_and_Anaylyzer",
"<!DOCTYPE HTML PUBLIC \"-//W3C//DTD HTML 4.0//EN\"
\"http://www.w3.org/TR/REC-html40/strict.dtd\">\n"

"<html><head><meta name=\"qrichtext\" content=\"1\" /><style
type=\"text/css\">\n"
```

```
"p, li { white-space: pre-wrap; }\n"

"</style></head><body style=\" font-family:\'MS Shell Dlg 2\'; font-size:16pt;
font-weight:72; font-style:normal;\">\n"

"<p align=\"center\" style=\" margin-top:12px; margin-bottom:12px; margin-
left:0px; margin-right:0px; -qt-block-indent:0; text-indent:0px;\"><span
style=\" font-size:18pt; font-weight:600; color:#ffdf5c;\">Calculate
BMI</span></p></body></html>"))

        self.pushButton.setText(_translate("BMI_Calculator_and_Anaylyzer",
"Calculate BMI"))

        self.Height_2.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p><span style=\" font-size:12pt; font-weight:600;
color:#ffdf5c;\">(Height in Feet.Inches)</span></p></body></html>"))

        self.Height_3.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p><span style=\" font-size:12pt; font-weight:600;
color:#ffdf5c;\">(Weight In Kilgogram or Kg.)</span></p></body></html>"))

        self.Height_4.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p><span style=\" font-size:11pt; font-weight:600;
color:#ffdf5c;\">(According To Your AGE)</span></p></body></html>"))


self.pushButton_2.setWhatsThis(_translate("BMI_Calculator_and_Anaylyzer",
"<!DOCTYPE HTML PUBLIC \"-//W3C//DTD HTML 4.0//EN\"
\"http://www.w3.org/TR/REC-html40/strict.dtd\">\n"

"<html><head><meta name=\"qrichtext\" content=\"1\" /><style
type=\"text/css\">\n"

"p, li { white-space: pre-wrap; }\n"

"</style></head><body style=\" font-family:\'MS Shell Dlg 2\'; font-size:16pt;
font-weight:72; font-style:normal;\">\n"

"<p align=\"center\" style=\" margin-top:12px; margin-bottom:12px; margin-
left:0px; margin-right:0px; -qt-block-indent:0; text-indent:0px;\"><span
style=\" font-size:18pt; font-weight:600; color:#ffdf5c;\">Calculate
BMI</span></p></body></html>"))

        self.pushButton_2.setText(_translate("BMI_Calculator_and_Anaylyzer",
"Analyze"))

        self.Ideal_Height.setHtml(_translate("BMI_Calculator_and_Anaylyzer",
"<!DOCTYPE HTML PUBLIC \"-//W3C//DTD HTML 4.0//EN\"
\"http://www.w3.org/TR/REC-html40/strict.dtd\">\n"
```

```
"<html><head><meta name=\"qrichtext\" content=\"1\" /><style
type=\"text/css\">\n"

"p, li { white-space: pre-wrap; }\n"

"</style></head><body style=\" font-family:\'MS Shell Dlg 2\'; font-size:18pt;
font-weight:72; font-style:normal;\">\n"

"<p align=\"center\" style=\"-qt-paragraph-type:empty; margin-top:0px; margin-
bottom:0px; margin-left:0px; margin-right:0px; -qt-block-indent:0; text-
indent:0px;\"><br /></p></body></html>"))

        self.Ideal_weight_2.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p align=\"center\"><span style=\" font-size:16pt; font-
weight:600; color:#ffdf5c;\">IDEAL HEIGHT:</span></p></body></html>"))

        self.Height_5.setText(_translate("BMI_Calculator_and_Anaylyzer",
"<html><head/><body><p><span style=\" font-size:11pt; font-weight:600;
color:#ffdf5c;\">(According To Your AGE)</span></p></body></html>"))




if __name__ == "__main__":

    import sys

    app = QtWidgets.QApplication(sys.argv)

    BMI_Calculator_and_Anaylyzer = QtWidgets.QMainWindow()

    ui = Ui_BMI_Calculator_and_Anaylyzer()

    ui.setupUi(BMI_Calculator_and_Anaylyzer)

    BMI_Calculator_and_Anaylyzer.show()

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