Wiki - Week three | An Introduction to Interactive Programming in Python

Canvas — Canvas and drawing

- The canvas is the area associated with an application where information contain in the application may be drawn.

- In SimpleGUI applications, the width and height of the canvas are specified (in pixels) in create_frame. (A pixel is the smallest unit of area that your computer can draw in.)

- The origin for the canvas is the upper left-hand corner.

- Positions in the canvas are specified as pairs [x,y] where x is the horizontal coordinate and y is the vertical coordinate.

- Lecture examples - Canvas and Drawing

- More examples - Structure

Event-driven drawing — Canvas and drawing

- Computers refresh their screens around 60 times per sec.

- For each application, the computer calls a special event handler, the draw handler, that is registered to the application.

- In SimpleGUI, the draw handler is registered via set_draw_handler.

- The draw handler can modify the canvas via simple draw operations defined in SimplGUI

- Lecture examples - Canvas and Drawing

- More examples - Structure, Echo

String operations — String processing

- The function str converts other types of data into a string.

- The concatenation operator + joins two strings to form a single string,

- The ith element of a string my_string can be access via my_string[i]. Note that strings are immutable (cannot be changed).

- Substrings of my_string can be accessed via *slicing* .

- Lecture examples - Strings, Dollars and Cents One, Dollars and Cents Two

- More examples - Operations, Input Checking, Initials

Drawing text — Interactive drawing

- The method draw_text draws a string when given a position (lower left corner), a font size and a color.

- The method draw_circle (see "More examples" below) draws a circle at a given point with a given radius in pixels. To draw a point, draw a circle of radius one.

- The method draw_line (see "More examples" below) draws a line between two points.

- The method draw_polygon (see "More examples" below) draws a sequence of points (enclosed in square brackets and separated by commas) as a closed polygon.

- Colors for drawing methods can be specified as HTML color strings; "White", "Red", "Green", ...

- Lecture examples - Interactive Drawing

- More examples - Shapes, Pictures, Hidden Picture

Timers — Timers

- Timers are another component of SimpleGUI that generate regularly timed events.

- Users create a timer using create_timer with a specified interval and event handler.

- The timer calls its associated event handler regularly at the given interval.

- A timer t is started with t.start() and is stopped by t.stop().

- Lecture examples - Timers

- More examples - Blinking Text, Reaction Time

Programming Tips — Week 3 (pt. 1), Week 3 (pt. 2)