LECTURE 38

GUIS WITH TKINTER 2

MCS 260 Fall 2021
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REMINDERS

- Homework 13 due Tue 10am

- No labs next week. TA office hours instead.

- If Proj 4 proposal not yet approved, revise and resubmit by Tue Nov 23.

GOAL

Build a more interesting `tkinter` GUI application.

We'll make a **password generator**.

W_5A2j — editable.

☑ digit
☑ capital — required elements
☑ symbol

20% — selectable non-letter fraction.

Generate   Exit

SUBCLASSING TK

A good way to make GUI applications is to subclass `tkinter.Tk` and put GUI setup code in `__init__`.

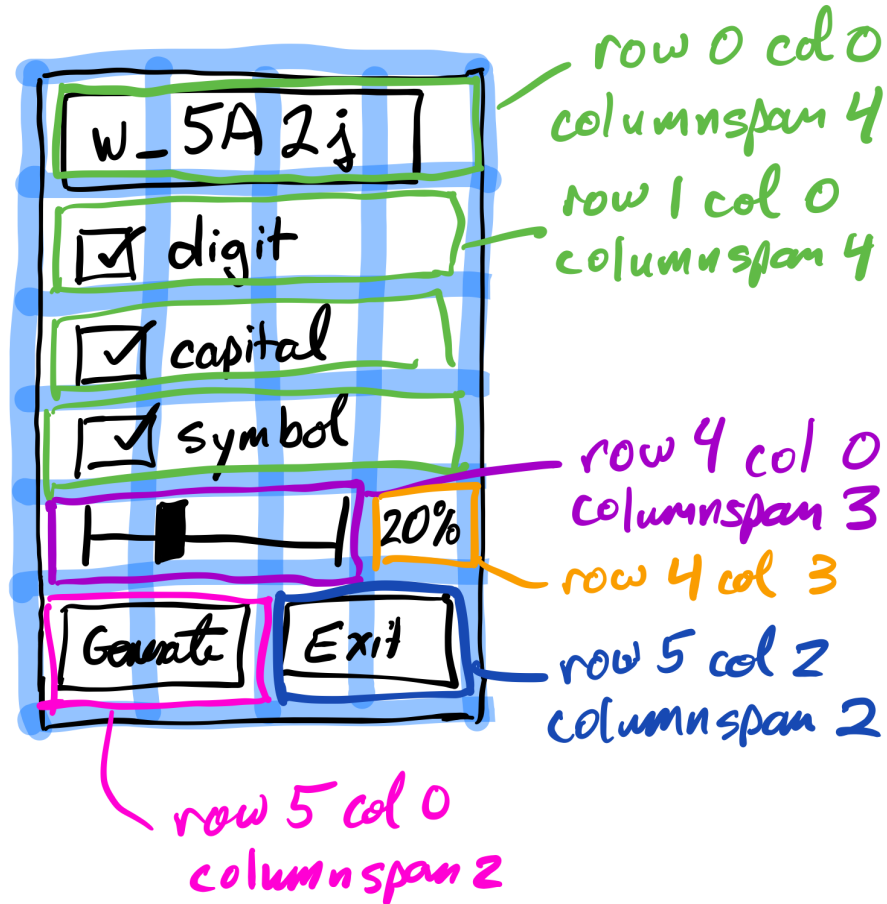Then, application data can be stored as class attributes.

Commands and other callbacks can be methods.

ROWSPAN AND COLUMNSPAN

These options for `.grid` of a widget make it span multiple columns or rows in the layout.

6 x 4 GRID LAYOUT

ROW   COL

W_5A 2j

☑ digit

☑ capital

☑ symbol

|■——————| 20%

Generate   Exit

row 0 col 0
columnspan 4

row 1 col 0
columnspan 4

row 4 col 0
columnspan 3

row 4 col 3

row 5 col 2
columnspan 2

row 5 col 0
columnspan 2

TKINTER VARIABLES

`tkinter` offers mutable variable classes designed to work with widgets:

- `tkinter.StringVar` — mutable string
- `tkinter.DoubleVar` — mutable float
- `tkinter.IntVar` — mutable integer

All use `.set(val)` to set, `.get()` to get. They automatically notify widgets that use them of changes.

VARIABLE CHANGE CALLBACKS

`tkinter` variables let us register a function to be called whenver the value changes:

`tkvar.trace_add("write",callback)`

The function `callback` is called with three arguments (internal name, internal index, operation). Usually you want to ignore all of these arguments.

REFERENCES

- Official tkinter documentation
- The Tk docs tutorial demonstrates lots of features, and shows Python code for all its examples.
- Unofficial reference manual by John Shipman

REVISION HISTORY

- 2021-11-19 Initial publication