Week three

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 `i` th 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 - Drawing, 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)

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