# 2023 INF1511 Unit 8 Visual Programming I

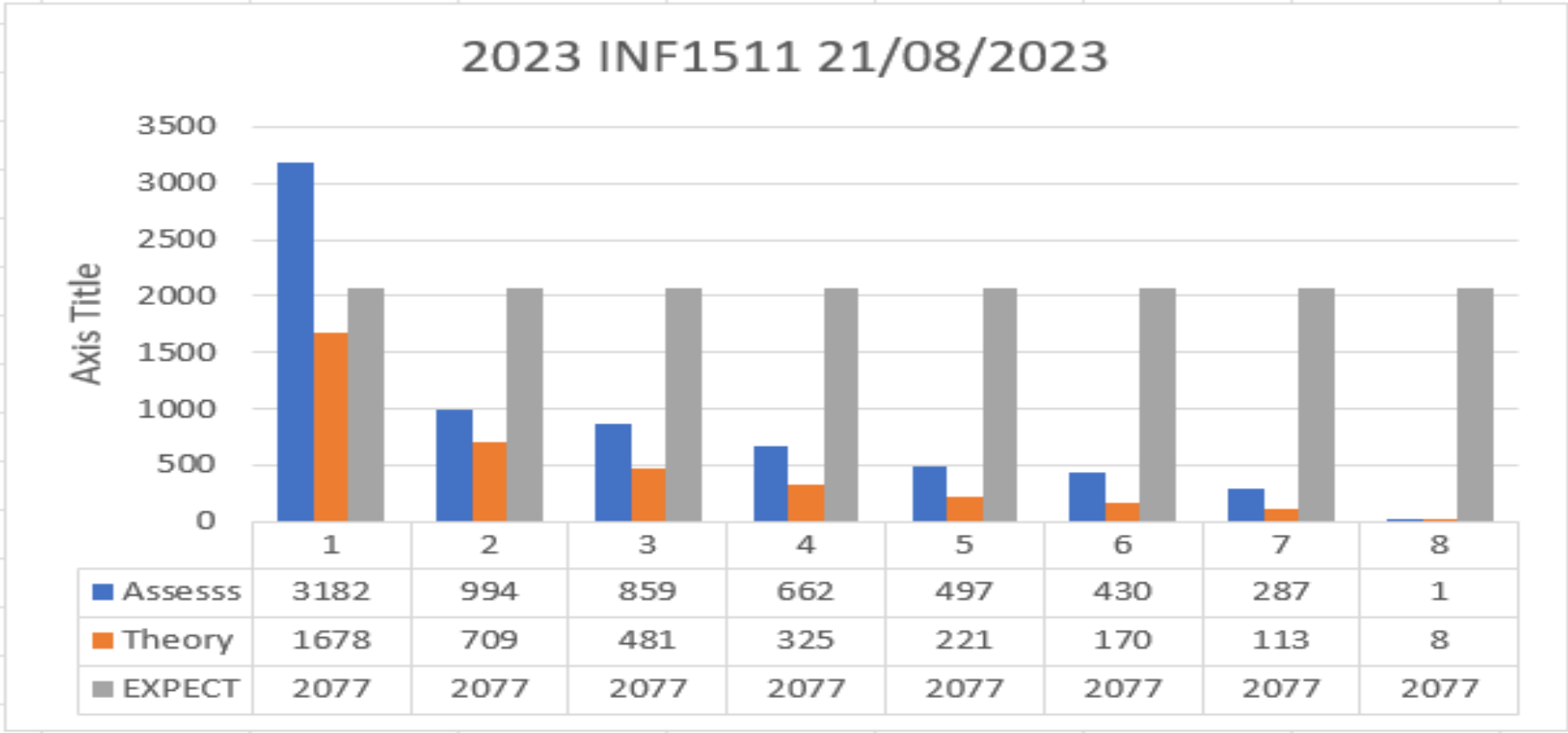
# Graphical User Interfaces (GUI) Widgets (PyQt)

Dr Patricia Gouws
Primary Lecturer
for INF1511

Define tomorrow.

UNISA college of science, engineering and technology

# Progress?




| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assesss | 3182 | 994 | 859 | 662 | 497 | 430 | 287 | 1 |
| Theory | 1678 | 709 | 481 | 325 | 221 | 170 | 113 | 8 |
| EXPECT | 2077 | 2077 | 2077 | 2077 | 2077 | 2077 | 2077 | 2077 |

# WELCOME TO UNIT 8

programming | logo | code | yellow | cute | blue | baby | royal | wallpaper | turtle | pet | transparent | icon | green | big

Wikipedia
Python (programming l...

National Geographic...
Burmese Python

Wikiversity
Python - Wikiversity

NTUC LearningHub
FUNDAMENTALS OF PYTHON PROGRAMMI...

Wikipedia
Python (genus) - Wikipedia

InfoWorld
Python? Powerful, intuitive program...

Axios
Florida Everglades ...

freeCodeCamp
Python Programming Tutorial for Begin...

CNN
A 12-foot Burmese python has been loo...

CodeOp
Python & Why is it a Good Time to ...

IEEE Spectrum
IEEE Spectrum

Towards Data Science
The Zen of Python: A guide to Python's ...

National Geographic
Burmese Python | National ...

Dice.com
Python 3.10.0 Offers Basket of New ...

PC World
Start coding Python for a...

Codecademy
Learn Python 2 | Codecademy

NPR
A record 19-foot-long Burmese pyt...

Google Play
Learn Python – Apps on ...

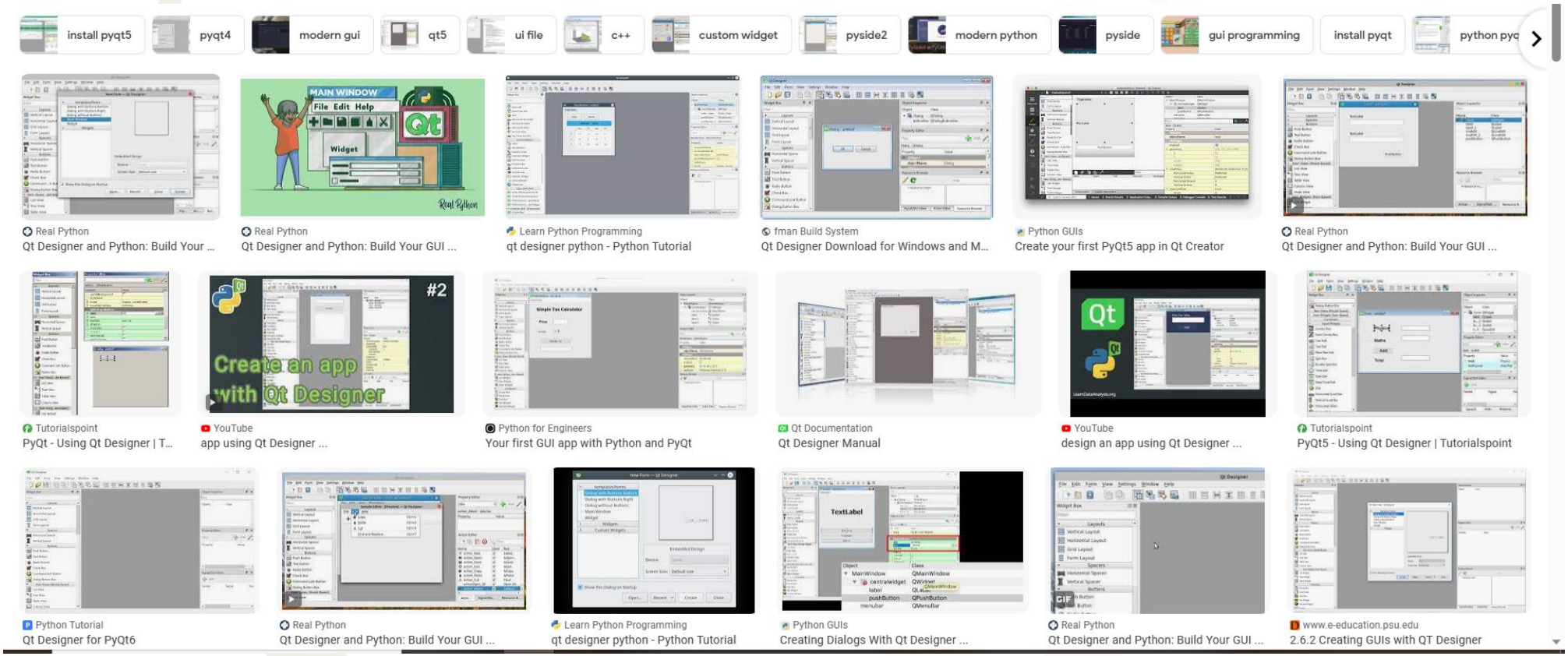
ZDNET
Programming languages:...

PortSwigger
Malicious Python library CTX removed ...

MIT News - Massachusetts Institute of Tec...
Python-based compiler achieves orders...

Visual Studio Magazine
VS Code Gets New Python Language ...

# Designing the GUI for an application



# Overview

- Set Up PyQt Designer environment.
- The theory of a GUI in programming.
- The practical application (and demonstration) of a GUI in programming.
- The assessment of learning in this unit.
- The additional resources available for this unit.

# Theory – What is a GUI in programming?

- Classes are ….
- A system. There is always input, processing and output.  A function has input, processing and output.
- The GUI provides space to input data (on widgets), to trigger processing (event driven programming) and to display output (on widgets).

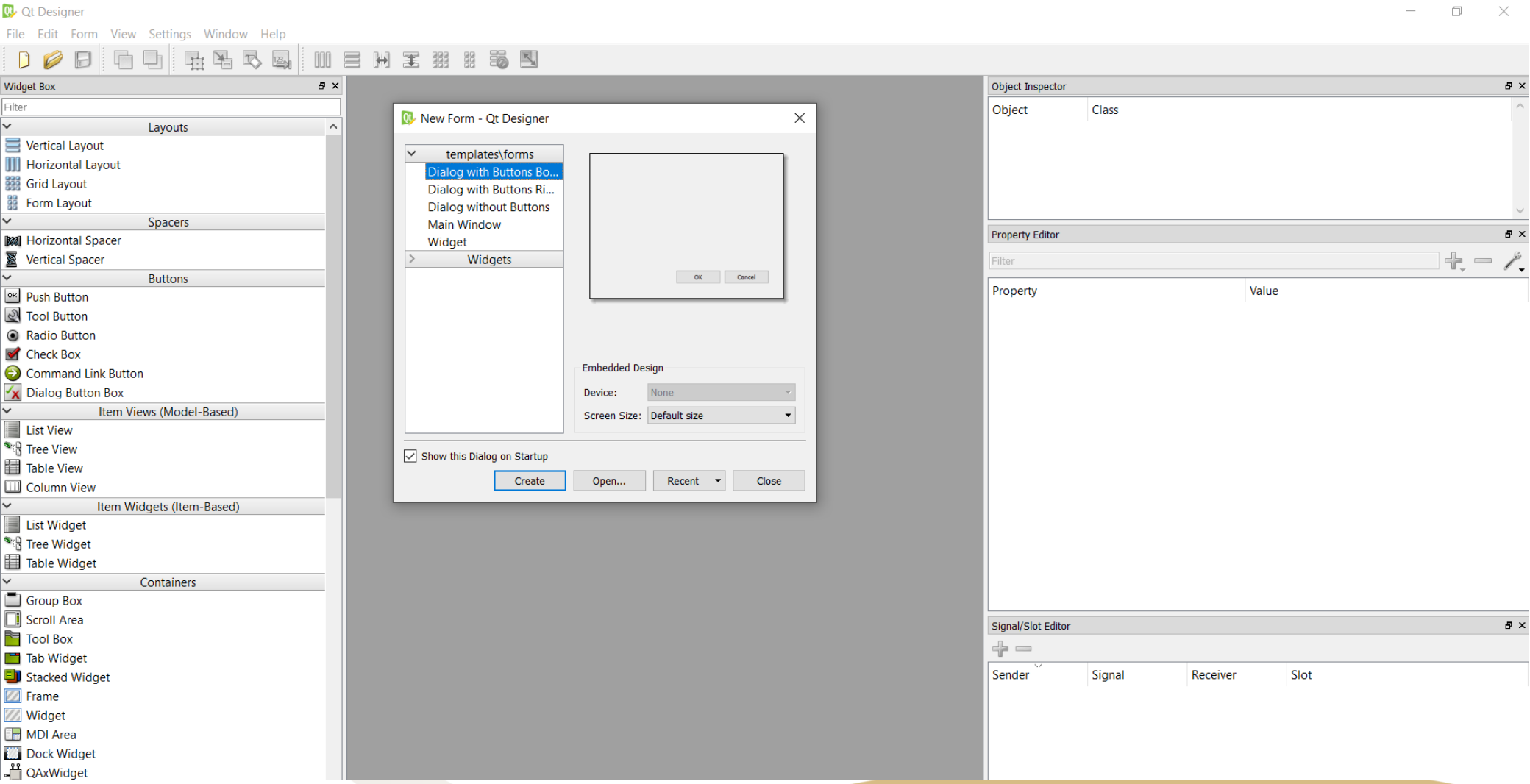
# A GUI in programming

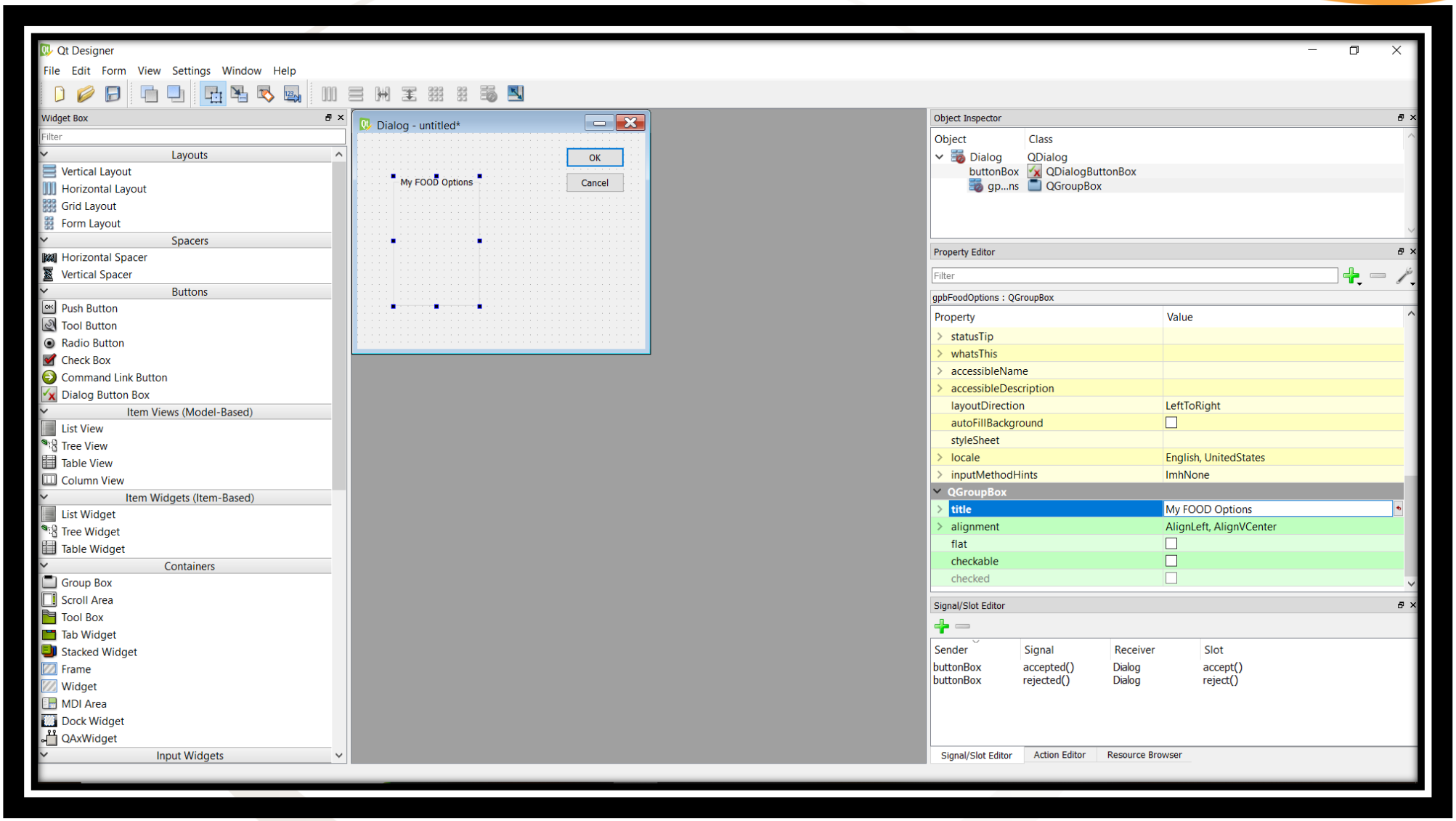
- The input, the processing and the output.
- Using WIDGETS
- Must have a GUI that works!
- Widgets for **input** from user (verify input)
- Widgets to trigger **processing** (events)
- Widgets to display **output**

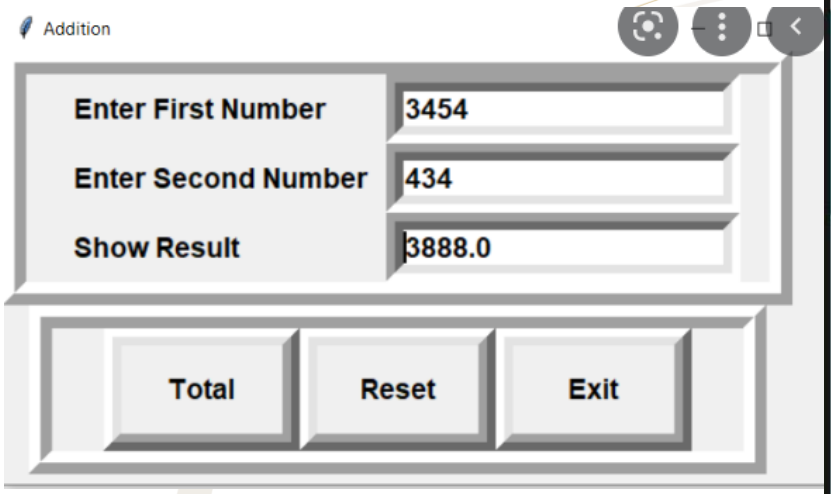
# Programming elements

- Literals - _____
- Variables - _____
- Keywords (30 in Python … and else elif exec … )
- Comments #
- A keyword is IF and ELIF
- A keyword is FOR
- A keyword is WHILE
- Functions are declared! The keyword is ……
- CLASS?

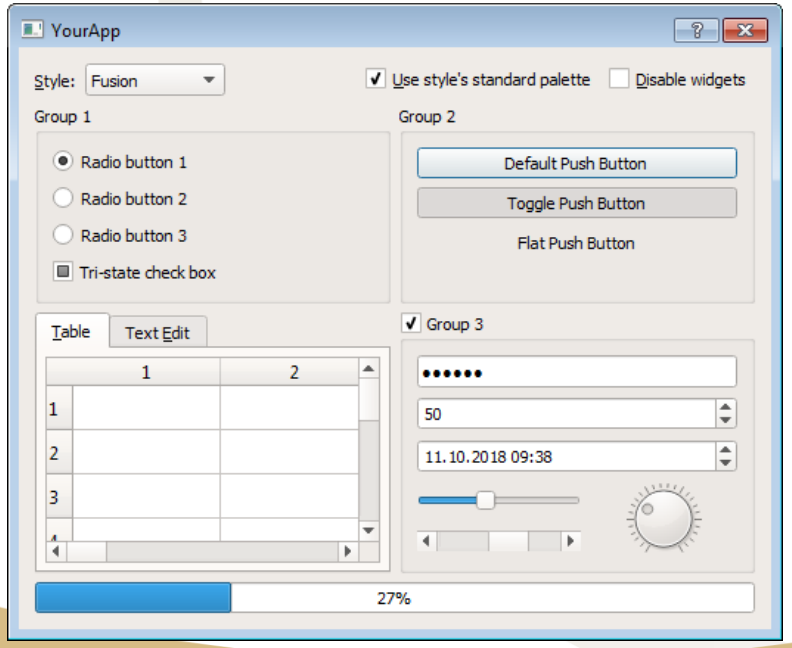
# Graphical User Interface PyQT Designer

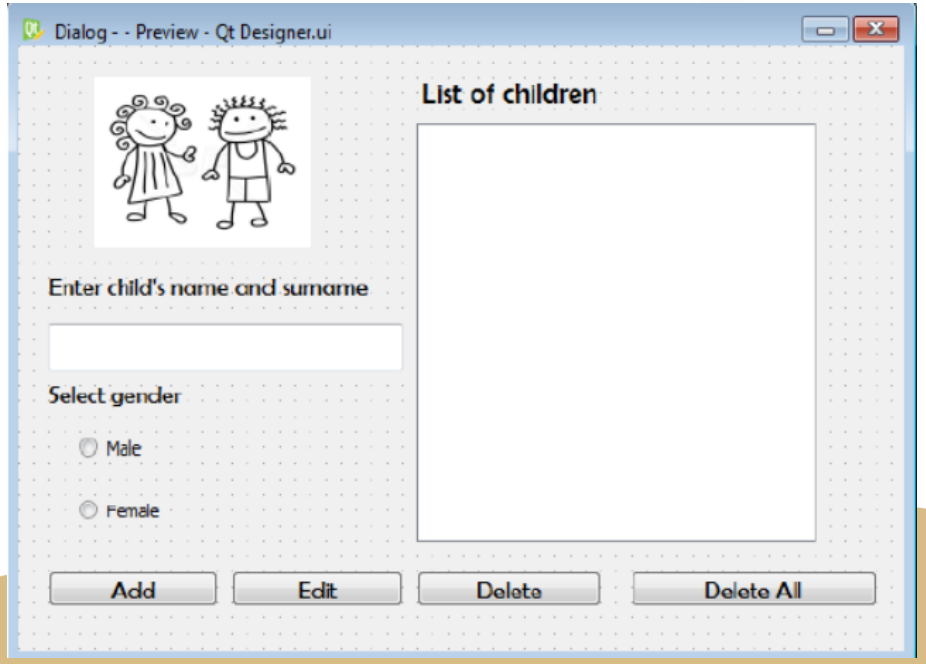



Qt Designer
File Edit Form View Settings Window Help
Widget Box
Filter
Layouts
Vertical Layout
Horizontal Layout
Grid Layout
Form Layout
Spacers
Horizontal Spacer
Vertical Spacer
Buttons
Push Button
Tool Button
Radio Button
Check Box
Command Link Button
Dialog Button Box
Item Views (Model-Based)
List View
Tree View
Table View
Column View
Item Widgets (Item-Based)
List Widget
Tree Widget
Table Widget
Containers
Group Box
Scroll Area
Tool Box
Tab Widget
Stacked Widget
Frame
Widget
MDI Area
Dock Widget
QAxWidget
Input Widgets
Dialog - untitled*
OK
Cancel
My FOOD Options
Object Inspector
Object
Class
Dialog
QDialog
buttonBox
QDialogButtonBox
gp...ns
QGroupBox
Property Editor
Filter
gpbFoodOptions : QGroupBox
Property
Value
statusTip
whatsThis
accessibleName
accessibleDescription
layoutDirection
LeftToRight
autoFillBackground
styleSheet
locale
English, UnitedStates
inputMethodHints
ImhNone
QGroupBox
title
My FOOD Options
alignment
AlignLeft, AlignVCenter
flat
checkable
checked
Signal/Slot Editor
Sender
Signal
Receiver
Slot
buttonBox
accepted()
Dialog
accept()
buttonBox
rejected()
Dialog
reject()
Signal/Slot Editor
Action Editor
Resource Browser


Addition
Enter First Number
3454
Enter Second Number
434
Show Result
3888.0
Total
Reset
Exit

Restaurant Management System
Restaurant Management System
Thumbs Up
Red Bull
7 Up
Bira
Corona
Budweiser
Hoegaarden
Heineken
Chicken Rogan Josh Biryani
Butter Chicken Biryani
Chicken Tikka Masala Biryani
Chicken Bhuna Biryani
Chicken Hyderabadi Biryani
Chicken Dum Biryani
Chicken Kadhai Biryani
Chef's special Chicken Biryani
Cost of Drinks
Cost of Dishes
Service Charge
Paid Tax
Sub Total
Total Cost
Receipt Ref:
BILL541560 10/08/2020
Item:
No of Items
Total
Receipt
Reset
Exit


YourApp
Style:
Fusion
Use style's standard palette
Disable widgets
Group 1
Radio button 1
Radio button 2
Radio button 3
Tri-state check box
Group 2
Default Push Button
Toggle Push Button
Flat Push Button
Table
Text Edit
Group 3
11.10.2018 09:38
27%


Dialog - - Preview - Qt Designer.ui
List of children
Enter child's name and surname
Select gender
Male
Female
Add
Edit
Delete
Delete All

# Widget Categories

- Layouts
- Spacers
- Buttons
- Items Views (large volumes of data)
- Containers
- Input Widgets
- Display Widgets

# PyQt

- Different windows
- Designing the GUI
- Event handling from GUI
- Radio buttons (select ONE) or Check boxes
- Scollbars and Sliders
- List widget (add, edit and delete from list)

# Assessment for Unit 8

- **Theory MCQ quiz** will become available today. One attempt. Available until 9 October 2023.
- **Programming activities** for this unit on Jupyter Notebook page. Available.  Practise! Use this to complete Assignment 8.
- **Practical MCQ quiz** (Assignment 8) will become available today. One attempt. Available until 9 October 2023.

# **Thank** you

Define tomorrow.

UNISA | college of science, engineering and technology