Activity Name #6 - Activity GUI Design_ Layout and Styling	
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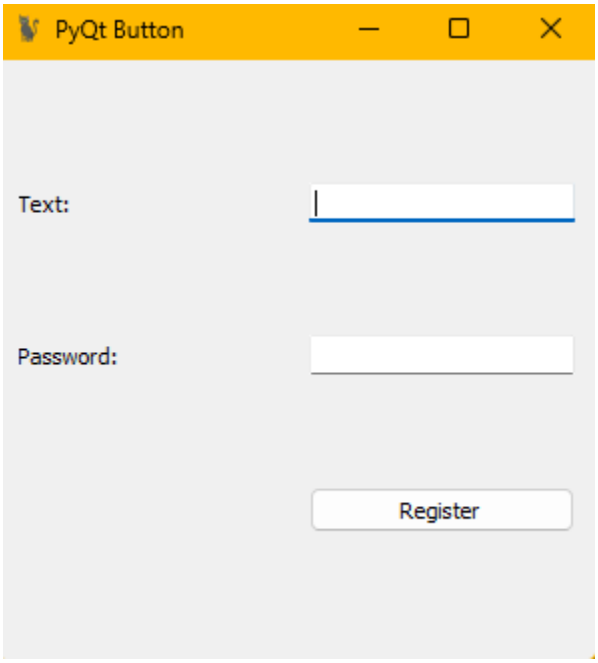
Basic Grid Layout (code & output)

```
import sys
from PyQt5.QtWidgets import QWidget, QPushButton,
QApplication, QGridLayout, QLabel, QLineEdit
from PyQt5.QtGui import QIcon


class App(QWidget):

    def __init__(self):
        super().__init__()
        self.title="PyQt Button"
        self.x = 200 #or left
        self.y = 200#or top
        self.width=300
        self.height=300
        self.initUI()

    def initUI(self):
        self.setWindowTitle(self.title)

self.setGeometry(self.x,self.y,self.width,self.height
)
        self.setWindowIcon(QIcon('pythonico.ico'))

        self.createGridLayout()
        self.setLayout(self.layout)
        self.show()

    def createGridLayout(self):
        self.layout = QGridLayout()

        self.layout.setColumnStretch(1,2)

        self.textboxlbl = QLabel("Text: ", self)
        self.textbox = QLineEdit(self)
        self.passwordlbl = QLabel("Password: ", self)
        self.password = QLineEdit(self)
        self.password.setEchoMode(QLineEdit.Password)
        self.button = QPushButton('Register', self)
        self.button.setToolTip("You've hovered over
me!")
        self.layout.addWidget(self.textboxlbl,0,1)
        self.layout.addWidget(self.textbox,0,2)
        self.layout.addWidget(self.passwordlbl,1,1)
        self.layout.addWidget(self.password,1,2)
```

```
        self.layout.addWidget(self.button,2,2)

if __name__ == '__main__':
    app = QApplication(sys.argv)
    ex = App()
    sys.exit(app.exec())
```



Observation	The output has a window with 2 Texboxes for text and Password and a Button (“Register”) which does nothing

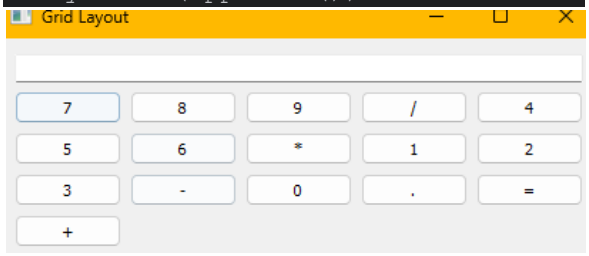
Code & Output

```
import sys
from PyQt5.QtWidgets import
QGridLayout, QLineEdit, QPushButton,
QHBoxLayout,QVBoxLayout, QWidget,
QApplication

class GridExample(QWidget):
    def __init__(self):
        super().__init__()
        self.initUI()
    def initUI(self):
        grid = QGridLayout()
        self.setLayout(grid)

        names = [
                '7', '8', '9', '/', ''
                '4', '5', '6', '*', ''
                '1', '2', '3', '-', ''
                '0', '.', '=', '+', ''
```

| | ```
            '', '', '', '', ''
        ]
        self.textLine =
QLineEdit(self)
        grid.addWidget(self.textLine,
0,1,1,5)

        #using a loop to generate
positions
        positions = [(i,j) for i in
range(1,7) for j in range(1,6)]
        for position, name in
zip(positions, names):
            if name=='':
                continue
            button = QPushButton(name)
            grid.addWidget(button,
*position)

        self.setGeometry(300, 300,
300, 150)
        self.setWindowTitle('Grid
Layout')
        self.show()

if __name__ == '__main__':
    app = QApplication(sys.argv)
    ex =GridExample()
    sys.exit(app.exec())
```  |
| Observation | The Window has basic buttons for a calculator but has no function but its not clean and it can be stretched wide. |

| Code & Output | ```
import sys
from PyQt5.QtWidgets import *
from PyQt5.QtGui import QIcon

class MainWindow(QMainWindow):
    def __init__(self):
        super().__init__()
        self.setWindowTitle("Notepad")

self.setWindowIcon(QIcon("pythonico.i
``` |

```
co"))
        self.loadmenu()
        self.loadwidget()
        self.show()

    def loadmenu(self):
        mainMenu = self.menuBar()
        fileMenu =
mainMenu.addMenu('File')
        editMenu =
mainMenu.addMenu('Edit')

        editButton = QAction('Clear',
self)

editButton.setShortcut("ctrl+M")

editButton.triggered.connect(self.cle
artext)
        editMenu.addAction(editButton)

        fontButton = QAction('Font',
self)

fontButton.setShortcut("ctrl+F")

fontButton.triggered.connect(self.sho
wFontDialog)
        editMenu.addAction(fontButton)

        saveButton = QAction('Save',
self)

saveButton.setShortcut("ctrl+S")

saveButton.triggered.connect(self.sav
eFileDialog)
        fileMenu.addAction(saveButton)

        openButton = QAction('Open',
self)

openButton.setShortcut("Ctrl+O")

openButton.triggered.connect(self.ope
nFileNameDialog)
        fileMenu.addAction(openButton)

        exitButton = QAction('Exit',
self)

exitButton.setShortcut("Ctrl+Q")
        exitButton.setStatusTip('Exit
application')
```

```
exitButton.triggered.connect(self.clo
se)
        fileMenu.addAction(exitButton)

    def showFontDialog(self):
        font, ok =
QFontDialog.getFont()
        if ok:

self.notepad.text.setFont(font)

    def saveFileDialog(self):
        options =
QFileDialog.Options()
        # options |=
QFileDialog.DontUseNativeDialog
        fileName, _ =
QFileDialog.getSaveFileName(self,
"Save notepad file", "",

"Text Files (*.txt);;Python Files
(*.py);;All files (*)",

options=options)
        if fileName:
            with open(fileName, 'w')
as file:

file.write(self.notepad.text.toPlainT
ext())

    def openFileNameDialog(self):
        options =
QFileDialog.Options()
        # options |=
QFileDialog.DontUseNativeDialog
        fileName, _ =
QFileDialog.getOpenFileName(self,
"Open notepad file", "",

"Text Files (*.txt);;Python Files
(*.py);;All files (*)",

options=options)
        if fileName:
            with open(fileName, 'r')
as file:
                data = file.read()

self.notepad.text.setText(data)

    def cleartext(self):
        self.notepad.text.clear()

    def loadwidget(self):
```

```
        self.notepad = Notepad()

self.setCentralWidget(self.notepad)

class Notepad(QWidget):

    def __init__(self):
        super(Notepad,
self).__init__()
        self.text = QTextEdit(self)
        self.clearbtn =
QPushButton("Clear")

self.clearbtn.clicked.connect(self.cl
eartext)

        self.initUI()
        self.setLayout(self.layout)
        windowLayout = QVBoxLayout()

windowLayout.addWidget(self.horizonta
lGroupBox)
        self.show()

    def initUI(self):
        self.horizontalGroupBox =
QGroupBox("Grid")
        self.layout = QHBoxLayout()

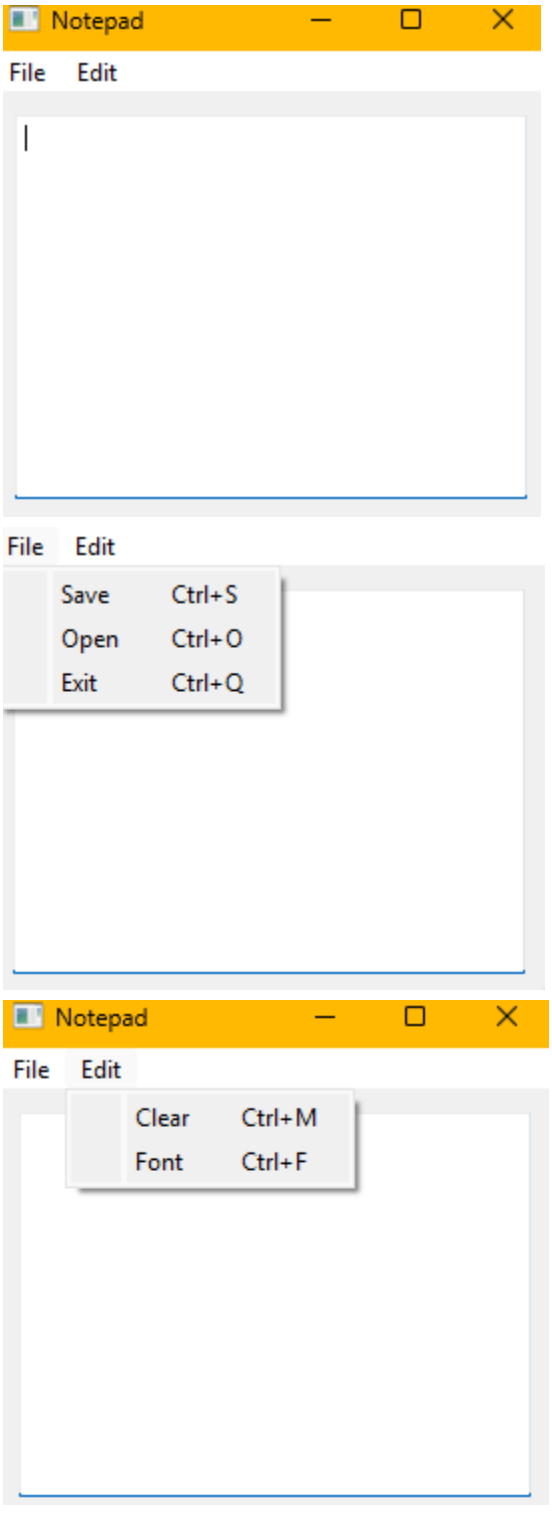
self.layout.addWidget(self.text)

#self.layout.addWidget(self.clearbtn)

self.horizontalGroupBox.setLayout(sel
f.layout)

    def cleartext(self):
        self.text.clear()

if __name__=='__main__':
    app = QApplication(sys.argv)
    ex = MainWindow()
    sys.exit(app.exec_())
```

	
Observation	The Window has the same functions of the notepad that Operating System provided like font, clear, Save, Open, Exit .

Supplementary Activity: