# SimpleGUICS2Pygame Documentation

***Release 02.00.00 WORKING VERSION April 29, 2016***

**Olivier Pirson**

February 28, 2017

Contents

It is primarily a standard Python (**2 and 3**) module reimplementing the SimpleGUI particular module of CodeSkulptor (a browser Python interpreter).

Simply change

```
import simplegui
```

by

```
try:
    import simplegui
except ImportError:
    import SimpleGUICS2Pygame.simpleguics2pygame as simplegui
```

in your CodeSkulptor program and your program **run both** in CodeSkulptor and *standard Python* with this module (and Pygame).

Online HTML documentation on **Read The Docs**. (You can also see the online SimpleGUI documentation on CodeSkulptor.)

(**This is the online HTML documentation of the working version.** You can find the HTML documentation of the last stable version in the Bitbucket download section https://bitbucket.org/OPiMedia/simpleguics2pygame/downloads .)

**Sources** and installers on Bitbucket: https://bitbucket.org/OPiMedia/simpleguics2pygame
and on **PyPI**: https://pypi.python.org/pypi/SimpleGUICS2Pygame .

CHAPTER 1

# If you have some problem

First, read this short main documentation page, this Compatibility page and this Tips page.

If you have problem with some command, you can see its documentation in the modules page or by the genindex page .

Next, you can search in Stack Overflow. If you don't find answer, you can ask question like this.

Finally you can email me. I will try to help you with pleasure. (You can write me in French.)

CHAPTER 2

# Installation

If pip is installed on your platform you can do:

```
>>> pip install SimpleGUICS2Pygame
```

(If several Python implementations are installed, maybe you must use something like *pip2* or *pip3* instead *pip* command.)

Without pip, download the archive `SimpleGUICS2Pygame-?.tar.gz`, unzip it `somewhere`. Next in the `somewhere/SimpleGUICS2Pygame-?/` subdirectory run:

```
>>> python setup.py install
```

In both cases, you must use **admin access**. So with GNU/Linux you will probably do:

```
>>> sudo [your command]
```

Module `simpleplot` require matplotlib (and must be installed separately).

Modules `simplegui_lib` (and its submodules) and `simpleguics2pygame` (except for the Timer class) require Pygame (and must be installed separately).

## Test installation

You can run the little script `SimpleGUICS2Pygame_check.py` to check if all required modules are installed.

Examples of good installation: result in Python 2 and result in Python 3.

You can also test your Pygame installation alone with the other little script `pygame_check.py`.

## Update

With pip installed on your plaftorm you can update SimpleGUICS2Pygame:

```
>>> pip install SimpleGUICS2Pygame --upgrade
```

## Complete installation on Window$ in few steps

1. Download and run the good *Pygame* installation file: Unofficial Windows Binaries Pygame. (Only require for `simplegui_lib`, its submodules and `simpleguics2pygame`.)

2. Download and run the good *matplotlib* installation file (**and** all its requirements): Unofficial Windows Binaries matplotlib. (Only require for `simpleplot`.)
3. Download and run the good *setuptools* installation file: Unofficial Windows Binaries setuptools.
4. Download and run the good *pip* installation file: Unofficial Windows Binaries pip.
5. Run in the *Command Prompt* (maybe with *Administrator* rights): `pip install SimpleGUICS2Pygame`. (Probably the `pip` command aren't in your `PATH`, so add it or move in the subdirectory of `pip` with the `CD` command. This subdirectory is something like `C:\Python?\Scripts\`.)

CHAPTER 3

# Examples of CodeSkulptor and SimpleGUICS2Pygame use

You can see examples in SimpleGUICS2Pygame/example/ subdirectory from the sources archives.

Or online: Python programs running in CodeSkulptor .

**Two simple online examples:**

- Frame_example.py: very simple canvas example
- presentation.py: little draw images and texts

CHAPTER 4

# Message to developers

This is a **free software**, so you can download it, **modify it** and **submit your modifications**. You can also **redistribute** your own version (keeping the GPL license).

Complete **sources** on Bitbucket: https://bitbucket.org/OPiMedia/simpleguics2pygame

See developers'page.

CHAPTER 5

# Author

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Other free softwares on my Bitbucket account: https://bitbucket.org/OPiMedia

CHAPTER 6

# Support me

This package is a completely **free software**, see GPL license. So it is **completely free** (like “free speech” and like “free beer”). However you can **support me** financially by donating.

Go to the link 

. **Thank you!**

CHAPTER 7

# Note that

- SimpleGUI of CodeSkulptor (Scott Rixner) is a specific module of CodeSkulptor, written in JavaScript.

  CodeSkulptor is a Python implementation running **in a browser**. It implements a subset of Python **2**. It is the environment used in the course An Introduction to Interactive Programming in Python (Rice University, Coursera).

- **SimpleGUICS2Pygame** (Olivier Pirson) is **this package**. It is fully compatible with Python **2 and 3**.

  It contains `codeskulptor`, `numeric`, `simpleguics2pygame` and `simpleplot` modules that reimplement `codeskulptor`, `numeric`, `simplegui` and `simpleplot` modules of CodeSkulptor.

  **Warning:** SimpleGUICS2Pygame was **designed to mimic behavior of CodeSkulptor**. So load_image() and load_sound() methods can load medias only from URL, not local files. However SimpleGUICS2Pygame can save these medias to a specific local directory. See the Download medias tips.
  You can also use *specific* _load_local_image() and _load_local_sound() methods to load local files. But be careful, each specific method doesn't exist in CodeSkulptor.
  There exist some **little differences between SimpleGUICS2Pygame and SimpleGUI** of CodeSkulptor. See Compatibility notes.

- SimpleGUITk (David Holm) is *another implementation* of SimpleGUI of CodeSkulptor, using Tkinter and some others packages. It is really less complete and not updated. However it works for some programs.

**Warning:**

- simplegui (Florian Berger) is a Python package which has the same name as SimpleGUI of CodeSkulptor, but it is *totally something else*.

CHAPTER 8

# Table of contents

## Package SimpleGUICS2Pygame

SimpleGUICS2Pygame package (April 29, 2016)

It is primarily a standard Python (**2 and 3**) module reimplementing the SimpleGUI particular module of CodeSkulptor (a browser Python interpreter).

Require Pygame (except for the Timer class) (Unofficial Windows Binaries) (and must be installed separately).

Module simpleplot require matplotlib .

Online HTML documentation on Read The Docs.

Sources and installers on Bitbucket: https://bitbucket.org/OPiMedia/simpleguics2pygame
and on PyPI: https://pypi.python.org/pypi/SimpleGUICS2Pygame .

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame



- v.02.00.00 WORKING VERSION — April 29, 2016
- v.01.09.00 — January 1st, 2015
- v.01.08.01 — October 9, 2014
- v.01.08.00 — October 4, 2014
- v.01.07.00 — September 2, 2014
- v.01.06.03 — July 24, 2014
- v.01.06.02 — July 18, 2014
- v.01.06.01 — July 17, 2014
- v.01.06.00 — June 16, 2014
- v.01.05.00 — May 25, 2014
- v.01.04.00 — December 16, 2013
- v.01.03.00 — December 13, 2013
- v.01.02.00 — November 8, 2013

- v.01.01.00 — November 1st, 2013
- v.01.00.02 — October 31, 2013
- v.01.00.01 — October 9, 2013
- v.01.00.00 — July 13, 2013
- v.00.92.00 — June 27, 2013
- v.00.91.00 — June 23, 2013
- v.00.90.10 — June 19, 2013
- v.00.90.00 — June 13, 2013
- Started on May 21, 2013

Complete changelog

`SimpleGUICS2Pygame.__init__._VERSION` = **'02.00.00 WORKING VERSION April 29, 2016'**
Version of SimpleGUICS2Pygame package.

`SimpleGUICS2Pygame.__init__._WEBSITE` = **'https://simpleguics2pygame.readthedocs.io/'**
Website of the project.

[source]

# All modules of this package

## codeskulptor — replace the codeskulptor module of CodeSkulptor

codeskulptor (May 24, 2014)

Replace the codeskulptor module of CodeSkulptor.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

GPLv3 — Copyright (C) 2013, 2014 Olivier Pirson http://www.opimedia.be/

`SimpleGUICS2Pygame.codeskulptor.file2url`(*filename*)
Return a completed CodeSkulptor URL ressource from a short *filename*.

Example given in the CodeSkulptor file2url documentation: *file2url('assets-Quick_fox.txt')* return *'http://codeskulptor-assets.commondatastorage.googleapis.com/assets-Quick_fox.txt'*

**Parameters** `filename` – str

**Raise** ValueError if filename is in a incorrect format (the good format is '^[a-zA-Z][a-zA-Z0-9]*[_-]')

**Returns** str

`SimpleGUICS2Pygame.codeskulptor.set_timeout`(*seconds*)
Does nothing.

In CodeSkulptor, this function change the timeout imposed on all programs (by default 5 seconds). See CodeSkulptor set_timeout documentation.

**Parameters** `seconds` – int >= 0

[source]

## codeskulptor_lib — some miscellaneous functions

(Version saved in CodeSkulptor http://www.codeskulptor.org/#user38_ZmhOVHGm2lhVRhk.py .) codeskulptor_lib (October 4, 2014)

Some miscellaneous functions to help in CodeSkulptor.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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`SimpleGUICS2Pygame.codeskulptor_lib.`**`assert_position`**(*position*, *non_negative=False*, *non_zero=False*)

Assertions to check valid *position*: (int or float, int or float) or [int or float, int or float].

If non_negative then each *int* or *float* must be >= 0.

If non_zero then each *int* or *float* must be != 0.

**Parameters**

- **`position`** – object
- **`non_negative`** – bool

`SimpleGUICS2Pygame.codeskulptor_lib.`**`codeskulptor_is`**()

If run in CodeSkulptor environment then return *True*, else return *False*.

**Returns** bool

`SimpleGUICS2Pygame.codeskulptor_lib.`**`hex2`**(*n*, *uppercase=True*)

Return 2 characters corresponding to the hexadecimal representation of *n*.

**Parameters**

- **`n`** – 0 <= int < 256
- **`uppercase`** – bool

**Returns** str (length == 2)

`SimpleGUICS2Pygame.codeskulptor_lib.`**`hex_fig`**(*n*, *uppercase=True*)

Return the hexadecimal figure of *n*.

**Parameters**

- **`n`** – 0 <= int < 16
- **`uppercase`** – bool

**Returns** str (one character from 0123456789ABCDEF or 0123456789abcdef)

`SimpleGUICS2Pygame.codeskulptor_lib.`**`hsl`**(*hue*, *saturation*, *lightness*)

Return the string HTML representation of the color in 'hsl(hue, lightness, saturation)' format.

**Parameters**

- **`hue`** – float or int
- **`saturation`** – 0 <= float or int <= 100
- **`lightness`** – 0 <= float or int <= 100

**Returns** str

`SimpleGUICS2Pygame.codeskulptor_lib.`**`hsla`**(*hue*, *saturation*, *lightness*, *alpha=1*)

Return the string HTML representation of the color in 'hsla(hue, lightness, saturation, alpha)' format.

**Parameters**

- **hue** – float or int
- **saturation** – 0 <= float or int <= 100
- **lightness** – 0 <= float or int <= 100
- **alpha** – 0 <= float or int <= 1

**Returns** str

SimpleGUICS2Pygame.codeskulptor_lib.**rgb**(*red*, *green*, *blue*)

Return the string HTML representation of the color in 'rgb(red, blue, green)' format.

**Parameters**

- **red** – 0 <= int <= 255
- **green** – 0 <= int <= 255
- **blue** – 0 <= int <= 255

**Returns** str

SimpleGUICS2Pygame.codeskulptor_lib.**rgba**(*red*, *green*, *blue*, *alpha=1*)

Return the string HTML representation of the color in 'rgba(red, blue, green, alpha)' format.

**Parameters**

- **red** – 0 <= int <= 255
- **green** – 0 <= int <= 255
- **blue** – 0 <= int <= 255
- **alpha** – 0 <= float or int <= 1

**Returns** str

[source]

## numeric — replace the numeric module of CodeSkulptor

numeric (June 16, 2014)

Replace the numeric module of CodeSkulptor.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

GPLv3 — Copyright (C) 2013, 2014 Olivier Pirson http://www.opimedia.be/

**class** SimpleGUICS2Pygame.numeric.**Matrix**(*data*, *_copy=True*)

Matrix (m x n).

See http://en.wikipedia.org/wiki/Matrix_%28mathematics%29 .

**__add__**(*other*)

To a matrix (m x n) return the matrix plus other.

**Parameters** **other** – Matrix (m x n)

**Returns** Matrix (m x n)

**__getitem__**(*i_j*)

Returns the value of the (m x n) matrix at row i and column j.

**Parameters** **i_j** – (0 <= int < m, 0 <= int < n) or [0 <= int < m, 0 <= int < n]

**Returns** float

**__init__**(*data*, *_copy=True*)
Create a matrix with the 2-dimensional *data*.

If not *_copy* then *data* is directly used without copy. In this case, *data* must be a correct list of list of float. **(Option not available in SimpleGUI of CodeSkulptor.)**

**Parameters**

- **data** – (not empty tuple or list) of (same size tuple or list) of (int or float)
- **_copy** – bool

**__mul__**(*other*)
To a matrix (m x k) return the matrix multiply by other.

**Parameters** **other** – Matrix (k x n)

**Returns** Matrix (m x n)

**__setitem__**(*i_j*, *value*)
Change the value of the element at row i and column j, to the (m x n) matrix.

**Parameters**

- **i_j** – (0 <= int < m, 0 <= int < n) or [0 <= int < m, 0 <= int < n]
- **value** – int or float

**__str__**()
Returns the string representation of the matrix.

**Returns** string

**__sub__**(*other*)
To a matrix (m x n) return the matrix minus other.

**Parameters** **other** – Matrix (m x n)

**Returns** Matrix (m x n)

**_is_identity**(*epsilon=2.220446049250313e-16*)
If the matrix is an identity matrix then return True, else return False.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters** **epsilon** – 0 <= float < 1

**Returns** bool

**_is_zero**(*epsilon=2.220446049250313e-16*)
If the matrix is a zeros matrix then return True, else return False.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters** **epsilon** – 0 <= float < 1

**Returns** bool

**_nb_columns**()
Return n for a (m x n) matrix.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Returns** int >= 1

**_nb_lines**()
Return m to a (m x n) matrix.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Returns** int >= 1

**abs**()
To a matrix (m x n) return the matrix with each element is the absolute value.

**Returns** Matrix (m x n)

**copy**()
Return a copy of the matrix (m x n).

**Returns** Matrix (m x n)

**getcol**(*j*)
Returns the (1 x m) matrix that is a copy of column j of the (m x n) matrix.

**Parameters** **j** – 0 <= int < n

**Returns** Matrix (1 x m)

**getrow**(*i*)
Returns the (1 x n) matrix that is a copy of row i of the (m x n) matrix.

**Parameters** **i** – 0 <= int < m

**Returns** Matrix (1 x n)

**inverse**(*_epsilon=2.220446049250313e-16*)
If the square matrix (n x n) is inversible then return the inverse, else raise an ValueError exception.

Algorithm used: Gaussian elimination. See http://en.wikipedia.org/wiki/Gaussian_elimination .

**Parameters** **_epsilon** – 0 <= float < 1 **(Option not available in SimpleGUI of CodeSkulptor.)**

**Returns** Matrix (n x n)

**Raise** ValueError if the matrix is not inversible

**scale**(*factor*)
To a matrix (m x n) return the matrix with each element multiply by factor.

**Parameters** **factor** – int or float

**Returns** Matrix (m x n)

**shape**()
Return (m, n) to a matrix (m x n).

**Returns** (int >= 1, int >= 1)

**summation**()
Return the sum of all the elements of the matrix.

**Returns** float

**transpose**()
Return the transposition of the matrix (m x n).

**Returns** Matrix (n x m)

**__weakref__**
list of weak references to the object (if defined)

SimpleGUICS2Pygame.numeric.**_zero**(*m*, *n*)
Return a (*m* x *n*) zeros matrix.

**Parameters**

- **m** – int >= 1
- **n** – int >= 1

**Returns** Matrix (*m* x *n*)

SimpleGUICS2Pygame.numeric.**identity**(*size*)

Return a (*size* x *size*) identity matrix.

**Parameters** **size** – int >= 1

**Returns** Matrix (*size* x *size*)

[source]

## simplegui_lib — simply import the following modules

### simplegui_lib_draw — draw functions

(Version saved in CodeSkulptor http://www.codeskulptor.org/#user40_AeChfAkzlcqs3wG.py .) simplegui_lib_draw (November 21, 2015)

Draw functions to help in SimpleGUI of CodeSkulptor.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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SimpleGUICS2Pygame.simplegui_lib_draw.**draw_rect**(*canvas*, *pos*, *size*, *line_width*, *line_color*, *fill_color=None*)

Draw a rectangle.

**Parameters**

- **canvas** – simplegui.Canvas
- **pos** – (int or float, int or float) or [int or float, int or float]
- **size** – (int or float, int or float) or [int or float, int or float]
- **line_width** – int >= 0
- **line_color** – str
- **fill_color** – str

SimpleGUICS2Pygame.simplegui_lib_draw.**draw_text_multi**(*canvas*, *text*, *point*, *font_size*, *font_color*, *font_face='serif'*, *_font_size_coef=0.75*)

Draw the *text* (possibly with several lines) at the position *point*.

If *text* is a str, then split it on each end of line.

If *text* is a tuple or a list of str, then print each str on a separated line.

See simplegui.draw_text() .

**Parameters**

- **canvas** – simplegui.Canvas
- **text** – str or (tuple of str) or (list of str)
- **point** – (int or float, int or float) or [int or float, int or float]

- **font_size** – (int or float) >= 0
- **font_color** – str
- **font_face** – str == 'monospace', 'sans-serif', 'serif'
- **_font_size_coef** – int or float

**Raise** ValueError if text contains unprintable whitespace character

SimpleGUICS2Pygame.simplegui_lib_draw.**draw_text_side**(*frame*, *canvas*, *text*, *point*, *font_size*, *font_color*, *font_face='serif'*, *font_size_coef=0.75*, *rectangle_color=None*, *rectangle_fill_color=None*, *side_x=-1*, *side_y=1*)

Draw the *text* string at the position *point*.

See simplegui.draw_text() .

If *rectangle_color* != *None* then draw a rectangle around the text.

If *rectangle_fill_color* != *None* then draw a filled rectangle under the text.

If *side_x*
< 0 then *point[0]* is the left of the text,
== 0 then *point[0]* is the center of the text,
> 0 then *point[0]* is the right of the text.

If *side_y*
< 0 then *point[1]* is the top of the text,
== 0 then *point[1]* is the center of the text,
> 0 then *point[1]* is the bottom of the text.

**Parameters**

- **text** – str
- **point** – (int or float, int or float) or [int or float, int or float]
- **font_size** – (int or float) >= 0
- **font_color** – str
- **font_face** – str == 'monospace', 'sans-serif', 'serif'
- **rectangle_color** – None or str
- **rectangle_fill_color** – None or str
- **side_x** – int or float
- **side_y** – int or float
- **font_size_coef** – int or float

[source]

### simplegui_lib_fps — class to calculate and display Frames Per Second

(Version saved in CodeSkulptor http://www.codeskulptor.org/#user33_Bhc7VzXKbXGVQV1.py .)

Examples of use in :

- *test/test_image.py*: http://www.codeskulptor.org/#user41_dFyUISmmicuga1u.py
- *example/Spaceship_prototype.py*: http://www.codeskulptor.org/#user40_270vGd5w8KRr837.py
- *example/RiceRocks_Asteroids.py*: http://www.codeskulptor.org/#user40_yvoLCT8tf5BvNUG.py

simplegui_lib_fps (May 25, 2014)

A class to calculate and display FPS (Frames Per Second) in SimpleGUI of CodeSkulptor.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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**class** `SimpleGUICS2Pygame.simplegui_lib_fps.`**`FPS`**(*x=10*, *y=10*, *font_color='Red'*, *font_size=40*)

Calculate and display FPS (Frames Per Second).

How to use:

•Create an instance of FPS: `fps = FPS()`

•Start: `fps.start()`

•And put the `draw_fct()` in the end of your canvas' draw handler: `fps.draw_fct(canvas)`

**`__init__`**(*x=10*, *y=10*, *font_color='Red'*, *font_size=40*)

Set an instance to calculate FPS and drawing on position (x, y).

**Parameters**

- **`x`** – int or float
- **`y`** – int or float
- **`font_color`** – str
- **`font_size`** – int > 0

**`draw_fct`**(*canvas*)

Update the number of frames drawn and draw the FPS.

This method **must be** called from the canvas' draw handler (the function passed as a parameter to *simplegui.Frame.set_draw_handler()*).

**Parameters** **`canvas`** – simplegui.Canvas

**`is_started`**()

If FPS is active then return True, else return False.

**`start`**()

Start calculation and drawing.

See *draw_fct()*.

**`stop`**()

Stop calculation and drawing.

**`__weakref__`**

list of weak references to the object (if defined)

[source]

### simplegui_lib_keys — class to manage keyboard handling

(Version saved in CodeSkulptor http://www.codeskulptor.org/#user30_VE5zdyz5OZwgen9.py .)

Examples of use in :

- *example/keys.py*: http://www.codeskulptor.org/#user41_5bMhgzvyGEqu8B7.py

simplegui_lib_keys (April 17, 2014)

A class to help manage keyboard handling in SimpleGUI of CodeSkulptor.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

GPLv3 — Copyright (C) 2014 Olivier Pirson http://www.opimedia.be/

**class** `SimpleGUICS2Pygame.simplegui_lib_keys.`**`Keys`**(*frame*, *keys=None*)
Keys handler.

Set and catch keys handlers of SimpleGUICS2Pygame (and CodeSkulptor) to help.

General note: Some keyboards can't handle more than two or three keys pressed simultaneously. See Keyboard Ghosting Explained! and Keyboard Ghosting Demonstration.

**`__init__`**(*frame*, *keys=None*)
If keys is None then set an empty keys handler, else set a keys handler with key up and key down functions of keys.

*active_handlers()*, *active_keydown_handler()* or *active_keyup_handler()* must be called to activate.

**Parameters**

- **`frame`** – simplegui.Frame
- **`keys`** – None or Keys

**`active_handlers`**()
Active key down and key up handlers.

**`active_keydown_handler`**()
Active the key down handler.

**`active_keyup_handler`**()
Active the key up handler.

**`is_pressed`**(*key_code*)
If the key is pressed then return True, else return False.

**Parameters** **`key_code`** – int >= 0

**Returns** bool

**`is_pressed_key_map`**(*key_str*)
If the key is pressed then return True, else return False.

**Parameters** **`key_str`** – str in *simplegui.KEY_MAP*

**Returns** bool

**`pressed_keys`**()
Return a sorted list with code of all pressed keys.

**Returns** list of (int >= 0)

**`set_keydown_fct`**(*key_code*, *fct=None*)
If fct is None then erase the function key down handler to the specified key, else set the function key down handler to the specified key.

**Parameters** **key_code** – int >= 0

**set_keydown_fct_key_map**(*key_str*, *fct=None*)
If fct is None then erase the function key down handler to the specified key, else set the function key down handler to the specified key.

**Parameters**

- **key_str** – str in *simplegui.KEY_MAP*
- **key_code** – int >= 0

**set_keyup_fct**(*key_code*, *fct=None*)
If fct is None then erase the function key up handler to the specified key, else set the function key up handler to the specified key.

**Parameters** **key_code** – int >= 0

**set_keyup_fct_key_map**(*key_str*, *fct=None*)
If fct is None then erase the function key up handler to the specified key, else set the function key up handler to the specified key.

**Parameters**

- **key_str** – str in *simplegui.KEY_MAP*
- **key_code** – int >= 0

**__weakref__**
list of weak references to the object (if defined)

[source]

### simplegui_lib_loader — class to load images and sounds

(Version saved in CodeSkulptor http://www.codeskulptor.org/#user40_nMs7JxzimyImAv2.py .)

Examples of use in :

- *example/loader.py*: http://www.codeskulptor.org/#user41_woIs9K9nLFu8HuO.py
- *test/test_image.py*: http://www.codeskulptor.org/#user41_dFyUISmmicuga1u.py
- *example/Spaceship_prototype.py*: http://www.codeskulptor.org/#user40_270vGd5w8KRr837.py
- *example/RiceRocks_Asteroids.py*: http://www.codeskulptor.org/#user40_yvoLCT8tf5BvNUG.py

simplegui_lib_loader (May 31, 2015)

A class to help load images and sounds in SimpleGUI of CodeSkulptor.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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**class** SimpleGUICS2Pygame.simplegui_lib_loader.**Loader**(*frame*, *progression_bar_width*, *after_function*, *max_waiting=5000*)
Help to load images and sounds from Internet and wait finished.

With SimpleGUICS2Pygame, *SimpleGUICS2Pygame.load_image()* and *SimpleGUICS2Pygame.load_sound()* wait automatically until loading is completed.

But in CodeSkulptor, the browser load images and sounds asynchronously. (With SimpleGUI it is **impossible to verify that the sounds are loaded**. So *Loader* begin load sounds, and next begin load images. It wait each image is loaded, and considers that all downloads are completed.)

**__init__** (*frame*, *progression_bar_width*, *after_function*, *max_waiting=5000*)
Set an empty loader.

**Parameters**

- **frame** – simplegui.Frame
- **progression_bar_width** – (int or float) >= 0
- **after_function** – function () -> *
- **max_waiting** – (int or float) >= 0

**_draw_loading** (*canvas*)
Draw waiting message on the canvas when images and sounds loading.

**Parameters** **canvas** – simplegui.Canvas

**add_image** (*url*, *name=None*)
Add an image from *url* and give it a name.

**Execute 'Loader.load()' before use images.**

If *name* == *None* then "filename" of url is used.

Example: If *url* == *'http://commondatastorage.googleapis.com/codeskulptor-assets/lathrop/asteroid_blue.png'* and *name* == *None* then *'asteroid_blue.png'* is used.

**Parameters**

- **url** – str
- **name** – None or str
- **wait** – bool

**add_sound** (*url*, *name=None*)
Add a sound from *url* and give it a *name*.

**Execute 'Loader.load()' before use sounds.**

If *name* == *None* then "filename" of *url* is used.

Example: If *url* == *'http://commondatastorage.googleapis.com/codeskulptor-assets/Epoq-Lepidoptera.ogg'* and *name* == *None* then *'Epoq-Lepidoptera.ogg'* is used.

**Parameters**

- **url** – str
- **name** – None or str
- **wait** – bool

**cache_clear** ()

- In standard Python with SimpleGUICS2Pygame: Empty the cache of Pygame surfaces used by each image of this Loader. See Image._pygamesurfaces_cached_clear .
- In SimpleGUI of CodeSkulptor: do nothing.

**get_image** (*name*)
If an image named *name* exist then return it, else return *None*

**Parameters** **name** – str

**Raise** Exception if Loader.load() was not executed since the addition of this image.

**Returns** None or simplegui.Image

**get_nb_images**()
Return the number of images (loaded or not).

**Returns** int >= 0

**get_nb_images_loaded**()
Return the number of loaded images.

It is the number of begin loading by *Loader.load()* **and** fully completed.

**Returns** int >= 0

**get_nb_sounds**()
Return the number of sounds (loaded or not).

**Returns** int >= 0

**get_nb_sounds_loaded**()
Return the number of loaded sounds.

It is the number of begin loading by *Loader.load()*, **but not necessarily completed**. Because with SimpleGUI of CodeSkulptor it is **impossible to verify that the sounds are loaded**.

**Returns** int >= 0

**get_sound**(*name*)
If a sound named *name* exist then return it, else return *None*

**Parameters** **name** – str

**Raise** Exception if load() was not executed since the addition of this sound.

**Returns** None or simplegui.Sound

**load**()
**Start loading** of all images and sounds added since last *Loader.load()* execution.

- In standard Python with SimpleGUICS2Pygame: draw a progression bar on canvas and wait until the loading is finished.
- In SimpleGUI of CodeSkulptor: *don't* wait.

**pause_sounds**()
Pause all sounds.

**print_stats_cache**()

- In standard Python with SimpleGUICS2Pygame: Print to stderr some statistics of cached Pygame surfaces used by each image of this Loader. See Image._print_stats_cache .
- In SimpleGUI of CodeSkulptor: do nothing.

**wait_loaded**()
Draw a progression bar on canvas and wait until all images and sounds are fully loaded. Then execute *self._after_function*.

After *self._max_waiting* milliseconds, abort and execute *self._after_function*.

See details in *get_nb_sounds_loaded()* documentation.

**__weakref__**
list of weak references to the object (if defined)

[source]

(Version saved in CodeSkulptor http://www.codeskulptor.org/#user40_Jax5K1pl4O1JMFp.py .) simplegui_lib (November 21, 2015)

Some functions and classes to help in SimpleGUI of CodeSkulptor, from *simplegui_lib_draw*, *simplegui_lib_fps*, *simplegui_lib_keys* and *simplegui_lib_loader*.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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`SimpleGUICS2Pygame.simplegui_lib.__name__` = **'SimpleGUICS2Pygame.simplegui_lib'**
str(object='') -> str str(bytes_or_buffer[, encoding[, errors]]) -> str

Create a new string object from the given object. If encoding or errors is specified, then the object must expose a data buffer that will be decoded using the given encoding and error handler. Otherwise, returns the result of object.__str__() (if defined) or repr(object). encoding defaults to sys.getdefaultencoding(). errors defaults to 'strict'.

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## simpleguics2pygame — the main module, replace the simplegui module of CodeSkulptor

### simpleguics2pygame — canvas

simpleguics2pygame/canvas (April 29, 2016)

Class Canvas.

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**class** `SimpleGUICS2Pygame.simpleguics2pygame.canvas.`**Canvas**(*frame*, *canvas_width*, *canvas_height*)

Canvas similar to SimpleGUI *Canvas* of CodeSkulptor.

**__init__**(*frame*, *canvas_width*, *canvas_height*)
Set the canvas.

**Don't use directly**, a canvas is created by *Frame()* and reachable by handler defined by *Frame.set_draw_handler()*.

**Parameters**

- **frame** – Frame (or None)
- **canvas_width** – int >= 0
- **canvas_height** – int >= 0

**__repr__**()
Return '<*Canvas object*>'.

**Returns** str

**_draw**()
If *self._draw_handler* != *None* then call it and update display of the canvas.

**(Not available in SimpleGUI of CodeSkulptor.)**

**_save**(*filename*)
Save the canvas in *filename*.

Supported formats are supported formats by Pygame to save: TGA, PNG, JPEG or BMP (see http://www.pygame.org/docs/ref/image.html#pygame.image.save ).

If *filename* extension is not recognized then TGA format is used.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters** **filename** – str

**draw_circle**(*center_point*, *radius*, *line_width*, *line_color*, *fill_color=None*)
Draw a circle.

If *fill_color* != *None* then fill with this color.

**Parameters**

- **center_point** – (int or float, int or float) or [int or float, int or float]
- **radius** – (int or float) > 0
- **line_width** – (int or float) > 0
- **line_color** – str
- **fill_color** – None or str

**draw_image**(*image*, *center_source*, *width_height_source*, *center_dest*, *width_height_dest*, *rotation=0*)
Draw *image* on the canvas.

Specify center position and size of the source (*image*) and center position and size of the destination (the canvas).

Size of the source allow get a piece of *image*. If *width_height_source* is bigger than *image* then draw nothing.

Size of the destination allow rescale the drawed image.

*rotation* specify a clockwise rotation in radians.

Each new Pygame surface used is added to *image._pygamesurfaces_cached*. See Image._pygamesurfaces_cached_clear() .

If number of surfaces in this caches is greater than *image._pygamesurfaces_cache_max_size* then remove the oldest surface.

**Parameters**

- **image** – Image
- **center_source** – (int or float, int or float) or [int or float, int or float]
- **width_height_source** – ((int or float) >= 0, (int or float) >= 0) or [(int or float) >= 0, (int or float) >= 0]
- **center_dest** – (int or float, int or float) or [int or float, int or float]
- **width_height_dest** – ((int or float) >= 0, (int or float) >= 0) or [(int or float) >= 0, (int or float) >= 0]
- **rotation** – int or float

**draw_line**(*point1*, *point2*, *line_width*, *line_color*)
Draw a line segment from point1 to point2.

**Parameters**

- **point1** – (int or float, int or float) or [int or float, int or float]
- **point2** – (int or float, int or float) or [int or float, int or float]
- **line_width** – (int or float) > 0

- **line_color** – str

**draw_point**(*position*, *color*)
Draw a point.

**Parameters**

- **position** – (int or float, int or float) or [int or float, int or float]
- **color** – str

**draw_polygon**(*point_list*, *line_width*, *line_color*, *fill_color=None*)
Draw a polygon from a list of points. A segment is automatically drawed between the last point and the first point.

If *fill color* is not None then fill with this color.

If *line_width* > 1, ends are poorly made!

**Parameters**

- **point_list** – not empty (tuple or list) of ((int or float, int or float) or [int or float, int or float])
- **line_width** – (int or float) > 0
- **line_color** – str
- **fill_color** – None or str

**draw_polyline**(*point_list*, *line_width*, *line_color*)
Draw line segments between a list of points.

If *line_width* > 1, ends are poorly made!

**Parameters**

- **point_list** – not empty (tuple or list) of ((int or float, int or float) or [int or float, int or float])
- **line_width** – (int or float) > 0
- **line_color** – str

**draw_text**(*text*, *point*, *font_size*, *font_color*, *font_face='serif'*, *_font_size_coef=0.75*)
Draw the *text* string at the position *point*.

(*point[0]* is the left of the text, *point[1]* is the bottom of the text.)

If correponding font in Pygame is not founded, then use the default *pygame.font.Font*.

*_font_size_coef* is used to adjust the vertical positioning. **(This paramater is not available in SimpleGUI of CodeSkulptor.)**

**Warning** This method can't draw multiline text.

To draw multiline text, see simplegui_lib_draw.draw_text_multi() .

**Parameters**

- **text** – str
- **point** – (int or float, int or float) or [int or float, int or float]
- **font_size** – (int or float) >= 0
- **font_color** – str
- **font_face** – str == 'monospace', 'sans-serif', 'serif'

- **_font_size_coef** – int or float

**Raise** ValueError if text contains unprintable whitespace character

**(Alpha color channel don't work!!!)**

**__weakref__**
list of weak references to the object (if defined)

SimpleGUICS2Pygame.simpleguics2pygame.canvas.**create_invisible_canvas**(*width*, *height*)

NOT IMPLEMENTED! (Return a "weak" *Canvas*.)

(Available in SimpleGUI of CodeSkulptor but *not in CodeSkulptor documentation*!)

**Parameters**

- **width** – int >= 0
- **height** – int >= 0

**Returns** Canvas

SimpleGUICS2Pygame.simpleguics2pygame.canvas.**__all__ = ['Canvas', 'create_invisible_canvas']**
list() -> new empty list list(iterable) -> new list initialized from iterable's items

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### simpleguics2pygame — control

simpleguics2pygame/control (April 29, 2016)

Classes Control and TextAreaControl.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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**class** SimpleGUICS2Pygame.simpleguics2pygame.control.**Control**(*frame*, *text*, *button_handler=None*, *width=None*)

Control similar to SimpleGUI *Control* (button and label) of CodeSkulptor.

**__init__**(*frame*, *text*, *button_handler=None*, *width=None*)
Set a button (if button_handler is not None) or a label (if button_handler is None) in the control panel.

**Don't use directly**, use *Frame.add_button()* or *Frame.add_label()*.

**Parameters**

- **frame** – Frame
- **text** – str
- **button_handler** – None or (function () -> *)
- **width** – None or int

**__repr__**()
Return '<*Control object*>'.

**Returns** str

**_draw**()
Draw the control object in the control panel.

**(Not available in SimpleGUI of CodeSkulptor.)**

**_draw_button**()
Draw the the control object as a button.

**(Not available in SimpleGUI of CodeSkulptor.)**

**_draw_label**()
Draw the the control object as a label.

**(Not available in SimpleGUI of CodeSkulptor.)**

**_mouse_left_button**(*pressed*)
Deal a click of left mouse button on the zone of this *Control*.

If *pressed* then select this Control, else unselect and run the button handler (if exist).

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters** **pressed** – bool

**_pos_in**(*x*, *y*)
If position (*x*, *y*) is on the zone of this *aControl* then return *True*, else return *False*.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters**

- **x** – int or float
- **y** – int or float

**Returns** bool

**get_text**()
Return the text of the button or the label.

**Returns** str

**set_text**(*text*)
Change the text of the button or the label.

**Parameters** **text** – str

**__weakref__**
list of weak references to the object (if defined)

**class** SimpleGUICS2Pygame.simpleguics2pygame.control.**TextAreaControl**(*frame*, *label_text*, *input_handler*, *input_width*)
TextAreaControl similar to SimpleGUI *TextAreaControl* (input) of CodeSkulptor.

**__init__**(*frame*, *label_text*, *input_handler*, *input_width*)
Set a input box in the control panel.

**Don't use directly**, use *Frame.add_input()*.

**Parameters**

- **frame** – Frame
- **label_text** – str
- **input_handler** – function (str) -> *
- **input_width** – int or float

**__repr__**()
Return *'<TextAreaControl object>'*.

**Returns** str

**_draw**()
Draw the input box and his label.

**(Not available in SimpleGUI of CodeSkulptor.)**

**_key**(*pygame_event*)
Deal key pressed when this *TextAreaControl* have focus.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters** **pygame_event** – pygame.Event KEYDOWN or KEYUP

**_mouse_left_button**(*pressed*)
Deal a click of left mouse button on the zone of this *TextAreaControl*.

If *pressed* then give it the focus.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters** **pressed** – bool

**_pos_in**(*x*, *y*)
If position (*x*, *y*) is on the zone of this *TextAreaControl* then return *True*, else return *False*.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters**

- **x** – int or float
- **y** – int or float

**Returns** bool

**get_text**()
Return the text of the input box.

**Returns** str (or unicode in Python 2)

**set_text**(*input_text*)
Change the text in the input box.

**Parameters** **input_text** – str

**__weakref__**
list of weak references to the object (if defined)

SimpleGUICS2Pygame.simpleguics2pygame.control.**__all__** = **['Control', 'TextAreaControl']**
list() -> new empty list list(iterable) -> new list initialized from iterable's items

[source]

### simpleguics2pygame — frame

simpleguics2pygame/frame (April 29, 2016)

Class Frame.

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**class** SimpleGUICS2Pygame.simpleguics2pygame.frame.**Frame**(*title*, *canvas_width*, *canvas_height*, *control_width=200*)

Frame similar to SimpleGUI *Frame* of CodeSkulptor.

**__init__**(*title*, *canvas_width*, *canvas_height*, *control_width=200*)

Set the frame.

**Don't use directly**, use create_frame().

**Parameters**

- **title** – str
- **canvas_width** – (int or float) >= 0
- **canvas_height** – (int or float) >= 0
- **control_width** – (int or float) >= 0

**__repr__**()

Return '<Frame object>'.

**Returns** str

**_draw_controlpanel**()

Draw the control panel and two status boxes.

**(Not available in SimpleGUI of CodeSkulptor.)**

**_draw_statuskey**(*key=0*, *pressed=None*)

Draw the status box of key.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters**

- **key** – int
- **pressed** – None or bool

**_draw_statusmouse**(*position=(0, 0)*, *pressed=None*)

Draw the status box of mouse.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters**

- **position** – (int or float, int or float) or [int or float, int or float]
- **pressed** – bool

**_get_fps_average**()

Return the framerate average (in frame per second) computed by Pygame.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Returns** float

**_pos_in_control**(*x*, *y*)

If position (*x*, *y*) is on the zone of one *Control* or *TextAreaControl* then return it else return *None*.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters**

- **x** – int or float
- **y** – int or float

**Returns** None or Control or TextAreaControl

**classmethod _pygamecolors_cached_clear**()
Empty the cache of Pygame colors used.

Each color used is cached to accelerate drawing. If you use many many different colors maybe use this function to free memory.

**(Not available in SimpleGUI of CodeSkulptor.)**

Side effect: Empty *Frame._pygamecolors_cached*.

**classmethod _pygamefonts_cached_clear**()
Empty the cache of Pygame fonts used.

Each font used with each size is cached to accelerate drawing. If you use many many different sizes maybe use this function to free memory.

**(Not available in SimpleGUI of CodeSkulptor.)**

Side effect: Empty *Frame._pygamefonts_cached*.

**_save_canvas_and_stop**(*filename*, *after=1000*)
Wait after ms (first wait until the frame is started), then save the canvas in a file and stop the program.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters**

- **filename** – str
- **after** – int or float >= 0

**_save_canvas_request**(*filename*)
Request to save the canvas image in a file.

(The images are saved on each cycle fixed by *Frame._fps*.)

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters** **filename** – str

**_set_canvas_background_image**(*image*)
Set an image to replace the background color of the canvas.

**Parameters** **image** – None or Image

**add_button**(*text*, *button_handler*, *width=None*)
Add a button in the control panel.

When the button are pressed and released, *button_handler* are executed.

If *width* is not *None* then *text* is possibly cutted.

But, in CodeSkulptor, the accurate appearance is browser dependent. And in SimpleGUICS2Pygame, the accurate appearance is font dependent.

**Parameters**

- **text** – str
- **button_handler** – function () -> *
- **width** – None or int

**Returns** Control

**add_input**(*text*, *input_handler*, *width*)
Add a "label" with an input box in the control panel.

When click with left button of mouse on the "label" or input box, the focus is give to this input box.

When press Tab, the focus is give to the next input box (if exist).

When press Enter, this input box lost the focus and *input_handler* are executed with the input text.

**Parameters**

- **text** – str
- **input_handler** – function (str) -> *
- **width** – int

**Returns** Control

**add_label**(*text*, *width=None*)
Add a label in the control panel.

If *width* is not *None* then *text* is possibly cutted.

But, in CodeSkulptor, the accurate appearance is browser dependent. And in SimpleGUICS2Pygame, the accurate appearance is font dependent.

**Parameters**

- **text** – str
- **width** – None or int

**Returns** Control

**get_canvas_image**()
NOT YET IMPLEMENTED! (Does nothing.)

(Available in SimpleGUI of CodeSkulptor but *not in CodeSkulptor documentation*!)

**get_canvas_textwidth**(*text*, *font_size*, *font_face='serif'*)
Return the width needed to draw *text* by *Frame.draw_text()*.

**Parameters**

- **text** – str
- **font_size** – (int or float) >= 0
- **font_face** – str == 'monospace', 'sans-serif', 'serif'

**Returns** int or float >= 0

**set_canvas_background**(*color*)
Set the background color of the canvas.

**Parameters** **color** – str

**set_draw_handler**(*draw_handler*)
Set the function handler that will be executed each cycle fixed by *Frame._fps*.

**Parameters** **draw_handler** – function (Canvas) -> *

**set_keydown_handler**(*key_handler*)
Set the function handler that will be executed (with the key code) when a key is released.

(The events are checked on each cycle fixed by *Frame._fps*.)

**Parameters** **key_handler** – function (int >= 0) -> *

**set_keyup_handler**(*key_handler*)
Set the function handler that will be executed (with the key code) when a key is pressed.

(The events are checked on each cycle fixed by *Frame._fps*.)

**Parameters** **key_handler** – function (int >= 0) -> *

**set_mouseclick_handler**(*mouse_handler*)
Set the function handler that will be executed (with the position of the mouse) when the left button of mouse is **released**.

(The events are checked on each cycle fixed by *Frame._fps*.)

**Parameters** **mouse_handler** – function ((int >= 0, int >= 0)) -> *

**set_mousedrag_handler**(*mouse_handler*)
Set the function handler that will be executed (with the position of the mouse) **for each** new mouse position when the left button of mouse is pressed.

(The events are checked on each cycle fixed by *Frame._fps*.)

**Parameters** **mouse_handler** – function ((int >= 0, int >= 0)) -> *

**start**()
Start the frame and these handler events.

> **Warning:** With SimpleGUICS2Pygame, `Frame.start()` is blocking until `Frame.stop()` execution or closing window. So timers must be started *before*, and states must be initialized *before*. (Or maybe after by a handler function.)

(In SimpleGUI of CodeSkulptor this function is *not* blocking.)

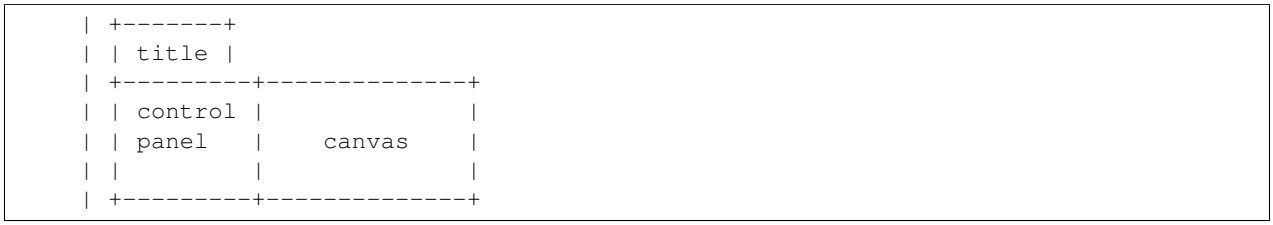
**stop**()
Stop frame activities.

If (Frame._keep_timers is None) and there is still running timers then ask in the canvas if they must be stopped.

(Maybe available in SimpleGUI of CodeSkulptor but *not in CodeSkulptor documentation*!)

**__weakref__**
list of weak references to the object (if defined)

SimpleGUICS2Pygame.simpleguics2pygame.frame.**create_frame**(*title*, *canvas_width*, *canvas_height*, *control_width=200*)
Create and return an interactive window.




*title*: title of the window.
*canvas_width*, canvas_height: dimensions of the canvas.
*control_width*: width of the control panel.

(The frame is inactive until the execution of *Frame.start()*.)

**Don't run twice!**

**Parameters**

- **title** – str
- **canvas_width** – (int or float) >= 0
- **canvas_height** – (int or float) >= 0
- **control_width** – (int or float) >= 0

**Returns** Frame

SimpleGUICS2Pygame.simpleguics2pygame.frame.**__all__ = ['Frame', 'create_frame']**
list() -> new empty list list(iterable) -> new list initialized from iterable's items

[source]

### simpleguics2pygame — image

simpleguics2pygame/image (April 29, 2016)

Class Image.

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**class** SimpleGUICS2Pygame.simpleguics2pygame.image.**Image**(*url*)
Image similar to SimpleGUI *Image* of CodeSkulptor.

**__init__**(*url*)
Set an image.

**Don't use directly**, use *load_image()*.

**Parameters** **url** – str

**__repr__**()
Return *'<Image object>'*.

**Returns** str

**_print_stats_cache**(*text=''*, *short_url=True*)
Print to stderr some statistics of cached Pygame surfaces used by this image.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters**

- **text** – str
- **short_url** – bool

**_pygamesurfaces_cached_clear**()
Empty the cache of Pygame surfaces used by this image.

**(Not available in SimpleGUI of CodeSkulptor.)**

**get_height**()
Return the height ot this image.

(If initialization of this image was failed then return *0*.)

**Returns** int

**get_width**()
Return the width ot this image.

(If initialization of this image was failed then return *0*.)

**Returns** int

**__weakref__**
list of weak references to the object (if defined)

SimpleGUICS2Pygame.simpleguics2pygame.image.**load_image**(*url*)
Create and return an image by loading a file from *url*. Not founded URL and errors are ignored.

SimpleGUICS2Pygame try **first** to loading image from *Image._dir_search_first* local directory (*_img/* by default), and next if failed, try to loading from *url*.

This local directory is relative to the directory of your program.

For example, `load_image('http://commondatastorage.googleapis.com/codeskulptor-assets/lathr`
try first to loading from `_img/commondatastorage.googleapis.com/codeskulptor_assets/lathrop/doubl`

Supported formats are supported formats by Pygame to load: PNG, JPG, GIF (not animated)... (see http://www.pygame.org/docs/ref/image.html ).

(CodeSkulptor may supported other formats, dependant on browser support.)

I recommend PNG and JPG format.

CodeSkulptor loads images **asynchronously** (the program continues without waiting for the images to be loaded). To handle this problem, you can use `simplegui_lib_loader.Loader` class.

**Parameters** **url** – str (**only a valid URL**, not local filename)

**Returns** Image

SimpleGUICS2Pygame.simpleguics2pygame.image.**_load_local_image**(*filename*)
Create and return an image by loading a file from *filename*. Not founded file and errors are ignored.

I recommend to use only Internet resources with the *load_image()* function. Then you can use your program **both** in standard Python and in CodeSkulptor. (See Tips.html#download-medias .)

But if it is necessary, you can load local image with this "private" function.

Supported formats are the same as the *load_image()* function.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters** **filename** – str (**only a valid filename**, not URL)

**Returns** _LocalImage

SimpleGUICS2Pygame.simpleguics2pygame.image.**__all__ = ['Image', 'load_image', '_load_local_image']**
list() -> new empty list list(iterable) -> new list initialized from iterable's items

[source]

### simpleguics2pygame — keys

simpleguics2pygame/keys (May 29, 2015)

Keys helpers.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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SimpleGUICS2Pygame.simpleguics2pygame.keys.**KEY_MAP = {'1': 49, 'y': 89, 'right': 39, 'B': 66, 'S': 83, '9': 57, 'a'**
SimpleGUI keyboard characters contants.

SimpleGUICS2Pygame.simpleguics2pygame.keys.**__all__ = ['KEY_MAP']**
list() -> new empty list list(iterable) -> new list initialized from iterable's items

[source]

### simpleguics2pygame — sound

simpleguics2pygame/sound (April 29, 2016)

Class Sound.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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**class** SimpleGUICS2Pygame.simpleguics2pygame.sound.**Sound**(*url*)
Sound similar to SimpleGUI *Sound* of CodeSkulptor.

**__init__**(*url*)
Set a sound (if not Sound._load_disabled).

**Don't use directly**, use *load_sound()*.

**Parameters** **url** – str

**__repr__**()
Return *'<Sound object>'*.

**Returns** str

**_get_length**()
Return the length of this sound in seconds.

(If initialization of this sound was failed then return *0*.)

**(Not available in SimpleGUI of CodeSkulptor.)**

**Returns** int or float

**pause**()
Pause this sound. (Use *Sound.play()* to resume.)

**play**()
If this sound is paused then resume the sound, else start the sound.

**rewind**()
If this sound has already been started then stop the sound and rewind to the begining.

**set_volume**(*volume*)
Change the volume of this sound. The default volume is *1* (maximum).

**Parameters** **volume** – 0 <= int or float <= 1

**__weakref__**
list of weak references to the object (if defined)

SimpleGUICS2Pygame.simpleguics2pygame.sound.**create_sound**(*sound_data*, *sample_rate=8000*, *num_channels=1*)
NOT YET IMPLEMENTED! (Return an empty *Sound*.)

(Available in SimpleGUI of CodeSkulptor but *not in CodeSkulptor documentation*!)

**Parameters**

- **sound_data** – (tuple or list) of (0 <= int < 256)
- **sample_rate** – int >= 0
- **num_channels** – int >= 0

**Returns** Sound

SimpleGUICS2Pygame.simpleguics2pygame.sound.**load_sound**(*url*)

Create and return a sound by loading a file from *url*. Not founded URL and errors are ignored.

SimpleGUICS2Pygame try **first** to loading sound from *Sound._dir_search_first* local directory (*_snd/* by default), and next if failed, try to loading from *url*.

This local directory is relative to the directory of your program.

For example, `load_sound('http://commondatastorage.googleapis.com/codeskulptor-assets/jump.` try first to loading from `_snd/commondatastorage.googleapis.com/codeskulptor_assets/jump.ogg`.

Supported formats are supported formats by Pygame: OGG and uncompressed WAV (see http://www.pygame.org/docs/ref/mixer.html#pygame.mixer.Sound ).

(CodeSkulptor may supported also MP3, dependant on browser support.)

(The sound can be started by *Sound.play()*.)

**Parameters** **url** – str (**only a valid URL**, not local filename)

**Returns** Sound

SimpleGUICS2Pygame.simpleguics2pygame.sound.**_load_local_sound**(*filename*)

Create and return a sound by loading a file from *filename*. Not founded file and errors are ignored.

I recommend to use only Internet resources with the *load_sound()* function. Then you can use your program **both** in standard Python and in CodeSkulptor. (See Tips.html#download-medias .)

But if it is necessary, you can load local sound with this "private" function.

Supported formats are the same as the *load_sound()* function.

**(Not available in SimpleGUI of CodeSkulptor.)**

**Parameters** **filename** – str (**only a valid filename**, not URL)

**Returns** _LocalSound

SimpleGUICS2Pygame.simpleguics2pygame.sound.**__all__ = ['Sound', 'create_sound', 'load_sound', '_load_local_**

list() -> new empty list list(iterable) -> new list initialized from iterable's items

[source]

### simpleguics2pygame — timer

simpleguics2pygame/timer (October 2nd, 2015)

Class Timer.

**Don't require Pygame.**

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

GPLv3 — Copyright (C) 2015 Olivier Pirson http://www.opimedia.be/

**class** SimpleGUICS2Pygame.simpleguics2pygame.timer.**Timer**(*interval*, *timer_handler*)
Timer similar to SimpleGUI *Timer* of CodeSkulptor.

**Don't require Pygame.**

**__init__**(*interval*, *timer_handler*)
Set a time.

**Don't use directly**, use *create_timer()*.

**Parameters**

- **interval** – int or float > 0
- **timer_handler** – function () -> *

**__repr__**()
Return *'<Timer object>'*.

**Returns** str

**classmethod _stop_all**()
Stop all timers.

**(Not available in SimpleGUI of CodeSkulptor.)**

Side effect: Empty *Timer._timers_running*.

**get_interval**()
Return the interval of this timer.

(Maybe available in SimpleGUI of CodeSkulptor but *not in CodeSkulptor documentation*!)

**Returns** (int or float) > 0

**is_running**()
If this timer is running then return *True*, else return *False*.

**Returns** bool

**start**()
Start this timer.

> **Warning:** With SimpleGUICS2Pygame, `Frame.start()` is blocking until `Frame.stop()` execution or closing window. So timers must be started *before*, and states must be initialized *before*. (Or maybe after by a handler function.)

(Side effect: Add *id(self)*: *self* in *Timer._timers_running*.)

**stop**()
Stop this timer.

(Side effect: Remove *id(self)* of *Timer. _timers_running*.)

**__weakref__**
list of weak references to the object (if defined)

SimpleGUICS2Pygame.simpleguics2pygame.timer.**create_timer**(*interval*, *timer_handler*)
Create and return a timer that will execute the function *timer_handler* every *interval* milliseconds.

The first execution of *time_handler* will take place after the first period.

(The timer can be started by *Timer.start()*.)

**Parameters**

- **interval** – int or float > 0
- **timer_handler** – function () -> *

**Returns** Timer

SimpleGUICS2Pygame.simpleguics2pygame.timer.__all__ = ['Timer', 'create_timer']
list() -> new empty list list(iterable) -> new list initialized from iterable's items

[source]

### simpleguics2pygame — _colors

simpleguics2pygame/_colors (November 23, 2015)

Colors helpers.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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SimpleGUICS2Pygame.simpleguics2pygame._colors.__all__ = []
list() -> new empty list list(iterable) -> new list initialized from iterable's items

[source]

### simpleguics2pygame — _fonts

simpleguics2pygame/_fonts (November 21, 2015)

Fonts helpers.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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SimpleGUICS2Pygame.simpleguics2pygame._fonts.__all__ = []
list() -> new empty list list(iterable) -> new list initialized from iterable's items

[source]

### simpleguics2pygame — _media

simpleguics2pygame/_media (June 3, 2015)

Media helpers.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

GPLv3 — Copyright (C) 2015 Olivier Pirson http://www.opimedia.be/

SimpleGUICS2Pygame.simpleguics2pygame._media.__all__ = []
list() -> new empty list list(iterable) -> new list initialized from iterable's items

[source]

### simpleguics2pygame — _options

simpleguics2pygame/_options (January 12, 2016)

Options helpers.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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`SimpleGUICS2Pygame.simpleguics2pygame._options.__all__` = []
list() -> new empty list list(iterable) -> new list initialized from iterable's items

[source]

### simpleguics2pygame — _pygame_lib

simpleguics2pygame/_pygame_lib (May 29, 2015)

Pygame helpers.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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`SimpleGUICS2Pygame.simpleguics2pygame._pygame_lib._PYGAME_AVAILABLE` = False
*True* if Pygame is available, else *False*.

`SimpleGUICS2Pygame.simpleguics2pygame._pygame_lib._PYGAME_VERSION` = None
*pygame.version* if Pygame is available, else *None*.

`SimpleGUICS2Pygame.simpleguics2pygame._pygame_lib.__all__` = ['_PYGAME_AVAILABLE', '_PYGAME_V
list() -> new empty list list(iterable) -> new list initialized from iterable's items

[source] simpleguics2pygame/__init__ (April 29, 2016)

Standard Python (**2 and 3**) module reimplementing the SimpleGUI particular module of CodeSkulptor (a browser Python interpreter).

Require Pygame (except for the Timer class) (Unofficial Windows Binaries) (and must be installed separately).

Online HTML documentation on Read The Docs. (You can also see the online SimpleGUI documentation on CodeSkulptor.)

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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## simpleplot — replace the simpleplot module of CodeSkulptor

simpleplot (April 29, 2016)

Replace the simpleplot module of CodeSkulptor.

Require matplotlib (Unofficial Windows Binaries) (and must be installed separately).

> **Warning:** With SimpleGUICS2Pygame, if your program is terminated, then windows opened by `plot_bars()`, `plot_lines()` and `plot_scatter()` will be closed automatically. You can use the specific function `_block()` to block the program until closing all windows. See Tips to run specific code.

Piece of SimpleGUICS2Pygame. https://bitbucket.org/OPiMedia/simpleguics2pygame

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SimpleGUICS2Pygame.simpleplot.**_block**()

If some plot windows are open then block the program until closing all windows. **(Not available in SimpleGUI of CodeSkulptor.)**

SimpleGUICS2Pygame.simpleplot.**plot_bars**(*framename*, *width*, *height*, *xlabel*, *ylabel*, *datasets*, *legends=None*, *_block=False*, *_filename=None*)

Open a window titled *framename* and plot graphes with *datasets* data shown as vertical bars.

*xlabel* and *ylabel* are labels of x-axis and y-axis.

*datasets* must be a sequence of data. Each data must be:

•Sequence (not empty) of pair x, y. Each point (x, y) is represented by a vertical bar of height y.

•Or dict (not empty) x: y. Each point (x, y) is represented by a vertical bar of height y.

If *legends* is not None then it must be a sequence of legend of each graph.

If *_block* then block the program until closing the window else continue and close the window when program stop. **(Option not available in SimpleGUI of CodeSkulptor.)**

If *_filename* is not None then save the image to this file. **(Option not available in SimpleGUI of CodeSkulptor.)**

**Parameters**

- **framename** – str
- **width** – int > 0
- **height** – int > 0
- **xlabel** – str
- **ylabel** – str
- **datasets** – (list or tuple) of (((list or tuple) of ([int or float, int or float] or (int or float, int or float))) or (dict (int or float): (int or float)))
- **legends** – None or ((list or tuple) of same length as datasets)
- **_block** – False
- **_filename** – None or str

SimpleGUICS2Pygame.simpleplot.**plot_lines**(*framename*, *width*, *height*, *xlabel*, *ylabel*, *datasets*, *points=False*, *legends=None*, *_block=False*, *_filename=None*)

Open a window titled *framename* and plot graphes with *datasets* data shown as connected lines.

*xlabel* and *ylabel* are labels of x-axis and y-axis.

*datasets* must be a sequence of data. Each data must be:

•Sequence (not empty) of pair x, y. Each point (x, y) is plotted (in given order) and connected with line to previous and next points.

•Or dict (not empty) x: y. Each point (x, y) is plotted (in ascending order of x value) and connected with line to previous and next points.

If *points* then each point is highlighted by a small disc (a small circle in CodeSkulptor).

If *legends* is not None then it must be a sequence of legend of each graph.

If *_block* then block the program until closing the window else continue and close the window when program stop. **(Option not available in SimpleGUI of CodeSkulptor.)**

If *_filename* is not None then save the image to this file. **(Option not available in SimpleGUI of CodeSkulptor.)**

**Parameters**

- **framename** – str
- **width** – int > 0
- **height** – int > 0
- **xlabel** – str
- **ylabel** – str
- **datasets** – (list or tuple) of (((list or tuple) of ([int or float, int or float] or (int or float, int or float))) or (dict (int or float): (int or float)))
- **points** – bool
- **legends** – None or ((list or tuple) of same length as datasets)
- **_block** – False
- **_filename** – None or str

SimpleGUICS2Pygame.simpleplot.**plot_scatter**(*framename*, *width*, *height*, *xlabel*, *ylabel*, *datasets*, *legends=None*, *_block=False*, *_filename=None*)

Open a window titled *framename* and plot graphes with *datasets* data shown as scattered points.

*xlabel* and *ylabel* are labels of x-axis and y-axis.

*datasets* must be a sequence of data. Each data must be:

•Sequence (not empty) of pair x, y. Each point (x, y) is represented by a circle.

•Or dict (not empty) x: y. Each point (x, y) is represented by a circle.

If *legends* is not None then it must be a sequence of legend of each graph.

If *_block* then block the program until closing the window else continue and close the window when program stop. **(Option not available in SimpleGUI of CodeSkulptor.)**

If *_filename* is not None then save the image to this file. **(Option not available in SimpleGUI of CodeSkulptor.)**

**Parameters**

- **framename** – str
- **width** – int > 0
- **height** – int > 0
- **xlabel** – str
- **ylabel** – str
- **datasets** – (list or tuple) of (((list or tuple) of ([int or float, int or float] or (int or float, int or float))) or (dict (int or float): (int or float)))
- **legends** – None or ((list or tuple) of same length as datasets)
- **_block** – False
- **_filename** – None or str

[source]

# Compatibility

## Compatibility between SimpleGUI of CodeSkulptor and SimpleGUICS2Pygame

- With SimpleGUI of CodeSkulptor, some things (like fonts, buttons...) are browser dependents. That is to say that there are some differences from one browser to another. Therefore it is normal that these elements are also slightly different with SimpleGUICS2Pygame.
- With SimpleGUI of CodeSkulptor, supported sound formats are also browser dependents.

  **Warning:** With SimpleGUICS2Pygame, MP3 is **not** supported. Only OGG and uncompressed WAV are supported.

  I recommend to always use the OGG format. See Tips.

- **Warning:** With SimpleGUICS2Pygame, `Frame.start()` is blocking until `Frame.stop()` execution or closing window. So timers must be started *before*, and states must be initialized *before*. (Or maybe after by a handler function.)
- **Warning:** With SimpleGUICS2Pygame, if your program is terminated, then windows opened by `plot_bars()`, `plot_lines()` and `plot_scatter()` will be closed automatically. You can use the specific function `_block()` to block the program until closing all windows.
- See Tips to run specific code.

## Compatibility between Python 2 and Python 3

CodeSkulptor implements a subset of Python 2.

You can use SimpleGUICS2Pygame with Python 2 and Python 3.

- The division `/` don't have the same behavior in Python 2 and Python 3: http://docs.python.org/3/whatsnew/3.0.html#integers .
  - In Python 2 (and CodeSkulptor): `3/2 == 1` and `3/2.0 == 1.5`
  - In Python 3: `3/2 == 3/2.0 == 1.5`

  `3//2 == 1` and `3//2.0 == 1.0` **everywehre**.

  (You can add `from __future__ import division` *on the top* of your program, and Python 2 mimic Python 3 division. But then *CodeSkulptor failed*!)
- Rounded behavior is also different: http://docs.python.org/3/whatsnew/3.0.html#builtins .
  - In Python 2 (and CodeSkulptor): `round(1.5) == 2.0` and `round(2.5) == 3.0`
  - In Python 3: `round(1.5) == round(2.5) == 2`
- `print` is a function in Python 3: http://docs.python.org/3/whatsnew/3.0.html#print-is-a-function .
  - In Python 2 (and CodeSkulptor): `print 'Hello real world!', 42`
  - In Python 3: `print('Hello real world!', 42)`

  With only one argument, `print('Hello real world! ' + str(42))` run **everywhere**.

  (You can add `from __future__ import print_function` *on the top* of your program, and Python 2 mimic Python 3 print function. But then *CodeSkulptor failed*!)

# Tips

## CodeSkulptor

CodeSkulptor is a Python implementation (in JavaScript) running in a browser. It implements a subset of Python 2.

It is the environment used in the MOOC An Introduction to Interactive Programming in Python (Rice University, Coursera).

To use a program from CodeSkulptor in *standard Python* (with this package), you need to change `import simplegui` by `import SimpleGUICS2Pygame.simpleguics2pygame as simplegui`.

**The right way to do** is to write this

```
try:
    import simplegui
except ImportError:
    import SimpleGUICS2Pygame.simpleguics2pygame as simplegui
```

and your program **runs both** in CodeSkulptor and *standard Python*.

So, if your program runs in CodeSkulptor, it imports `simplegui`. Else, an `ImportError` exception will be raised, and then it will imports `SimpleGUICS2Pygame.simpleguics2pygame` and it renamed to `simplegui`.

In this package a little script `cs2both.py` can help to quickly make this changement on program downloaded from CodeSkulptor.

Run `python cs2both.py yourprogram.py`.

The file `yourprogram.py` is copied to `yourprogram.py.bak` before changing.

To use also the **other modules**, you can write this. But specify only those you use.

```
try:
    import simplegui

    import codeskulptor
    import numeric
    import simpleplot

    import user38_ZmhOVHGm2lhVRhk as codeskulptor_lib
    import user40_Jax5K1pl4O1JMFp as simplegui_lib
except ImportError:
    import SimpleGUICS2Pygame.simpleguics2pygame as simplegui

    import SimpleGUICS2Pygame.codeskulptor as codeskulptor
    import SimpleGUICS2Pygame.numeric as numeric
    import SimpleGUICS2Pygame.simpleplot as simpleplot

    import SimpleGUICS2Pygame.codeskulptor_lib as codeskulptor_lib
    import SimpleGUICS2Pygame.simplegui_lib as simplegui_lib
```

To run **specific code** on CodeSkulptor or with SimpleGUICS2Pygame, you can write this

```
try:
    import simplegui

    SIMPLEGUICS2PYGAME = False
except ImportError:
    import SimpleGUICS2Pygame.simpleguics2pygame as simplegui

    SIMPLEGUICS2PYGAME = True
```

And then you can run specific code simply by testing `SIMPLEGUICS2PYGAME`.

## Colors

The color parameter used by drawing functions must be in the following formats:

- `'#rrggbb'` with rr, gg, bb hexadecimal numbers on 2 figures
- `'#rgb'` with r, g, b hexadecimal numbers on 1 figure
- `'rbg(red,blue,green)'` with red, blue, green 0 <= integer <= 255
- `'rgba(red,blue,green,alpha)'` with red, blue, green 0 <= integer <= 255 and alpha between 0 and 1
- a constant name in this list http://www.w3schools.com/html/html_colornames.asp .

See the official HTML colors: http://www.opimedia.be/DS/mementos/colors.htm .

## Command line options

When you run a program you can use following options: `python yourprogram.py [SimpleGUICS2Pygame options] [application options]`

- `--default-font`: Use Pygame default font instead serif, monospace... (this is faster if you display a lot of text).
- `--display-fps`: Display FPS average on the canvas.
- `--fps n`: Set Frame Per Second (default is 60 FPS).
- `--fullscreen`: Fullscreen mode.
- `--keep-timers`: Keep running timers when close frame without ask.
- `--last`: Mark this argument as the last SimpleGUICS2Pygame's argument. (Do nothing else.)
- `--no-border`: Window without border.
- `--no-controlpanel`: Hide the control panel (and status boxes).
- `--no-load-sound`: Don't load any sound.
- `--no-status`: Hide two status boxes.
- `--overwrite-downloaded-medias`: Download all images and sounds from Web and save in local directory even if they already exist.
- `--print-load-medias`: Print URLs or local filenames loaded.
- `--print-stats-cache`: After frame stopped, print some statistics of caches.
- `--save-downloaded-medias`: Save images and sounds downloaded from Web that don't already exist in local directory.

- `--stop-timers`: Stop all timers when close frame without ask.

If an argument is not in this list then it is ignored and all next arguments are ignored.

Arguments used by SimpleGUICS2Pygame is deleted to `sys.argv`.

SimpleGUICS2Pygame options are read when the module `simpleguics2pygame` is imported.

**Examples:**

- `python yourprogram.py --no-controlpanel --stop-timers --foo --fullscreen`
  run `yourprogram.py` with the control panel hidden and timers will stoped. But SimpleGUICS2Pygame ignore `--foo` and `--fullscreen`.
  `yourprogram.py` application receive `--foo --fullscreen` options.
- `python yourprogram.py --no-controlpanel --last --stop-timers --foo --fullscreen`
  run `yourprogram.py` with the control panel hidden. But SimpleGUICS2Pygame ignore `--stop-timers`, `--foo` and `--fullscreen`.
  `yourprogram.py` application receive `--stop-timers --foo --fullscreen` options.

## Download medias

Run `python yourprogram.py --save-downloaded-medias --print-load-medias` once. Images and sounds used (from URLs) will be saved in local directory (`_img/` et `_snd/` by default). Next simply run `python yourprogram.py` and the medias will be loaded from these local directories.

For example, `load_image('http://commondatastorage.googleapis.com/codeskulptor-assets/lathrop/d`
save image to `_img/commondatastorage.googleapis.com/codeskulptor_assets/lathrop/double_ship.png`

## Helper functions

This package contains 5 modules with several helper functions that you can also import online in CodeSkulptor:

- codeskulptor_lib — some miscellaneous functions
- simplegui_lib_draw — draw functions
- simplegui_lib_fps — class to calculate and display Frames Per Second
- simplegui_lib_keys — class to manage keyboard handling
- simplegui_lib_loader — class to load images and sounds

For example, to draw multiline text you can use draw_text_multi() from the simplegui_lib_draw module by:

```
try:
    import simplegui

    import user40_AeChfAkzlcqs3wG as simplegui_lib_draw
except ImportError:
    import SimpleGUICS2Pygame.simpleguics2pygame as simplegui

    import SimpleGUICS2Pygame.simplegui_lib as simplegui_lib_draw

def draw(canvas):
    ...
    draw_text_multi(canvas,
```

```
                    """line 1
line 2
line 3""", (x, y), size, 'white', 'serif')
    ...
```

### Python assertions option

Run `python yourprogram.py` then asserts is active and this package is (intentionnaly) very strict. So maybe "correct" program in CodeSkulptor failed! It is a good point to develop and write *correct programs*. But if you want just run a program (or run faster), `python -O yourprogram.py` then all asserts is *inactive*.

### Ressources: images, sounds and example programs

Online images & sounds links

Python programs running in CodeSkulptor

### Sounds

Supported formats are supported formats by Pygame: OGG and uncompressed WAV. To convert your sounds, you can use Audacity and FFmpeg.

## License: GPLv3 



## Author 

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Other free softwares on my Bitbucket account: https://bitbucket.org/OPiMedia

### Support me

This package is a completely **free software**. So it is **completely free** (like "free speech" and like "free beer"). However you can **support me** financially by donating.

Go to the link 

. **Thank you!**

## Known bug

- On my old GNU/Linux Debian 7 *Wheezy*, sometime the Pygame mixer initialization blocked the exit of the program when another application play also sounds.

  With my current GNU/Linux Debian 8 *Jessie*, I never had this problem.

## Developers

This is a **free software**, so you can download it, **modify it** and **submit your modifications**. You can also **redistribute** your own version (keeping the GPL license).

Complete **sources** on Bitbucket: https://bitbucket.org/OPiMedia/simpleguics2pygame

### Hierarchy of files on Bitbucket

- SimpleGUICS2Pygame/: **source** code
  - example/: little example programs and games
  - script/
    - cs2both.py: Python program to modify automatically your CodeSkulptor programs to run with SimpleGUICS2Pygame
    - pygame_check.py: Python program to check Pygame installation
    - SimpleGUICS2Pygame_check.py: Python program to **check installation**
  - simpleguics2pygame/: **main module** (splitted in several files) that reimplementing the `simpleguics2pygame` module of CodeSkulptor
  - test/: **test files**, mainly to check compatibility with CodeSkulptor
  - codeskulptor.py: module that reimplementing the `codeskulptor` module of CodeSkulptor
  - numeric.py: module that reimplementing the `numeric` module of CodeSkulptor
  - simpleplot.py: module that reimplementing the `simpleplot` module of CodeSkulptor
  - ...
- Sphinx/: source **documentation**
  - _static/links/: links of programs, images and sounds
  - ...
- stuffs/: unimportant stuff
- _dist/: last and previous versions of installation **archive files**

- _img/: logos
- Makefile: to build documentation, distributions, etc.
- setup.py: Python installation file
- ...

**Warning:** Before the version 02.00.00, the main module `simpleguics2pygame` was one file. Now it is splitted in several files in `simpleguics2pygame/` subdirectory.

## ChangeLog

- 02.00.00 WORKING VERSION — Novembre 28, 2016
  - Added a developer's page in documentation.
  - Replaced links of *Read the Docs*.
  - Added `--last` command line option.
  - Added `test/test_command_line_options.py`.
  - Replaced `_WEBSITE` value by documentation link.
  - Splitted media links to image links and sound links.
  - Added `script/pygame_check.py` to check Pygame installation alone.
  - Added `ValueError` exception if `draw_text()` try to draw a text containing unprintable whitespace character.
  - Added `draw_text_multi()` in `simplegui_lib_draw`.
  - Updated `test/test_text.py`.
  - Added alpha possibility on background color.
  - Added `transparent` "color" name.
  - Improved dealing of input box.
  - Added `test/test_input.py`.
  - Updated `simpleplot` module, to "run" same if matplotlib is not installed.
  - Updated `test/test_objects.py`.
  - Corrected "Read the Docs" subpackage problem.
  - Updated `test/test_sound.py`.
  - Updated `script/SimpleGUICS2Pygame_check.py`.
  - **Splitted the big file ''simpleguics2pygame.py''.**
  - Added `example/presentation.py`.
  - Added `example/stop_example.py`.
  - Corrected `test/test_sound.py`.
  - Updated documentation. (Thanks to *John Gray*.)
  - Updated media and CodeSkulptor programs links.

- 01.09.00 — January 1st, 2015
  - **Added ‘‘_load_local_image()‘‘ and ‘‘_load_local_sound()‘‘ functions.**
  - Added `test/test_sound.py`.
  - Updated `test/test_dir.py`.
  - Updated `test/test_image.py`.
  - Added `--fps n` option.
  - Added Donate button in `_draw_about()` panel.
- 01.08.01 — October 9, 2014
  - Added information when pygame is not installed.
  - Corrected local filename bug in `_load_media()`. (Thanks to Sergey Sorokin.)
  - Updated documentation.
- 01.08.00 — October 4, 2014
  - Added alternative grey colors.
  - Added HSL and HSLA colors format.
  - Added `test/test_colors_html_hsla.py`.
  - Updated CodeSkulptor programs links.
  - Updated `codeskulptor_lib`.
  - Updated `test/test_colors_html_rgba.py`.
  - Updated media links.
- 01.07.00 — September 2, 2014
  - Added `plot_scatter()` function in `simpleplot` module.
  - Added `test/test_simpleplot_scatter.py`.
  - Updated `test/test_dir.py`.
  - Updated documentation.
  - Updated CodeSkulptor programs links.
- 01.06.03 — July 24, 2014
  - Implemented `width` parameter in `add_label()`.
  - Added `test/test_button_label.py`.
- 01.06.02 — July 18, 2014
  - Corrected stupid error in `add_label()`.
- 01.06.01 — July 17, 2014
  - Added (fake) width parameter in `add_label()`.
  - Corrected gz archive of HTML offline documentation.
  - Added private members in all documentation.
- 01.06.00 — June 16, 2014
  - Updated `numeric`.

  - Updated `example/Spaceship_prototype.py` and `example/RiceRocks_Asteroids.py`.
  - Updated `test/test_dir.py`.
  - Added `Loader.cache_clear()` and `Loader.print_stats_cache()`.
  - Added a cache mechanism to Pygame surfaces used by `Image` (**improve speed** of `draw_image()`).
  - Added `Image._url` attribute.
  - Moved `_RADIAN_TO_DEGREE`.
  - Print now to `stderr` instead `stdout`.
  - Updated `_draw_about()`.
  - Updated documentation.
  - Updated media and CodeSkulptor programs links.
- 01.05.00 — May 25, 2014
  - Added cache for colors and option `--print-stats-cache`.
  - First public version of `.hgignore` and `Makefile`.
  - Off the mixer if no sound is loaded.
  - Updated `example/RiceRocks_Asteroids.py`.
  - Updated documentation.
  - Updated `example/Spaceship_prototype.py`.
  - Updated `example/Blackjack.py`.
  - Updated `example/Memory.py`.
  - Updated `example/Pong.py`.
  - Cosmetic changes in some example programs.
  - Updated `test/test_all.py`.
  - Better order Pygame initalization.
  - Updated `script/cs2both.py` and `script/SimpleGUICS2Pygame_check.py`.
  - Updated `simplegui_lib_keys.py` and `example/keys.py`.
  - Updated `example/Stopwatch.py`.
  - Changed filename used by `_load_media()` (use now the query part of URLs).
  - Added precision to Window$ installation.
  - Updated media and CodeSkulptor programs links.
- 01.04.00 — December 16, 2013
  - Customized documentation.
  - Splitted changes in a separated file.
  - Added `numeric` (`Matrix` object) module.
  - Corrected some typos by Maxim Rybalov. (Thank you.)
  - Updated `simplegui_lib_fps.py`.
  - Updated `example/RiceRocks_Asteroids.py`.

- 01.03.00 — December 13, 2013
  - Removed exception to `get_canvas_image()`.
  - Updated almost all files to add `except ImportError`.
  - Updated `codeskulptor_lib.codeskulptor_is()`.
  - Added `simplegui_lib_fps.py`.
  - Corrected bug in `_load_media()` (issue #1). (Thanks to Sean Flanigan.)
  - Updated documentation to clarify local use of images and sounds. (Thanks to Ines Simicic.)
  - Updated `script/cs2both.py`.
  - Corrected conversion of `_fps_average` to `int` in Python 2.
  - Corrected mentions of `Frame._fps` in comment.
  - Updated `example/Blackjack.py`.
  - Updated `example/Spaceship_prototype.py`.
  - Updated `example/Memory.py`.
  - Updated media and CodeSkulptor programs links.
- 01.02.00 — November 8, 2013
  - Splitted `simplegui_lib.py` in `simplegui_lib.py`, `simplegui_lib_draw.py` and `simplegui_lib_loader.py`.
  - Added `simplegui_lib_keys.py`.
  - Added `example/keys.py` and `example/loader.py`.
  - Updated `example/RiceRocks_Asteroids.py` and `example/Spaceship_prototype.py`.
  - Updated `script/SimpleGUICS2Pygame_check.py`.
  - Updated `test/test_image.py` and `test/test_text.py`.
  - Updated media and CodeSkulptor programs links.
  - Corrected installation documentation.
- 01.01.00 — November 1st, 2013
  - Added `_block` and `_filename` parameters in `simpleplot.plot_lines()` function.
  - Added `plot_bars()` function in `simpleplot` module.
  - Added `test/test_simpleplot_bars.py` and `test/test_simpleplot_lines.py`.
  - Updated `test/test_all.py`.
  - Updated media links.
  - Corrected minor errors in documentation.
  - Added `set_timeout()` function in `codeskulptor` module.
  - Updated `example/Mandelbrot_Set.py` (used `set_timeout()`).
  - Updated CodeSkulptor programs links.
- 01.00.02 — October 31, 2013
  - Corrected bug in `TextAreaControl.set_text()`: the label text was also modified.

  - Updated documentation.
  - Updated `cs2both.py`.
  - Updated `example/Mandelbrot_Set.py` (optimized draw).
  - Updated media and CodeSkulptor programs links.
- 01.00.01 — October 9, 2013
  - Adapted documentation and `cs2both.py` to changes of CodeSkulptor (`int` and `float` are now separate).
- 01.00.00 — July 13, 2013
  - Moved documentation to Read The Docs.
  - Added `simpleplot` module.
  - Updated `example/Mandelbrot_Set.py` (used vertical symetry).
  - Updated media and CodeSkulptor programs links.
- 00.92.00 — June 27, 2013
  - Changed `simplegui_lib.Loader` class to display progression loading in SimpleGUICS2Pygame (moved arguments from `wait_loaded()` function to `__init__()`).
  - Replaced `Frame._already_frame` by `Frame._frame_instance`.
  - Updated `example/RiceRocks_Asteroids.py` (collisions of asteroids and little asteroids).
  - Added `Frame._set_canvas_background_image()` function.
  - Memoization of downloaded images and sounds.
  - Changed save in local directory to avoid conflict.
  - Added `test/test_image.py`.
  - Added `--overwrite-downloaded-medias` and `--save-downloaded-medias` options.
  - Display versions in `script/SimpleGUICS2Pygame_check.py`.
- 00.91.00 — June 23, 2013
  - Changed installation program to build distributions (now `setuptools` is used).
  - Added `--print-load-medias` option.
  - Added `script/SimpleGUICS2Pygame_check.py` and moved and updated `cs2both.py`.
  - Now, `_set_option_from_argv()` deleted SimpleGUICS2Pygame options after use.
  - Memoization of Pygame fonts.
  - Added `--default-font` option.
  - Many cosmetic changes to respect PEP 8.
  - Updated media and CodeSkulptor programs links.
  - Some precisions and English corrections in the documentation.
  - Added some CodeSkulptor programs links.
  - `example/Memory.py`: moved image locations.
  - `example/Nostalgic_Basic_Blitz.py` : added spacebar information.
- 00.90.10 — June 19, 2013

  - Adapted button, label and input to display multine text.
  - Simplified handler functions transmitted to `add_button()` in some programs.
  - Added `example/Nostalgic_Basic_Blitz.py`.
  - Changed `default_pygame_color` param of `_simpleguicolor_to_pygamecolor()` function (now installation is ok even if Pygame not installed).
  - Moved `_VERSION` and `_WEBSITE` constants from `simpleguics2pygame.py` to `__init__.py`.
  - Removed `enumerate()` function from `codeskulptor_lib` (now implemented natively by CodeSkulptor).
  - Added `--display-fps` option.
  - Added `example/RiceRocks_Asteroids.py`.
  - Updated some CodeSkulptor programs links.
  - Added some new media links.
  - Added some details in documentations.
  - Some cosmetic changes.
- 00.90.00 — June 13, 2013
  - First public version.

CHAPTER 9

# Indices and tables

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