Homework 3

Software Engineering Principle

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Features

Gantt Chart

Used for planning project plan and tasks duration or deadline.

Class Diagram

Used for designing classes in the projects.

Interaction Diagram

Used for designing how classes interact each others in the projects.

Markdown Renderer for the task assignment page

How it works:

- As mentioned earlier, we can use markdown to express the task, $\therefore$ we need a markdown renderer.

Implementation Approach:

- Use QEngineWebView Module in PyQt.

VS-Code Extension (OPTIONAL)

`TODO` extension in VS-Code with better description for the task and with team member(s) assigned to that task.
How it works:

- If you have comment with `TODO` in the front, you can add description of the task in a different entry and also in a markdown file.

- If you want to add a person in charge for that task (OPTIONAL), you can use `@TEMP`, where `TEMP` can be either role or team member names.

- After saved, you can access the `TODO` description as you hover and click to inspect task in the comment.

Implementation Approach:

- Scan through the file looking for comment with `TODO` in the front then keep the entry into the DB.

- We can edit the `TODO` description inside a external markdown file.

Page included in this homework

- **Design Page**: Page to brainstorm the program architecture and to adjust tasks duration or deadline.

- **User Settings Page**: Page to edit current user settings.

Code:

DesignPageCode.py

```python
import sys
from PySide6.QtWidgets import *
from PySide6.QtCore import *
from PySide6.QtGui import *
from DesignPageUI import Ui_Form

class Design(QMainWindow):
    def __init__(self):
        QMainWindow.__init__(self, None)
        self.ui = Ui_Form()
        self.ui.setupUi(self)
        self.ui.class_2.clicked.connect(lambda: self.changePage(0))
        self.ui.GanttChart.clicked.connect(lambda:
            self.changePage(1))
        self.ui.interaction.clicked.connect(lambda:
            self.changePage(2))

    def changePage(self, index):
        self.ui.stackedWidget.setCurrentIndex(index)

if __name__ == '__main__':
    app = QApplication(sys.argv)

    w = Design()
    w.show()
    sys.exit(app.exec())
```

DesignPageUI.py

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

################################################################
#    ##############
## Form generated from reading UI file 'design.ui'
##
## Created by: Qt User Interface Compiler version 6.10.1
##
## WARNING! All changes made in this file will be lost when
#    recompiling UI file!
################################################################
#    ##############

from PySide6.QtCore import (QCoreApplication, QDate, QDateTime,
    QLocale,
    QMetaObject, QObject, QPoint, QRect,
    QSize, QTime, QUrl, Qt)
from PySide6.QtGui import (QBrush, QColor, QConicalGradient,
    QCursor,
    QFont, QFontDatabase, QGradient, QIcon,
    QImage, QKeySequence, QLinearGradient, QPainter,
    QPalette, QPixmap, QRadialGradient, QTransform)
from PySide6.QtWidgets import (QApplication, QLabel, QPushButton,
    QSizePolicy,
    QStackedWidget, QWidget)


class Ui_Form(object):
    def setupUi(self, Form):
        if not Form.objectName():
            Form.setObjectName(u"Form")
        Form.resize(966, 681)
        Form.setStyleSheet(u"background-color:  rgb(247, 247,
            247)\n"
"")
        self.widget = QWidget(Form)
        self.widget.setObjectName(u"widget")
        self.widget.setGeometry(QRect(0, 0, 971, 91))
        self.widget.setStyleSheet(u"background-color: #2f8ed2;\n"
"color: white;")
```

```python
            self.class_2 = QPushButton(self.widget)
            self.class_2.setObjectName(u"class_2")
            self.class_2.setGeometry(QRect(220, 0, 171, 91))
            self.class_2.setStyleSheet(u"QPushButton {\n"
"                font-size: 16px;\n"
"                background: #2f8ed2;\n"
"                color: white;\n"
"            }\n"
"            QPushButton:hover {\n"
"                background: #fdd148;\n"
"                color: black;\n"
"            }")
            self.interaction = QPushButton(self.widget)
            self.interaction.setObjectName(u"interaction")
            self.interaction.setGeometry(QRect(400, 0, 171, 91))
            self.interaction.setStyleSheet(u"QPushButton {\n"
"                font-size: 16px;\n"
"                background: #2f8ed2;\n"
"                color: white;\n"
"            }\n"
"            QPushButton:hover {\n"
"                background: #fdd148;\n"
"                color: black;\n"
"            }")
            self.GanttChart = QPushButton(self.widget)
            self.GanttChart.setObjectName(u"GanttChart")
            self.GanttChart.setGeometry(QRect(580, 0, 171, 91))
            self.GanttChart.setStyleSheet(u"QPushButton {\n"
"                font-size: 16px;\n"
"                background: #2f8ed2;\n"
"                color: white;\n"
"            }\n"
"            QPushButton:hover {\n"
"                background: #fdd148;\n"
"                color: black;\n"
"            }")
            self.stackedWidget = QStackedWidget(Form)
            self.stackedWidget.setObjectName(u"stackedWidget")
            self.stackedWidget.setGeometry(QRect(0, 90, 961, 591))
            self.classPage = QWidget()
            self.classPage.setObjectName(u"classPage")
```

```python
        self.widget_2 = QWidget(self.classPage)
        self.widget_2.setObjectName(u"widget_2")
        self.widget_2.setGeometry(QRect(0, 0, 141, 591))
        self.widget_2.setStyleSheet(u"background-color: #d9ecf7;\n"
"        border-right: 1px solid #b0cddd;")
        self.label = QLabel(self.widget_2)
        self.label.setObjectName(u"label")
        self.label.setGeometry(QRect(10, 10, 51, 31))
        self.label.setStyleSheet(u"color: rgb(0, 0, 0)")
        self.label_2 = QLabel(self.widget_2)
        self.label_2.setObjectName(u"label_2")
        self.label_2.setGeometry(QRect(40, 40, 51, 31))
        self.label_2.setStyleSheet(u"color: rgb(0, 0, 0)")
        self.label_2.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.label_3 = QLabel(self.widget_2)
        self.label_3.setObjectName(u"label_3")
        self.label_3.setGeometry(QRect(40, 70, 51, 31))
        self.label_3.setStyleSheet(u"color: rgb(0, 0, 0)")
        self.label_3.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.label_4 = QLabel(self.widget_2)
        self.label_4.setObjectName(u"label_4")
        self.label_4.setGeometry(QRect(40, 100, 51, 31))
        self.label_4.setStyleSheet(u"color: rgb(0, 0, 0)")
        self.label_4.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.label_5 = QLabel(self.classPage)
        self.label_5.setObjectName(u"label_5")
        self.label_5.setGeometry(QRect(450, 20, 221, 31))
        self.label_5.setStyleSheet(u"color: rgb(0, 0, 0);\n"
"font-size: 22px;\n"
"font-weight: bold;")
        self.label_5.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.label_6 = QLabel(self.classPage)
        self.label_6.setObjectName(u"label_6")
        self.label_6.setGeometry(QRect(160, 60, 791, 511))
        self.label_6.setStyleSheet(u"background: #eeeeee;\n"
"        border: 2px dashed #999;\n"
"color: black;")
        self.label_6.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.stackedWidget.addWidget(self.classPage)
        self.ganttPage = QWidget()
        self.ganttPage.setObjectName(u"ganttPage")
```

```python
        self.label_14 = QLabel(self.ganttPage)
        self.label_14.setObjectName(u"label_14")
        self.label_14.setGeometry(QRect(380, 20, 221, 31))
        self.label_14.setStyleSheet(u"color: rgb(0, 0, 0);\n"
"font-size: 22px;\n"
"font-weight: bold;")
        self.label_14.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.label_13 = QLabel(self.ganttPage)
        self.label_13.setObjectName(u"label_13")
        self.label_13.setGeometry(QRect(20, 60, 931, 511))
        self.label_13.setStyleSheet(u"background: #eeeeee;\n"
"        border: 2px dashed #999;\n"
"color: black;")
        self.label_13.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.stackedWidget.addWidget(self.ganttPage)
        self.interactionPage = QWidget()
        self.interactionPage.setObjectName(u"interactionPage")
        self.label_12 = QLabel(self.interactionPage)
        self.label_12.setObjectName(u"label_12")
        self.label_12.setGeometry(QRect(160, 60, 791, 511))
        self.label_12.setStyleSheet(u"background: #eeeeee;\n"
"        border: 2px dashed #999;\n"
"color: black;")
        self.label_12.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.label_11 = QLabel(self.interactionPage)
        self.label_11.setObjectName(u"label_11")
        self.label_11.setGeometry(QRect(450, 20, 221, 31))
        self.label_11.setStyleSheet(u"color: rgb(0, 0, 0);\n"
"font-size: 22px;\n"
"font-weight: bold;")
        self.label_11.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.widget_3 = QWidget(self.interactionPage)
        self.widget_3.setObjectName(u"widget_3")
        self.widget_3.setGeometry(QRect(0, 0, 141, 591))
        self.widget_3.setStyleSheet(u"background-color: #d9ecf7;\n"
"        border-right: 1px solid #b0cddd;")
        self.label_7 = QLabel(self.widget_3)
        self.label_7.setObjectName(u"label_7")
        self.label_7.setGeometry(QRect(10, 10, 51, 31))
        self.label_7.setStyleSheet(u"color: rgb(0, 0, 0)")
        self.label_8 = QLabel(self.widget_3)
```

```python
        self.label_8.setObjectName(u"label_8")
        self.label_8.setGeometry(QRect(40, 40, 51, 31))
        self.label_8.setStyleSheet(u"color: rgb(0, 0, 0)")
        self.label_8.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.label_9 = QLabel(self.widget_3)
        self.label_9.setObjectName(u"label_9")
        self.label_9.setGeometry(QRect(40, 70, 51, 31))
        self.label_9.setStyleSheet(u"color: rgb(0, 0, 0)")
        self.label_9.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.label_10 = QLabel(self.widget_3)
        self.label_10.setObjectName(u"label_10")
        self.label_10.setGeometry(QRect(40, 100, 51, 31))
        self.label_10.setStyleSheet(u"color: rgb(0, 0, 0)")
        self.label_10.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.stackedWidget.addWidget(self.interactionPage)

        self.retranslateUi(Form)

        QMetaObject.connectSlotsByName(Form)
    # setupUi

    def retranslateUi(self, Form):
        Form.setWindowTitle(QCoreApplication.translate("Form",
            u"Form", None))
        self.class_2.setText(QCoreApplication.translate("Form",
            u"Class", None))
        self.interaction.setText(QCoreApplication.translate("Form",
            u"Interaction", None))
        self.GanttChart.setText(QCoreApplication.translate("Form",
            u"Gantt Chart", None))
        self.label.setText(QCoreApplication.translate("Form",
            u"Tools:", None))
        self.label_2.setText(QCoreApplication.translate("Form",
            u"Tools 1", None))
        self.label_3.setText(QCoreApplication.translate("Form",
            u"Tools 2", None))
        self.label_4.setText(QCoreApplication.translate("Form",
            u"Tools 3", None))
        self.label_5.setText(QCoreApplication.translate("Form",
            u"Class Diagram", None))
```

```python
        self.label_6.setText(QCoreApplication.translate("Form",
         ↪  u"Class Diagram", None))
        self.label_14.setText(QCoreApplication.translate("Form",
         ↪  u"Gantt Chart", None))
        self.label_13.setText(QCoreApplication.translate("Form",
         ↪  u"Gantt Chart", None))
        self.label_12.setText(QCoreApplication.translate("Form",
         ↪  u"Interaction Diagram", None))
        self.label_11.setText(QCoreApplication.translate("Form",
         ↪  u"Interaction Diagram", None))
        self.label_7.setText(QCoreApplication.translate("Form",
         ↪  u"Tools:", None))
        self.label_8.setText(QCoreApplication.translate("Form",
         ↪  u"Tools 1", None))
        self.label_9.setText(QCoreApplication.translate("Form",
         ↪  u"Tools 2", None))
        self.label_10.setText(QCoreApplication.translate("Form",
         ↪  u"Tools 3", None))
    # retranslateUi
```

UserSettingsPageCode.py

```python
import sys
from PySide6.QtWidgets import *
from PySide6.QtCore import *
from PySide6.QtGui import *
from UserSettingsPageUI import Ui_Form

class Setting(QMainWindow):
    def __init__(self):
        QMainWindow.__init__(self, None)
        self.ui = Ui_Form()
        self.ui.setupUi(self)
        self.ui.pushButton.clicked.connect(self.saveData)

    def saveData(self):
        new_username = self.ui.usernameInput.text().strip()
        new_email = self.ui.emailInput.text().strip()
        new_phone = self.ui.phoneInput.text().strip()
```

```python
        if new_username:
            self.ui.username.setText(f"Username: {new_username}")

        if new_email:
            self.ui.gmail.setText(f"Email: {new_email}")

        if new_phone:
            self.ui.phone.setText(f"Phone: {new_phone}")


if __name__ == '__main__':
    app = QApplication(sys.argv)

    w = Setting()
    w.show()
    sys.exit(app.exec())
```

UserSettingsPageUI.py

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

################################################################
#     #############
## Form generated from reading UI file 'setting.ui'
##
## Created by: Qt User Interface Compiler version 6.10.1
##
## WARNING! All changes made in this file will be lost when
#     recompiling UI file!
################################################################
#     #############

from PySide6.QtCore import (QCoreApplication, QDate, QDateTime,
    QLocale,
    QMetaObject, QObject, QPoint, QRect,
    QSize, QTime, QUrl, Qt)
from PySide6.QtGui import (QBrush, QColor, QConicalGradient,
    QCursor,
    QFont, QFontDatabase, QGradient, QIcon,
    QImage, QKeySequence, QLinearGradient, QPainter,
    QPalette, QPixmap, QRadialGradient, QTransform)
from PySide6.QtWidgets import (QApplication, QLabel, QLineEdit,
    QPushButton,
    QScrollArea, QSizePolicy, QWidget)

class Ui_Form(object):
    def setupUi(self, Form):
        if not Form.objectName():
            Form.setObjectName(u"Form")
        Form.resize(966, 674)
        Form.setStyleSheet(u"background-color:  rgb(247, 247,
            247);\n"
"color: black;")
        self.widget = QWidget(Form)
        self.widget.setObjectName(u"widget")
        self.widget.setGeometry(QRect(20, 20, 321, 631))
        self.widget.setStyleSheet(u"background-color: #fdd148;
            border-radius: 10px;\n"
```

```python
"font-size:  16px\n"
"")
        self.label = QLabel(self.widget)
        self.label.setObjectName(u"label")
        self.label.setGeometry(QRect(20, 10, 151, 41))
        self.label.setStyleSheet(u"font-size: 28px;\n"
"font-weight: bold;")
        self.widget_2 = QWidget(self.widget)
        self.widget_2.setObjectName(u"widget_2")
        self.widget_2.setGeometry(QRect(60, 80, 201, 201))
        self.widget_2.setStyleSheet(u"background: gray;
    ↪    border-radius: 100px;")
        self.username = QLabel(self.widget)
        self.username.setObjectName(u"username")
        self.username.setGeometry(QRect(0, 300, 321, 31))
        self.username.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.gmail = QLabel(self.widget)
        self.gmail.setObjectName(u"gmail")
        self.gmail.setGeometry(QRect(0, 330, 321, 31))
        self.gmail.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.phone = QLabel(self.widget)
        self.phone.setObjectName(u"phone")
        self.phone.setGeometry(QRect(0, 360, 321, 31))
        self.phone.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.label_5 = QLabel(self.widget)
        self.label_5.setObjectName(u"label_5")
        self.label_5.setGeometry(QRect(0, 390, 321, 31))
        self.label_5.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.label_6 = QLabel(self.widget)
        self.label_6.setObjectName(u"label_6")
        self.label_6.setGeometry(QRect(0, 420, 321, 31))
        self.label_6.setAlignment(Qt.AlignmentFlag.AlignCenter)
        self.scrollArea = QScrollArea(Form)
        self.scrollArea.setObjectName(u"scrollArea")
        self.scrollArea.setGeometry(QRect(360, 30, 591, 621))
        self.scrollArea.setStyleSheet(u"font-size: 16px;")
        self.scrollArea.setWidgetResizable(True)
        self.scrollAreaWidgetContents = QWidget()
        self.scrollAreaWidgetContents.setObjectName(u"scrollAreaWi ⌋
    ↪    dgetContents")
```

```python
        self.scrollAreaWidgetContents.setGeometry(QRect(0, 0, 587,
         ↪  617))
        self.label_2 = QLabel(self.scrollAreaWidgetContents)
        self.label_2.setObjectName(u"label_2")
        self.label_2.setGeometry(QRect(20, 10, 321, 41))
        self.label_2.setStyleSheet(u"font-size: 24px;\n"
"font-weight: bold;")
        self.username_2 = QLabel(self.scrollAreaWidgetContents)
        self.username_2.setObjectName(u"username_2")
        self.username_2.setGeometry(QRect(20, 60, 321, 31))
        self.username_2.setAlignment(Qt.AlignmentFlag.AlignLeading
         ↪  |Qt.AlignmentFlag.AlignLeft|Qt.AlignmentFlag.AlignVC
         ↪  enter)
        self.usernameInput =
         ↪  QLineEdit(self.scrollAreaWidgetContents)
        self.usernameInput.setObjectName(u"usernameInput")
        self.usernameInput.setGeometry(QRect(20, 100, 551, 31))
        self.usernameInput.setText(u"")
        self.username_3 = QLabel(self.scrollAreaWidgetContents)
        self.username_3.setObjectName(u"username_3")
        self.username_3.setGeometry(QRect(20, 140, 321, 31))
        self.username_3.setAlignment(Qt.AlignmentFlag.AlignLeading
         ↪  |Qt.AlignmentFlag.AlignLeft|Qt.AlignmentFlag.AlignVC
         ↪  enter)
        self.emailInput = QLineEdit(self.scrollAreaWidgetContents)
        self.emailInput.setObjectName(u"emailInput")
        self.emailInput.setGeometry(QRect(20, 180, 551, 31))
        self.emailInput.setText(u"")
        self.username_4 = QLabel(self.scrollAreaWidgetContents)
        self.username_4.setObjectName(u"username_4")
        self.username_4.setGeometry(QRect(20, 220, 321, 31))
        self.username_4.setAlignment(Qt.AlignmentFlag.AlignLeading
         ↪  |Qt.AlignmentFlag.AlignLeft|Qt.AlignmentFlag.AlignVC
         ↪  enter)
        self.phoneInput = QLineEdit(self.scrollAreaWidgetContents)
        self.phoneInput.setObjectName(u"phoneInput")
        self.phoneInput.setGeometry(QRect(20, 260, 551, 31))
        self.phoneInput.setText(u"")
        self.username_5 = QLabel(self.scrollAreaWidgetContents)
        self.username_5.setObjectName(u"username_5")
        self.username_5.setGeometry(QRect(20, 310, 321, 31))
```

```python
            self.username_5.setAlignment(Qt.AlignmentFlag.AlignLeading
            ↪    |Qt.AlignmentFlag.AlignLeft|Qt.AlignmentFlag.AlignVC
            ↪    enter)
            self.lineEdit_4 = QLineEdit(self.scrollAreaWidgetContents)
            self.lineEdit_4.setObjectName(u"lineEdit_4")
            self.lineEdit_4.setGeometry(QRect(20, 350, 551, 31))
            self.lineEdit_4.setText(u"12345")
            self.lineEdit_4.setReadOnly(True)
            self.pushButton =
            ↪    QPushButton(self.scrollAreaWidgetContents)
            self.pushButton.setObjectName(u"pushButton")
            self.pushButton.setGeometry(QRect(10, 540, 571, 71))
            self.pushButton.setStyleSheet(u"QPushButton {\n"
"            background-color: #2f8ed2;\n"
"            color: white;\n"
"            border-radius: 8px;\n"
"            font-size: 18px;\n"
"        }\n"
"        QPushButton:hover {\n"
"            background-color: #fdd148;\n"
"            color: black;\n"
"        }")
            self.scrollArea.setWidget(self.scrollAreaWidgetContents)

            self.retranslateUi(Form)

        QMetaObject.connectSlotsByName(Form)
    # setupUi

    def retranslateUi(self, Form):
        Form.setWindowTitle(QCoreApplication.translate("Form",
            ↪    u"Form", None))
        self.label.setText(QCoreApplication.translate("Form",
            ↪    u"Account:", None))
        self.username.setText(QCoreApplication.translate("Form",
            ↪    u"Username: Raph", None))
        self.gmail.setText(QCoreApplication.translate("Form",
            ↪    u"Email: raph@example.com", None))
        self.phone.setText(QCoreApplication.translate("Form",
            ↪    u"Phone: +66 1234 5678", None))
```

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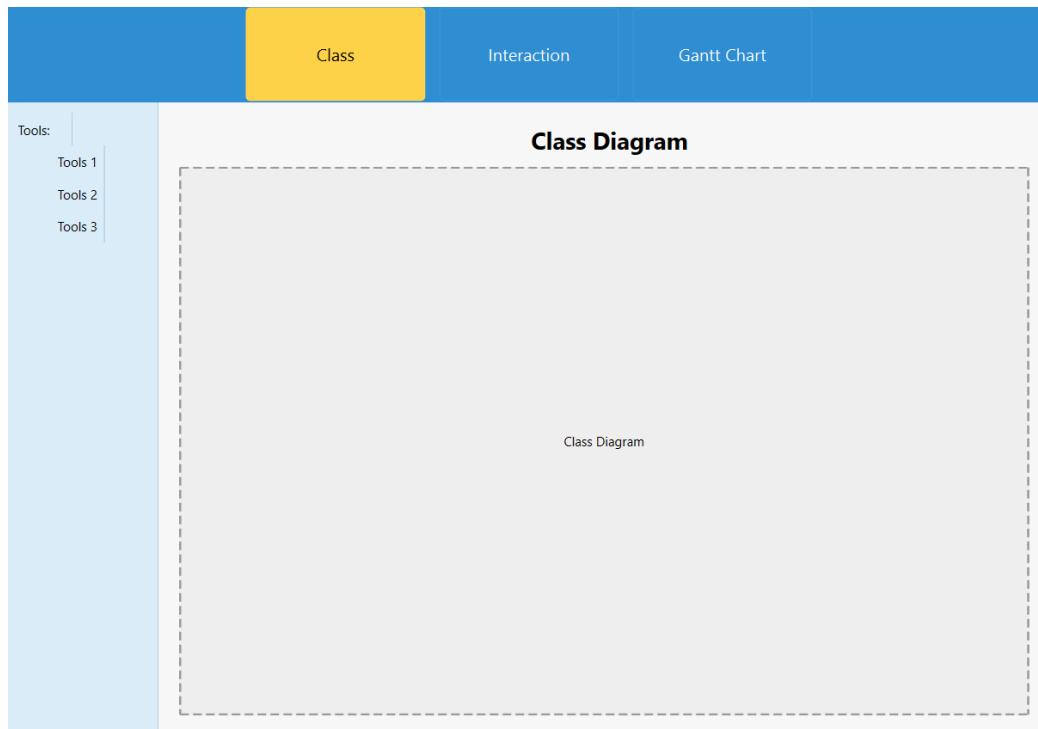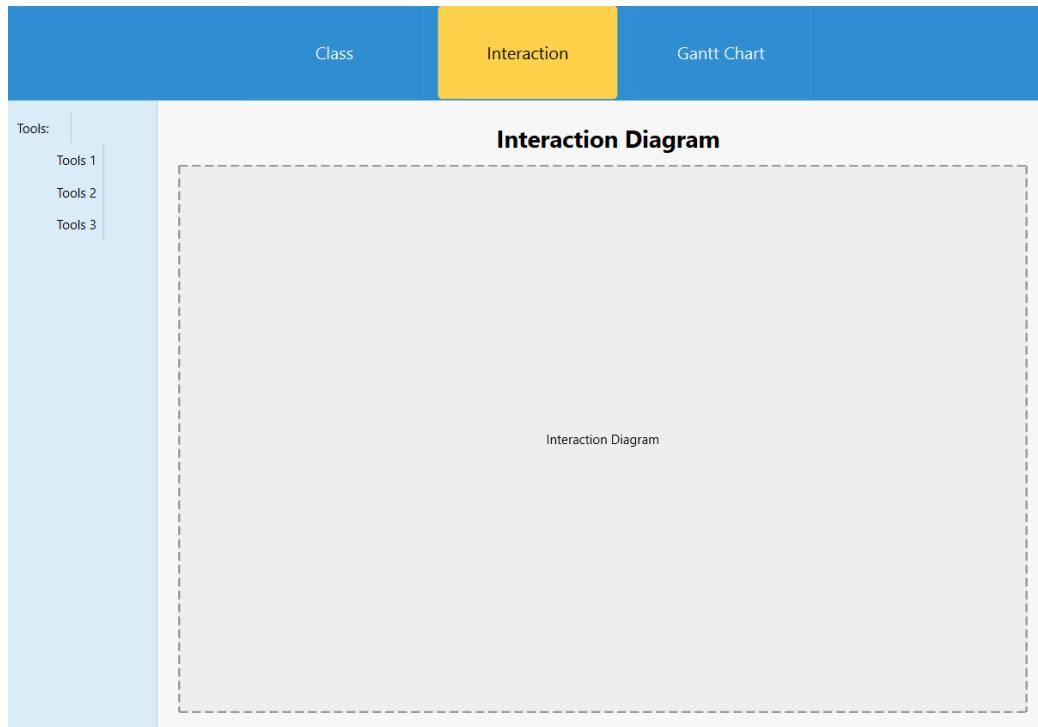
```python
        self.label_5.setText(QCoreApplication.translate("Form",
        ↪  u"Account ID: 12345", None))
        self.label_6.setText(QCoreApplication.translate("Form",
        ↪  u"Status: Active", None))
        self.label_2.setText(QCoreApplication.translate("Form",
        ↪  u"Edit Account Information:", None))
        self.username_2.setText(QCoreApplication.translate("Form",
        ↪  u"Username:", None))
        self.usernameInput.setInputMask("")
        self.usernameInput.setPlaceholderText(QCoreApplication.tra⌋
        ↪  nslate("Form", u"Enter new username", None))
        self.username_3.setText(QCoreApplication.translate("Form",
        ↪  u"Email:", None))
        self.emailInput.setInputMask("")
        self.emailInput.setPlaceholderText(QCoreApplication.transl⌋
        ↪  ate("Form", u"Enter new email", None))
        self.username_4.setText(QCoreApplication.translate("Form",
        ↪  u"Phone:", None))
        self.phoneInput.setInputMask("")
        self.phoneInput.setPlaceholderText(QCoreApplication.transl⌋
        ↪  ate("Form", u"Enter phone number", None))
        self.username_5.setText(QCoreApplication.translate("Form",
        ↪  u"Account ID (Read-only):", None))
        self.lineEdit_4.setInputMask("")
        self.lineEdit_4.setPlaceholderText(QCoreApplication.transl⌋
        ↪  ate("Form", u"Enter new username", None))
        self.pushButton.setText(QCoreApplication.translate("Form",
        ↪  u"PushButton", None))
    # retranslateUi
```
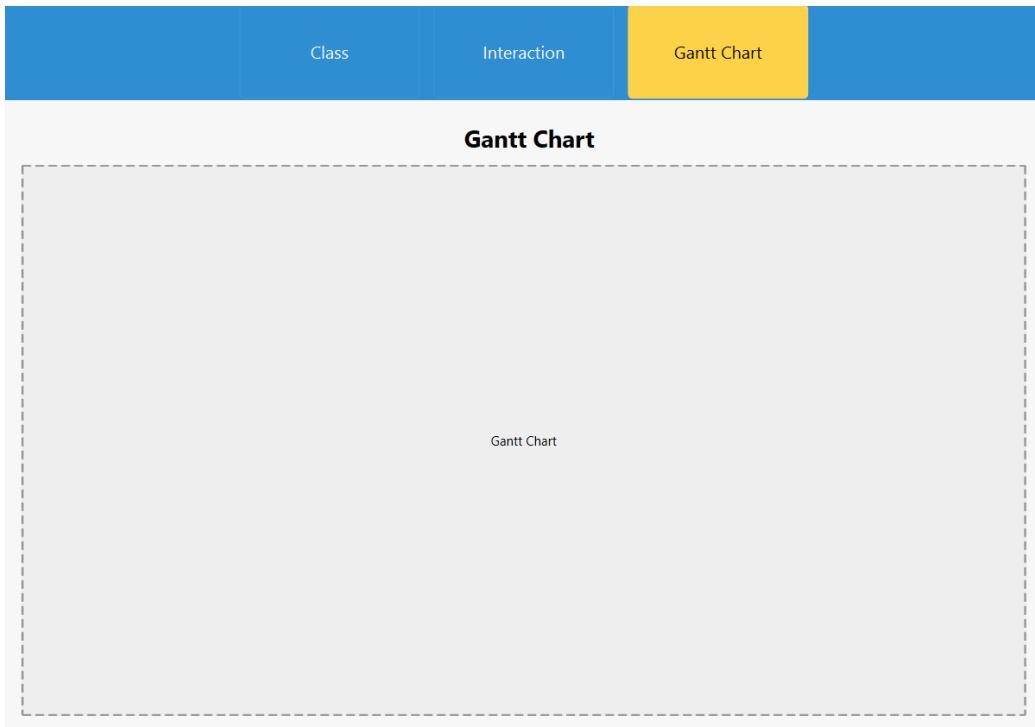
Output:

Task Assignment Page

| Class | Interaction | Gantt Chart |

Tools:
Tools 1
Tools 2
Tools 3

Class Diagram

Class Diagram

Class	Interaction	Gantt Chart

Interaction Diagram

Tools:

Tools 1

Tools 2

Tools 3

Interaction Diagram

| Class | Interaction | **Gantt Chart** | |

Gantt Chart

Gantt Chart
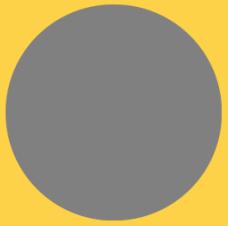
Account:

Username: Raph
Email: raph@example.com
Phone: +66 1234 5678
Account ID: 12345
Status: Active

Edit Account Information:

Username:

Enter new username

Email:

Enter new email

Phone:

Enter phone number

Account ID (Read-only):

12345

PushButton