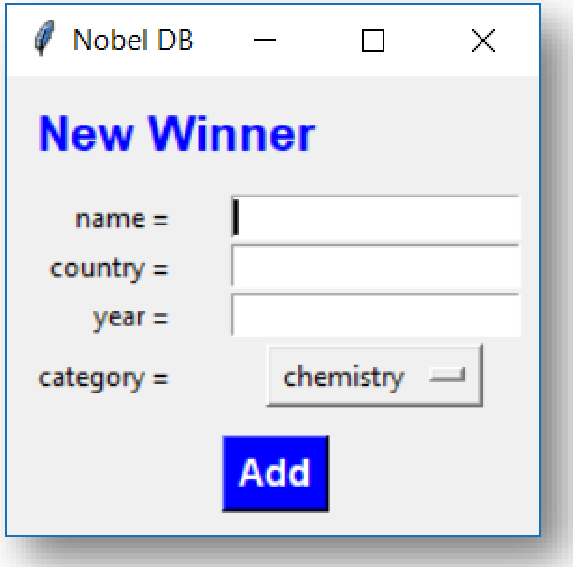
User Interface



New Winner

name =

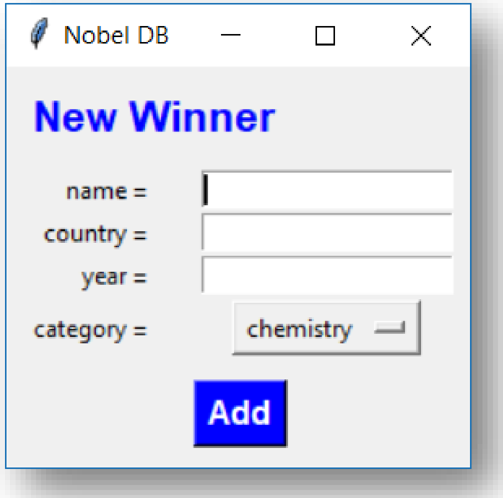
country =

year =

category = chemistry

Content

- tkinter
- Widgets
- Apply



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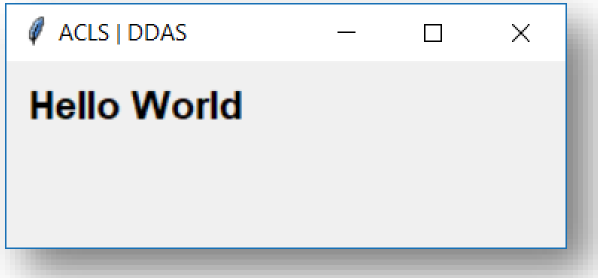


ACLS | DDAS

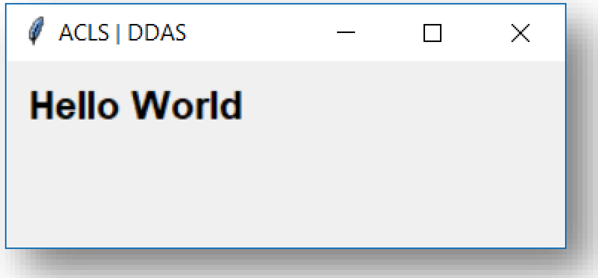
Hello World

tkinter

Tk

tkinter is the Python interface to the **Tk** toolkit shipped with Python.

Tk is a free and open-source, cross-platform **widget** toolkit that provides a library of basic elements for building a graphical user interface (GUI) in many programming languages. It is very well suited for “quick-and-dirty” programming and prototypes.



Hello World

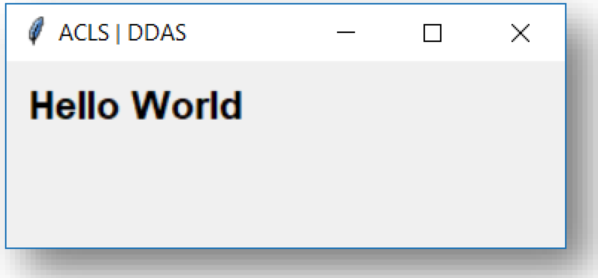
tkinter

```python
# import
import tkinter

# create new window
main_win = tkinter.Tk()
main_win.title('ACLS | DDAS')
main_win.geometry('300x100')

# add a label
lbl = tkinter.Label(main_win,text='Hello World')
lbl['font'] = 'Arial 16 bold'
lbl.config(padx=10,pady=10)
lbl.grid(row=0,column=0)

# run GUI
main_win.mainloop()
```



Hello World

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- Widgets
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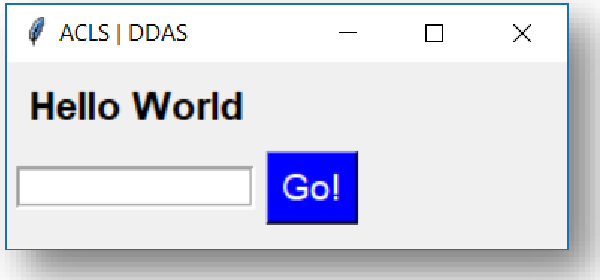

Widgets

Tkinter provides various **controls**, such as buttons, labels, and text boxes used in a GUI application.
These controls are commonly called **widgets**.

Button	Is used to display buttons that can be clicked with the mouse.
Checkbutton	Is used to display a number of options as checkboxes. The user can select multiple options at a time.
Entry	Is used to display a single-line text field for accepting values from a user.
Frame	Is used as a container widget to organize other widgets.
Label	Is used to provide a single-line caption for other widgets. It can also contain images.
Listbox	Is used to provide a list of options to a user.
Radiobutton	Is used to display a number of options as radio buttons. The user can select only one option at a time.
Scrollbar	Is used to add scrolling capability to various widgets, such as list boxes.
Text	Is used to display text in multiple lines.

and more…

Widgets

Label

```
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import tkinter

# create new window
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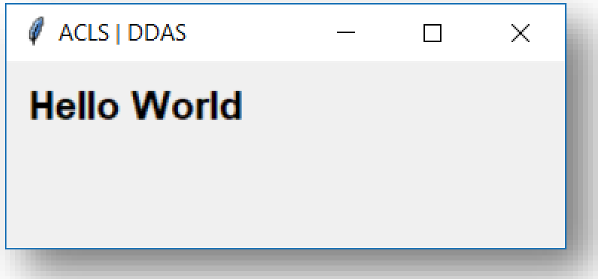


Hello World

Widgets

Attributes

There are three ways to set the attribute values:

```
# add a label
lbl = tkinter.Label(main_win,text='Hello World')
lbl['font'] = 'Arial 16 bold'
lbl.config(padx=10,pady=10)
```

All widgets have the following general attributes:

font	Used to set the font of the widget
height	Used to set the height of the widget
width	Used to set the width of the widget
borderwith	Used to set the width of the border of the widget
relief	Used to set the style of the border of the widget
image	Used to set an image
bg	Used to set the background color
fg	Used to set the forground color (usually font color)

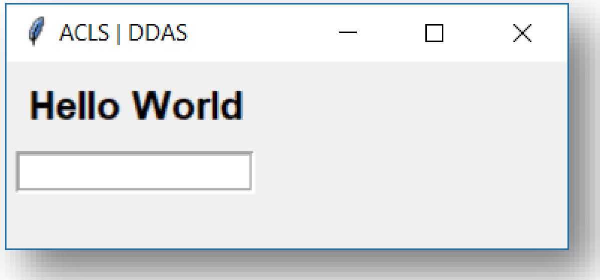
Widgets

Entry

```
[...]

# add a text entry
etr = tkinter.Entry(main_win)
etr['borderwidth'] = 3
etr['relief'] = 'groove'
etr.grid(row=1,column=0)

[...]
```



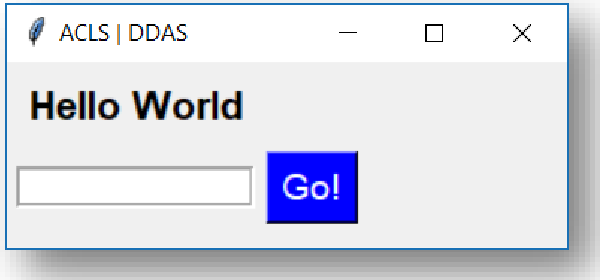
Widgets

Button

```
[…]

# add a button
btn = tkinter.Button(main_win,text='Go!')
btn['command'] = change_text
btn.config(font='Arial 14')
btn.config(fg='#FFFFFF',bg='#0000FF')
btn.grid(row=1,column=1)

[…]
```



Widgets

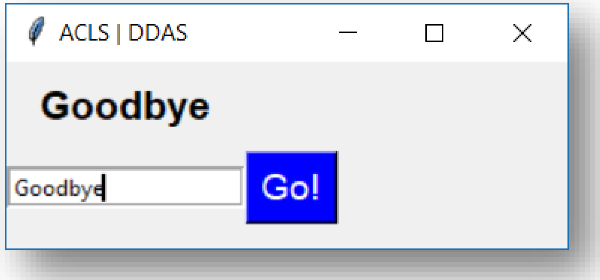
Button - Command

```
# method to change the label text
def change_text():
    lbl['text'] = etr.get()

[…]

# add a button
btn = tkinter.Button(main_win,text='Go!')
btn['command'] = change_text
btn.config(font='Arial 14')
btn.config(fg='#FFFFFF',bg='#0000FF')
btn.grid(row=1,column=1)

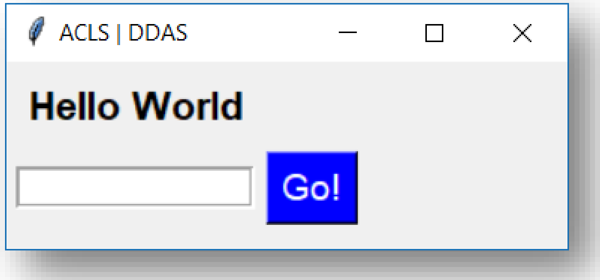
[…]
```



Widgets

Geometry Management

```
# use the grid method to arrange widgets
lbl.grid(row=0,column=0)
etr.grid(row=1,column=0)
btn.grid(row=1,column=1)
```



pack() – This geometry manager organizes widgets in blocks before placing them in the parent widget.
grid() – This geometry manager organizes widgets in a table-like structure in the parent widget.
place() – This geometry manager organizes widgets by placing them in a specific position in the parent widget.

Content

- tkinter
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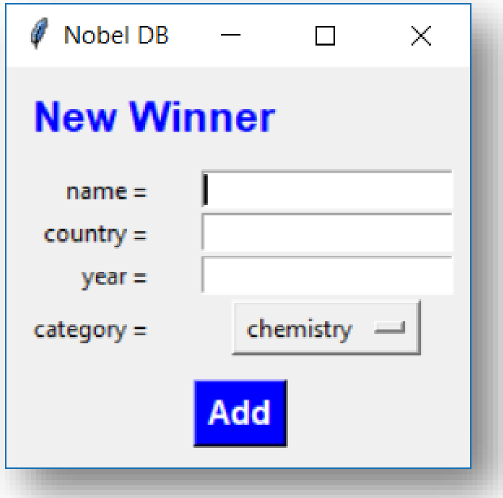
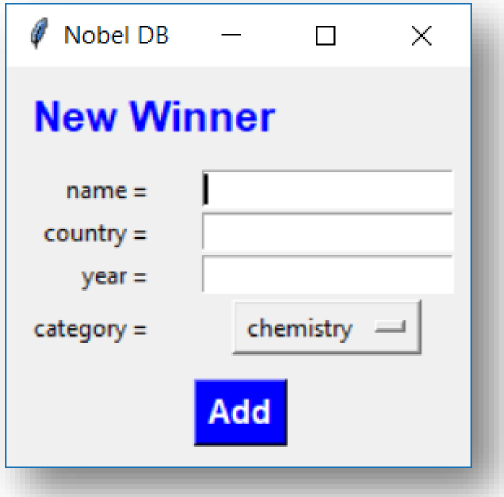
- Apply



name =
country =
year =
category = chemistry

Apply

Let’s programm a **GUI** for the sqlite database ***nobel.sqlite*** created in the **exercise last week** to add a new winner



Nobel DB

New Winner

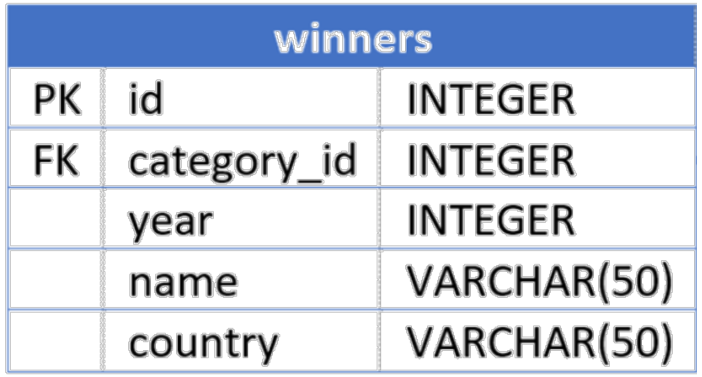
name =

country =

year =

category = chemistry

insert



winners		
PK	id	INTEGER
FK	category_id	INTEGER
	year	INTEGER
	name	VARCHAR(50)
	country	VARCHAR(50)