# pystroke

## API Documentation

## April 3, 2013

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Variables Package pystroke

# 1 Package pystroke

## 1.1 Modules

- behaviour (Section 2, p. 5)
- behaviour\_engine (Section 3, p. 6)
- draw\_engine (Section 4, p. 7)
- event\_engine (Section 5, p. 13)
- game (Section 6, p. 19)
- game\_engine (Section 7, p. 20)
- hud (Section 8, p. 27)
- input\_engine (Section 9, p. 37)
- locals (Section 10, p. 44)
- vector2 (Section 11, p. 45)
- vector2\_test (Section 12, p. 50)
- vex (Section 13, p. 64)

## 1.2 Variables

Name	Description
package	Value: None

## 2 Module pystroke.behaviour

## 2.1 Variables

Name	Description
package	Value: 'pystroke'

## 2.2 Class Behaviour

Stores a modular behaviour that can be added to a game entity

 ${\bf Author:}\ {\rm James}\ {\rm Heslin}\ ({\rm PROGRAM\_IX})$ 

## 2.2.1 Methods

\_init\_\_\_(self, name)

Creates a new Behaviour

**Parameters** 

name: The name of the Behaviour

(type = string)

Author: James Heslin (PROGRAM\_IX)

process(self, entity)

Performs the operations making up the Behaviour on the game entity

**Parameters** 

entity: The game entity affected by the Behaviour

(type = Vex)

## 3 Module pystroke.behaviour\_engine

## 3.1 Variables

Name	Description
package	Value: 'pystroke'

## 3.2 Class BehaviourEngine

Processes all behaviours in beh\_dict when update() is called

Author: James Heslin (PROGRAM\_IX)

## 3.2.1 Methods

\_\_init\_\_\_\_(self, beh\_\_dict={})

Construct a new Behaviour Engine with a list of Behaviours

**Parameters** 

beh\_dict: The list of Behaviours this BehaviourEngine will use

 $(type=dict\ (Behaviour))$ 

Author: James Heslin (PROGRAM\_IX)

 $\mathbf{update}(\mathit{self})$ 

Process all behaviours in beh\_dict

# 4 Module pystroke.draw\_engine

## 4.1 Variables

Name	Description
ACTIVEEVENT	Value: 1
ANYFORMAT	Value: 268435456
ASYNCBLIT	Value: 4
AUDIO S16	Value: 32784
AUDIO S16LSB	Value: 32784
AUDIO S16MSB	Value: 36880
AUDIO S16SYS	Value: 32784
AUDIO S8	Value: 32776
AUDIO U16	Value: 16
AUDIO U16LSB	Value: 16
AUDIO U16MSB	Value: 4112
AUDIO U16SYS	Value: 16
AUDIO_U8	Value: 8
BIG_ENDIAN	Value: 4321
BLEND_ADD	Value: 1
BLEND_MAX	Value: 5
BLEND_MIN	Value: 4
BLEND MULT	Value: 3
BLEND_RGBA_ADD	Value: 6
BLEND_RGBA_MAX	Value: 16
BLEND_RGBA_MIN	Value: 9
BLEND_RGBA_MULT	Value: 8
BLEND_RGBA_SUB	Value: 7
BLEND_RGB_ADD	Value: 1
BLEND_RGB_MAX	Value: 5
BLEND_RGB_MIN	Value: 4
BLEND_RGB_MULT	Value: 3
BLEND_RGB_SUB	Value: 2
BLEND_SUB	Value: 2
BUTTON_X1	Value: 6
BUTTON_X2	Value: 7
DOUBLEBUF	Value: 1073741824
FULLSCREEN	Value: -2147483648
GL_ACCELERATED_VISU-	Value: 15
AL	
GL_ACCUM_ALPHA_SIZE	Value: 11
GL_ACCUM_BLUE_SIZE	Value: 10
GL_ACCUM_GREEN_SIZE	Value: 9
GL_ACCUM_RED_SIZE	Value: 8
GL_ALPHA_SIZE	Value: 3
GL_BLUE_SIZE	Value: 2
GL_BUFFER_SIZE	Value: 4
GL_DEPTH_SIZE	Value: 6
GL_DOUBLEBUFFER	Value: 5
GL_GREEN_SIZE	Value: 1

Name	Description
GL MULTISAMPLEBUFFE-	Value: 13
RS T	
GL MULTISAMPLESAMPL-	Value: 14
ES	
GL RED SIZE	Value: 0
GL STENCIL SIZE	Value: 7
GL STEREO	Value: 12
GL SWAP CONTROL	Value: 16
HAT CENTERED	Value: 0
HAT DOWN	Value: 4
HAT LEFT	Value: 8
HAT LEFTDOWN	Value: 12
HAT LEFTUP	Value: 9
HAT RIGHT	Value: 2
HAT RIGHTDOWN	Value: 6
HAT RIGHTUP	Value: 3
HAT UP	Value: 1
HWACCEL	Value: 256
HWPALETTE	Value: 536870912
HWSURFACE	Value: 1
IYUV OVERLAY	Value: 1448433993
JOYAXISMOTION	Value: 7
JOYBALLMOTION	Value: 8
JOYBUTTONDOWN	Value: 10
JOYBUTTONUP	Value: 11
JOYHATMOTION	Value: 9
KEYDOWN	Value: 2
KEYUP	Value: 3
KMOD ALT	Value: 768
KMOD CAPS	Value: 8192
KMOD CTRL	Value: 192
KMOD LALT	Value: 256
KMOD LCTRL	Value: 64
KMOD LMETA	Value: 1024
KMOD_LMETA KMOD_LSHIFT	Value: 1
KMOD META	Value: 3072
KMOD MODE	Value: 16384
KMOD NONE	Value: 0
KMOD NUM	Value: 4096
KMOD RALT	Value: 512
KMOD RCTRL	Value: 128
KMOD RMETA	Value: 2048
KMOD RSHIFT	Value: 2
KMOD_RISHIFT	Value: 3
K 0	Value: 48
K 1	Value: 49
K 2	Value: 50
K 3	Value: 51
K 4	Value: 52
K 5	Value: 53
17_0	varue. 00

Name	Description
K_6	Value: 54
K_7	Value: 55
K_8	Value: 56
K_9	Value: 57
K_AMPERSAND	Value: 38
K_ASTERISK	Value: 42
K_AT	Value: 64
K_BACKQUOTE	Value: 96
K_BACKSLASH	Value: 92
K_BACKSPACE	Value: 8
K_BREAK	Value: 318
K_CAPSLOCK	Value: 301
K CARET	Value: 94
K CLEAR	Value: 12
K COLON	Value: 58
K_COMMA	Value: 44
K_DELETE	Value: 127
K_DOLLAR	Value: 36
K DOWN	Value: 274
K END	Value: 279
K EQUALS	Value: 61
K ESCAPE	Value: 27
K EURO	Value: 321
K EXCLAIM	Value: 33
K F1	Value: 282
 K F10	Value: 291
 K F11	Value: 292
 K F12	Value: 293
 K F13	Value: 294
 K F14	Value: 295
 K F15	Value: 296
K F2	Value: 283
K F3	Value: 284
K F4	Value: 285
 K F5	Value: 286
 K F6	Value: 287
	Value: 288
 K F8	Value: 289
	Value: 290
K FIRST	Value: 0
K GREATER	Value: 62
K HASH	Value: 35
K HELP	Value: 315
K_HOME	Value: 278
K_INSERT	Value: 277
K KP0	Value: 256
K KP1	Value: 257
K KP2	Value: 258
K KP3	Value: 259
K KP4	Value: 260

Name	Description
K_KP5	Value: 261
K_KP6	Value: 262
K_KP7	Value: 263
K_KP8	Value: 264
K KP9	Value: 265
K KP DIVIDE	Value: 267
K KP ENTER	Value: 271
K KP EQUALS	Value: 272
K KP MINUS	Value: 269
K KP MULTIPLY	Value: 268
K KP PERIOD	Value: 266
K KP PLUS	Value: 270
K LALT	Value: 308
K LAST	Value: 323
K LCTRL	Value: 306
K LEFT	Value: 276
K LEFTBRACKET	Value: 91
K LEFTPAREN	Value: 40
K LESS	Value: 60
K LMETA	Value: 310
K LSHIFT	Value: 304
K LSUPER	Value: 311
K MENU	Value: 319
K MINUS	Value: 45
K MODE	Value: 313
K NUMLOCK	Value: 313
K_NOMLOCK K PAGEDOWN	Value: 281
K_PAGEDOWN K_PAGEUP	Value: 281 Value: 280
K_FAGEUF K PAUSE	Value: 19
K PERIOD	Value: 46
K PLUS	Value: 45 Value: 43
K POWER	Value: 43 Value: 320
K_POWER K PRINT	
_	Value: 316 Value: 63
K_QUESTION	
K_QUOTE	Value: 39
K_QUOTEDBL	Value: 34
K_RALT	Value: 307
K_RCTRL	Value: 305
K_RETURN	Value: 13
K_RIGHT	Value: 275
K_RIGHTBRACKET	Value: 93
K_RIGHTPAREN	Value: 41
K_RMETA	Value: 309
K_RSHIFT	Value: 303
K_RSUPER	Value: 312
K_SCROLLOCK	Value: 302
K_SEMICOLON	Value: 59
K_SLASH	Value: 47
K_SPACE	Value: 32
K_SYSREQ	Value: 317

Name	Description
K_TAB	Value: 9
K_UNDERSCORE	Value: 95
K_UNKNOWN	Value: 0
K_UP	Value: 273
K_a	Value: 97
K b	Value: 98
Kc	Value: 99
K d	Value: 100
K e	Value: 101
K f	Value: 102
 	Value: 103
K h	Value: 104
K i	Value: 105
K j	Value: 106
K k	Value: 107
K 1	Value: 108
K_1 K m	Value: 100
K_m	Value: 110
K_n K o	Value: 110
	Value: 111
K_p	
K_q	Value: 113
K_r	Value: 114
K_s	Value: 115
K_t	Value: 116
K_u	Value: 117
K_v	Value: 118
K_w	Value: 119
K_x	Value: 120
K_y	Value: 121
K_z	Value: 122
LIL_ENDIAN	Value: 1234
MOUSEBUTTONDOWN	Value: 5
MOUSEBUTTONUP	Value: 6
MOUSEMOTION	Value: 4
NOEVENT	Value: 0
NOFRAME	Value: 32
NUMEVENTS	Value: 32
OPENGL	Value: 2
OPENGLBLIT	Value: 10
PREALLOC	Value: 16777216
QUIT	Value: 12
RESIZABLE	Value: 16
RLEACCEL	Value: 16384
RLEACCELOK	Value: 8192
SCRAP BMP	Value: 'image/bmp'
SCRAP CLIPBOARD	Value: 0
SCRAP PBM	Value: 'image/pbm'
SCRAP PPM	Value: 'image/ppm'
SCRAP SELECTION	Value: 1
SCRAP TEXT	Value: 'text/plain'
SOURT TEVT	value: text/prain/

Name	Description
SRCALPHA	Value: 65536
SRCCOLORKEY	Value: 4096
SWSURFACE	Value: 0
SYSWMEVENT	Value: 13
TIMER_RESOLUTION	Value: 10
USEREVENT	Value: 24
UYVY_OVERLAY	Value: 1498831189
VIDEOEXPOSE	Value: 17
VIDEORESIZE	Value: 16
YUY2_OVERLAY	Value: 844715353
YV12_OVERLAY	Value: 842094169
YVYU_OVERLAY	Value: 1431918169
package	Value: 'pystroke'

## 4.2 Class DrawEngine

Abstracts the calls to Vex.draw() and other drawing methods

Author: James Heslin (PROGRAM\_IX)

#### 4.2.1 Methods

\_\_\_init\_\_\_(self, screen)

# $\frac{1}{draw(self, drawables)}$

Presumes everything in the drawables list has a draw() method, and draws all of them to screen.

### Parameters

drawables: The list of objects to draw (all must have a draw() method)

(type=list)

Author: James Heslin (PROGRAM\_IX)

## $\mathbf{begin\_draw}(\mathit{self}, \mathit{colour})$

Clears the screen to prepare for drawing

#### **Parameters**

colour: The colour to fill the screen with

(type=pygame.Color)

Author: James Heslin (PROGRAM\_IX)

#### $end\_draw(self)$

Updates the screen after draws have finished

# ${\bf 5}\quad {\bf Module\ pystroke.event\_engine}$

## 5.1 Variables

Name	Description
ACTIVEEVENT	Value: 1
ANYFORMAT	Value: 268435456
ASYNCBLIT	Value: 4
AUDIO S16	Value: 32784
AUDIO S16LSB	Value: 32784
AUDIO S16MSB	Value: 36880
AUDIO S16SYS	Value: 32784
AUDIO S8	Value: 32776
AUDIO U16	Value: 16
AUDIO U16LSB	Value: 16
AUDIO U16MSB	Value: 4112
AUDIO U16SYS	Value: 16
AUDIO_U8	Value: 8
BIG_ENDIAN	Value: 4321
BLEND_ADD	Value: 1
BLEND_MAX	Value: 5
BLEND_MIN	Value: 4
BLEND MULT	Value: 3
BLEND_RGBA_ADD	Value: 6
BLEND_RGBA_MAX	Value: 16
BLEND_RGBA_MIN	Value: 9
BLEND_RGBA_MULT	Value: 8
BLEND_RGBA_SUB	Value: 7
BLEND_RGB_ADD	Value: 1
BLEND_RGB_MAX	Value: 5
BLEND_RGB_MIN	Value: 4
BLEND_RGB_MULT	Value: 3
BLEND_RGB_SUB	Value: 2
BLEND_SUB	Value: 2
BUTTON_X1	Value: 6
BUTTON_X2	Value: 7
DOUBLEBUF	Value: 1073741824
FULLSCREEN	Value: -2147483648
GL_ACCELERATED_VISU-	Value: 15
AL	
GL_ACCUM_ALPHA_SIZE	Value: 11
GL_ACCUM_BLUE_SIZE	Value: 10
GL_ACCUM_GREEN_SIZE	Value: 9
GL_ACCUM_RED_SIZE	Value: 8
GL_ALPHA_SIZE	Value: 3
GL_BLUE_SIZE	Value: 2
GL_BUFFER_SIZE	Value: 4
GL_DEPTH_SIZE	Value: 6
GL_DOUBLEBUFFER	Value: 5
GL_GREEN_SIZE	Value: 1

Name	Description
GL MULTISAMPLEBUFFE-	Value: 13
RS T	
GL MULTISAMPLESAMPL-	Value: 14
ES	
GL RED SIZE	Value: 0
GL STENCIL SIZE	Value: 7
GL STEREO	Value: 12
GL SWAP CONTROL	Value: 16
HAT CENTERED	Value: 0
HAT DOWN	Value: 4
HAT LEFT	Value: 8
HAT LEFTDOWN	Value: 12
HAT LEFTUP	Value: 9
HAT RIGHT	Value: 2
HAT RIGHTDOWN	Value: 6
HAT RIGHTUP	Value: 3
HAT UP	Value: 1
HWACCEL	Value: 256
HWPALETTE	Value: 536870912
HWSURFACE	Value: 1
IYUV OVERLAY	Value: 1448433993
JOYAXISMOTION	Value: 7
JOYBALLMOTION	Value: 8
JOYBUTTONDOWN	Value: 10
JOYBUTTONUP	Value: 11
JOYHATMOTION	Value: 9
KEYDOWN	Value: 2
KEYUP	Value: 3
KMOD ALT	Value: 768
KMOD CAPS	Value: 8192
KMOD CTRL	Value: 192
KMOD LALT	Value: 256
KMOD LCTRL	Value: 64
KMOD LMETA	Value: 1024
KMOD_LMETA KMOD_LSHIFT	Value: 1
KMOD META	Value: 3072
KMOD MODE	Value: 16384
KMOD NONE	Value: 0
KMOD NUM	Value: 4096
KMOD RALT	Value: 512
KMOD RCTRL	Value: 128
KMOD RMETA	Value: 2048
KMOD RSHIFT	Value: 2
KMOD_RISHIFT	Value: 3
K 0	Value: 48
K 1	Value: 49
K 2	Value: 50
K 3	Value: 51
K 4	Value: 52
K 5	Value: 53
17_0	varue. 00

Name	Description
K_6	Value: 54
K_7	Value: 55
K_8	Value: 56
K_9	Value: 57
K_AMPERSAND	Value: 38
K_ASTERISK	Value: 42
K_AT	Value: 64
K_BACKQUOTE	Value: 96
K_BACKSLASH	Value: 92
K_BACKSPACE	Value: 8
K_BREAK	Value: 318
K_CAPSLOCK	Value: 301
K CARET	Value: 94
K CLEAR	Value: 12
K COLON	Value: 58
K_COMMA	Value: 44
K_DELETE	Value: 127
K_DOLLAR	Value: 36
K DOWN	Value: 274
K END	Value: 279
K EQUALS	Value: 61
K ESCAPE	Value: 27
K EURO	Value: 321
K EXCLAIM	Value: 33
K F1	Value: 282
 K F10	Value: 291
 K F11	Value: 292
 K F12	Value: 293
 K F13	Value: 294
 K F14	Value: 295
 K F15	Value: 296
K F2	Value: 283
K F3	Value: 284
K F4	Value: 285
 K F5	Value: 286
 K F6	Value: 287
	Value: 288
 K F8	Value: 289
	Value: 290
K FIRST	Value: 0
K GREATER	Value: 62
K HASH	Value: 35
K HELP	Value: 315
K_HOME	Value: 278
K_INSERT	Value: 277
K KP0	Value: 256
K KP1	Value: 257
K KP2	Value: 258
K KP3	Value: 259
K KP4	Value: 260

Name	Description
K KP5	Value: 261
K KP6	Value: 262
K KP7	Value: 263
K KP8	Value: 264
K KP9	Value: 265
K KP DIVIDE	Value: 267
K KP ENTER	Value: 271
K_KP_EQUALS	Value: 272
K_KP_MINUS	Value: 269
K_KP_MULTIPLY	Value: 268
K_KP_PERIOD	Value: 266
K KP PLUS	Value: 270
K LALT	Value: 308
K LAST	Value: 323
K LCTRL	Value: 306
K LEFT	Value: 276
K LEFTBRACKET	Value: 91
K LEFTPAREN	Value: 40
K LESS	Value: 60
K LMETA	Value: 310
K_LMETA K LSHIFT	Value: 304
K LSUPER	Value: 311
K_LSUPER K MENU	Value: 319
K_MENU K MINUS	Value: 45
K_MODE	Value: 313
_	
K_NUMLOCK K PAGEDOWN	Value: 300
K_PAGEDOWN K_PAGEUP	Value: 281 Value: 280
K_PAUSE K_PERIOD	Value: 19
_	Value: 46
K_PLUS	Value: 43
K_POWER	Value: 320
K_PRINT	Value: 316
K_QUESTION	Value: 63
K_QUOTE	Value: 39
K_QUOTEDBL	Value: 34
K_RALT	Value: 307
K_RCTRL	Value: 305
K_RETURN	Value: 13
K_RIGHT	Value: 275
K_RIGHTBRACKET	Value: 93
K_RIGHTPAREN	Value: 41
K_RMETA	Value: 309
K_RSHIFT	Value: 303
K_RSUPER	Value: 312
K_SCROLLOCK	Value: 302
K_SEMICOLON	Value: 59
K_SLASH	Value: 47
K_SPACE	Value: 32
K_SYSREQ	Value: 317

Name	Description
K TAB	Value: 9
K UNDERSCORE	Value: 95
K UNKNOWN	Value: 0
K UP	Value: 273
K a	Value: 97
K b	Value: 98
K c	Value: 99
K d	Value: 100
K e	Value: 101
K f	Value: 102
K_g	Value: 103
K h	Value: 104
K i	Value: 105
K j	Value: 106
K k	Value: 107
K l	Value: 108
K m	Value: 100
K_m	Value: 110
K_n K o	Value: 110
K_p	Value: 112
K_p K_q	Value: 113
K_q K r	Value: 113
K_r K s	Value: 114 Value: 115
K_S K t	Value: 116
K u	Value: 116 Value: 117
_	
K_v	Value: 118
K_w K x	Value: 119 Value: 120
_	Value: 120 Value: 121
K_y	Value: 121 Value: 122
K_z LIL ENDIAN	Value: 122 Value: 1234
_	
MOUSEBUTTONDOWN	Value: 5
MOUSEBUTTONUP	Value: 6
MOUSEMOTION	Value: 4
NOEVENT	Value: 0
NOFRAME	Value: 32
NUMEVENTS	Value: 32
OPENGL DLIT	Value: 2
OPENGLBLIT	Value: 10
PREALLOC	Value: 16777216
QUIT	Value: 12
RESIZABLE	Value: 16
RLEACCEL	Value: 16384
RLEACCELOK	Value: 8192
SCRAP_BMP	Value: 'image/bmp'
SCRAP_CLIPBOARD	Value: 0
SCRAP_PBM	Value: 'image/pbm'
SCRAP_PPM	Value: 'image/ppm'
SCRAP_SELECTION	Value: 1
SCRAP_TEXT	Value: 'text/plain'

Name	Description
SRCALPHA	Value: 65536
SRCCOLORKEY	Value: 4096
SWSURFACE	Value: 0
SYSWMEVENT	Value: 13
TIMER_RESOLUTION	Value: 10
USEREVENT	Value: 24
UYVY_OVERLAY	Value: 1498831189
VIDEOEXPOSE	Value: 17
VIDEORESIZE	Value: 16
YUY2_OVERLAY	Value: 844715353
YV12_OVERLAY	Value: 842094169
YVYU_OVERLAY	Value: 1431918169
package	Value: 'pystroke'

## 5.2 Class EventEngine

Reads the event queue and passes events to other engines

Author: James Heslin (PROGRAM\_IX)

#### 5.2.1 Methods

\_\_init\_\_\_\_(self, i\_\_e)

Takes an InputEngine and passes all relevant events to it

Parameters

i\_e: InputEngine to which input events should be passed

(type=InputEngine)

Author: James Heslin (PROGRAM\_IX)

 $\mathbf{update}(self)$ 

Pulls all relevant events from the event queue and passes them to the appropriate engines

Author: James Heslin (PROGRAM\_IX)

 $reset\_input(self)$ 

Resets the InputEngine's values

Author: James Heslin (PROGRAM\_IX)

print\_input\_states(self)

Prints the states of the InputEngine

## 6 Module pystroke.game

### 6.1 Functions

main()
Default running parameters for Game
Author: James Heslin (PROGRAM\_IX)

### 6.2 Variables

Name	Description
package	Value: 'pystroke'

### 6.3 Class Game

Container and manager for GameEngine instances

Author: James Heslin (PROGRAM\_IX)

#### 6.3.1 Methods

\_\_\_init\_\_\_(self, width, height)

Constructs a new Game, whose screen has the specified width and height

**Parameters** 

width: Width of the screen

(type=int)

height: Height of the screen

(type=int)

Author: James Heslin (PROGRAM\_IX)

 $\mathbf{start}(self)$ 

Set up the GameEngine and run the game

Author: James Heslin (PROGRAM\_IX)

 $\mathbf{run}(self)$ 

Runs the GameEngine, switches to another GameEngine, or quits, based on returned flags

from GameEngine

# 7 Module pystroke.game\_engine

## 7.1 Variables

Name	Description
ACTIVEEVENT	Value: 1
ANYFORMAT	Value: 268435456
ASYNCBLIT	Value: 4
AUDIO_S16	Value: 32784
AUDIO_S16LSB	Value: 32784
AUDIO_S16MSB	Value: 36880
AUDIO_S16SYS	Value: 32784
AUDIO_S8	Value: 32776
AUDIO_U16	Value: 16
AUDIO_U16LSB	Value: 16
AUDIO_U16MSB	Value: 4112
AUDIO_U16SYS	Value: 16
AUDIO_U8	Value: 8
BIG_ENDIAN	Value: 4321
BLEND_ADD	Value: 1
BLEND_MAX	Value: 5
BLEND_MIN	Value: 4
BLEND_MULT	Value: 3
BLEND_RGBA_ADD	Value: 6
BLEND_RGBA_MAX	Value: 16
BLEND_RGBA_MIN	Value: 9
BLEND_RGBA_MULT	Value: 8
BLEND_RGBA_SUB	Value: 7
BLEND_RGB_ADD	Value: 1
BLEND_RGB_MAX	Value: 5
BLEND_RGB_MIN	Value: 4
BLEND_RGB_MULT	Value: 3
BLEND_RGB_SUB	Value: 2
BLEND_SUB	Value: 2
BUTTON_X1	Value: 6
BUTTON_X2	Value: 7
DOUBLEBUF	Value: 1073741824
FULLSCREEN	Value: -2147483648
GL_ACCELERATED_VISU- AL	Value: 15
GL ACCUM ALPHA SIZE	Value: 11
GL_ACCUM_ALPHA_SIZE GL ACCUM BLUE SIZE	
GL_ACCUM_BLUE_SIZE GL ACCUM GREEN SIZE	Value: 10 Value: 9
GL_ACCUM_GREEN_SIZE GL ACCUM RED SIZE	Value: 8
GL_ACCOM_RED_SIZE GL ALPHA SIZE	Value: 3
GL_ALPHA_SIZE GL BLUE SIZE	Value: 2
GL_BLGE_SIZE GL BUFFER SIZE	Value: 4
GL_BOFFER_SIZE GL DEPTH SIZE	Value: 6
GL_DEFIH_SIZE GL DOUBLEBUFFER	Value: 5
GL_DOUBLEBOFFER GL GREEN SIZE	Value: 1
GL_GREEN_SIZE	value, 1

Name	Description
GL MULTISAMPLEBUFFE-	Value: 13
RS T	
GL MULTISAMPLESAMPL-	Value: 14
ES	
GL RED SIZE	Value: 0
GL STENCIL SIZE	Value: 7
GL STEREO	Value: 12
GL SWAP CONTROL	Value: 16
HAT CENTERED	Value: 0
HAT DOWN	Value: 4
HAT LEFT	Value: 8
HAT LEFTDOWN	Value: 12
HAT LEFTUP	Value: 9
HAT RIGHT	Value: 2
HAT RIGHTDOWN	Value: 6
HAT RIGHTUP	Value: 3
HAT UP	Value: 1
HWACCEL	Value: 256
HWPALETTE	Value: 536870912
HWSURFACE	Value: 1
IYUV OVERLAY	Value: 1448433993
JOYAXISMOTION	Value: 7
JOYBALLMOTION	Value: 8
JOYBUTTONDOWN	Value: 10
JOYBUTTONUP	Value: 11
JOYHATMOTION	Value: 9
KEYDOWN	Value: 2
KEYUP	Value: 3
KMOD ALT	Value: 768
KMOD CAPS	Value: 8192
KMOD CTRL	Value: 192
KMOD LALT	Value: 256
KMOD LCTRL	Value: 64
KMOD LMETA	Value: 1024
KMOD_LMETA KMOD_LSHIFT	Value: 1
KMOD META	Value: 3072
KMOD MODE	Value: 16384
KMOD NONE	Value: 0
KMOD NUM	Value: 4096
KMOD RALT	Value: 512
KMOD RCTRL	Value: 128
KMOD RMETA	Value: 2048
KMOD RSHIFT	Value: 2
KMOD_RSHIFT	Value: 3
K 0	Value: 48
K 1	Value: 49
K 2	Value: 50
K 3	Value: 51
K 4	Value: 52
K 5	Value: 53
17_0	varue. 00

Name	Description
K_6	Value: 54
K 7	Value: 55
 K 8	Value: 56
 K 9	Value: 57
K AMPERSAND	Value: 38
K ASTERISK	Value: 42
K AT	Value: 64
K BACKQUOTE	Value: 96
K BACKSLASH	Value: 92
K BACKSPACE	Value: 8
K BREAK	Value: 318
K CAPSLOCK	Value: 301
K CARET	Value: 94
K CLEAR	Value: 12
K COLON	Value: 58
K COMMA	Value: 44
K DELETE	Value: 127
K DOLLAR	Value: 36
K DOWN	Value: 274
K END	Value: 279
K EQUALS	Value: 61
K ESCAPE	Value: 27
K EURO	Value: 321
K EXCLAIM	Value: 33
K F1	Value: 282
K_F1 K F10	Value: 202 Value: 291
K_F10 K F11	Value: 291 Value: 292
K_F11 K F12	Value: 292 Value: 293
K_F12 K F13	Value: 294
K_F13 K F14	Value: 294 Value: 295
K_F14 K F15	Value: 296
K_F15 K F2	Value: 283
K_F2 K F3	Value: 283
K_F3 K F4	Value: 285
K_F4 K F5	
K_F6	Value: 286 Value: 287
_	
K_F7 K F8	Value: 288
K_F8 K F9	Value: 289 Value: 290
K_F9 K FIRST	
_	Value: 0
K_GREATER	Value: 62
K_HASH	Value: 35
K_HELP	Value: 315
K_HOME	Value: 278
K_INSERT	Value: 277
K_KP0	Value: 256
K_KP1	Value: 257
K_KP2	Value: 258
K_KP3	Value: 259
K_KP4	Value: 260

Name	Description
K_KP5	Value: 261
K KP6	Value: 262
K KP7	Value: 263
K KP8	Value: 264
K KP9	Value: 265
K KP DIVIDE	Value: 267
K KP ENTER	Value: 271
K_KP_EQUALS	Value: 272
K_KP_MINUS	Value: 269
K_KP_MULTIPLY	Value: 268
K_KP_PERIOD	Value: 266
K KP PLUS	Value: 270
K LALT	Value: 308
K LAST	Value: 323
K LCTRL	Value: 306
K LEFT	Value: 276
K LEFTBRACKET	Value: 91
K LEFTPAREN	Value: 40
K LESS	Value: 60
K LMETA	Value: 310
K LSHIFT	Value: 304
K LSUPER	Value: 311
K MENU	Value: 319
K MINUS	Value: 45
K MODE	Value: 313
K NUMLOCK	Value: 300
K PAGEDOWN	Value: 281
K PAGEUP	Value: 280
K PAUSE	Value: 19
K PERIOD	Value: 46
K PLUS	Value: 43
K POWER	Value: 320
K PRINT	Value: 316
K QUESTION	Value: 63
K QUOTE	Value: 39
K QUOTEDBL	Value: 34
K RALT	Value: 307
K RCTRL	Value: 307
K RETURN	Value: 13
K RIGHT	Value: 275
K_RIGHTBRACKET	Value: 93
K RIGHTPAREN	Value: 41
K RMETA	Value: 309
K RSHIFT	Value: 303
K_RSHIF1 K RSUPER	Value: 312
K SCROLLOCK	Value: 302
K_SCROLLOCK K SEMICOLON	Value: 502
K_SEMICOLON K SLASH	Value: 47
K_SPACE	Value: 47 Value: 32
K_SPACE K SYSREQ	
N_SISUE(	Value: 317

Name	Description
K TAB	Value: 9
K UNDERSCORE	Value: 95
K UNKNOWN	Value: 0
K UP	Value: 273
K a	Value: 97
K b	Value: 98
K c	Value: 99
K d	Value: 100
K e	Value: 101
K f	Value: 102
K_g	Value: 103
K h	Value: 104
K i	Value: 105
K j	Value: 106
K k	Value: 107
K l	Value: 108
K m	Value: 100
K_m	Value: 110
K_n K o	Value: 110
K_p	Value: 112
K_p K_q	Value: 113
K_q K r	Value: 113
K_r K s	Value: 114 Value: 115
K_S K t	Value: 116
K u	Value: 116 Value: 117
_	
K_v	Value: 118
K_w K x	Value: 119 Value: 120
_	Value: 120 Value: 121
K_y	Value: 121 Value: 122
K_z LIL ENDIAN	Value: 122 Value: 1234
_	
MOUSEBUTTONDOWN	Value: 5
MOUSEBUTTONUP	Value: 6
MOUSEMOTION	Value: 4
NOEVENT	Value: 0
NOFRAME	Value: 32
NUMEVENTS	Value: 32
OPENGL DLIT	Value: 2
OPENGLBLIT	Value: 10
PREALLOC	Value: 16777216
QUIT	Value: 12
RESIZABLE	Value: 16
RLEACCEL	Value: 16384
RLEACCELOK	Value: 8192
SCRAP_BMP	Value: 'image/bmp'
SCRAP_CLIPBOARD	Value: 0
SCRAP_PBM	Value: 'image/pbm'
SCRAP_PPM	Value: 'image/ppm'
SCRAP_SELECTION	Value: 1
SCRAP_TEXT	Value: 'text/plain'

Name	Description
SRCALPHA	Value: 65536
SRCCOLORKEY	Value: 4096
SWSURFACE	Value: 0
SYSWMEVENT	Value: 13
TIMER_RESOLUTION	Value: 10
USEREVENT	Value: 24
UYVY_OVERLAY	Value: 1498831189
VIDEOEXPOSE	Value: 17
VIDEORESIZE	Value: 16
YUY2_OVERLAY	Value: 844715353
YV12_OVERLAY	Value: 842094169
YVYU_OVERLAY	Value: 1431918169
package	Value: 'pystroke'

## 7.2 Class GameEngine

Generic class to contain all logic for the basic running of the game

Author: James Heslin (PROGRAM\_IX)

### 7.2.1 Methods

init(sel	<pre>f, screen, event_e=EventEngine(InputEngine()), fps=60)</pre>
Constructs a GameEngine	
Parameters	
screen:	The screen on which the game will be rendered - this will be passed around to other classes
	(type=pygame.Surface)
event_e:	The EventEngine that this will use to read events
	(type=EventEngine)
fps:	The number of frames to display/ticks to pass every second
	(type=int)
Author: James	s Heslin (PROGRAM_IX)

```
| update(self)
| Performs per-frame logic
| Return Value | Flag to tell Game what to do | (type=int) |
| Author: James Heslin (PROGRAM_IX)
```

 $\mathbf{draw}(self)$ 

Draws all necessary elements using the DrawEngine

Author: James Heslin (PROGRAM\_IX)

 $\mathbf{run}(\mathit{self})$ 

The main loop of the game

Return Value

Flag to tell Game what to do

(type=int)

Author: James Heslin (PROGRAM\_IX)

 $\mathbf{get}\underline{\phantom{a}}\mathbf{key}(\mathit{self},\,\mathit{key})$ 

Wraps the checking of key input

Return Value

The state of the key

(type=boolean)

# 8 Module pystroke.hud

## 8.1 Variables

Name	Description
ACTIVEEVENT	Value: 1
ANYFORMAT	Value: 268435456
ASYNCBLIT	Value: 4
AUDIO S16	Value: 32784
AUDIO S16LSB	Value: 32784
AUDIO S16MSB	Value: 36880
AUDIO S16SYS	Value: 32784
AUDIO S8	Value: 32776
AUDIO U16	Value: 16
AUDIO U16LSB	Value: 16
AUDIO U16MSB	Value: 4112
AUDIO U16SYS	Value: 16
AUDIO_U8	Value: 8
BIG_ENDIAN	Value: 4321
BLEND_ADD	Value: 1
BLEND_MAX	Value: 5
BLEND_MIN	Value: 4
BLEND MULT	Value: 3
BLEND_RGBA_ADD	Value: 6
BLEND_RGBA_MAX	Value: 16
BLEND_RGBA_MIN	Value: 9
BLEND_RGBA_MULT	Value: 8
BLEND_RGBA_SUB	Value: 7
BLEND_RGB_ADD	Value: 1
BLEND_RGB_MAX	Value: 5
BLEND_RGB_MIN	Value: 4
BLEND_RGB_MULT	Value: 3
BLEND_RGB_SUB	Value: 2
BLEND_SUB	Value: 2
BUTTON_X1	Value: 6
BUTTON_X2	Value: 7
DOUBLEBUF	Value: 1073741824
FULLSCREEN	Value: -2147483648
GL_ACCELERATED_VISU-	Value: 15
AL	
GL_ACCUM_ALPHA_SIZE	Value: 11
GL_ACCUM_BLUE_SIZE	Value: 10
GL_ACCUM_GREEN_SIZE	Value: 9
GL_ACCUM_RED_SIZE	Value: 8
GL_ALPHA_SIZE	Value: 3
GL_BLUE_SIZE	Value: 2
GL_BUFFER_SIZE	Value: 4
GL_DEPTH_SIZE	Value: 6
GL_DOUBLEBUFFER	Value: 5
GL_GREEN_SIZE	Value: 1

Name	Description
GL MULTISAMPLEBUFFE-	Value: 13
RS	
GL MULTISAMPLESAMPL-	Value: 14
ES	
GL RED SIZE	Value: 0
GL STENCIL SIZE	Value: 7
GL STEREO	Value: 12
GL SWAP CONTROL	Value: 16
HAT_CENTERED	Value: 0
HAT DOWN	Value: 4
HAT LEFT	Value: 8
HAT LEFTDOWN	Value: 12
HAT LEFTUP	Value: 9
HAT RIGHT	Value: 2
HAT RIGHTDOWN	Value: 6
HAT RIGHTUP	Value: 3
HAT UP	Value: 1
HWACCEL	Value: 256
HWPALETTE	Value: 536870912
HWSURFACE	Value: 1
IYUV OVERLAY	Value: 1448433993
JOYAXISMOTION	Value: 7
JOYBALLMOTION	Value: 8
JOYBUTTONDOWN	Value: 10
JOYBUTTONUP	Value: 11
JOYHATMOTION	Value: 9
KEYDOWN	Value: 2
KEYUP	Value: 3
KMOD ALT	Value: 768
KMOD CAPS	Value: 8192
KMOD CTRL	Value: 192
KMOD LALT	Value: 256
KMOD LCTRL	Value: 64
KMOD LMETA	Value: 1024
KMOD LSHIFT	Value: 1
KMOD META	Value: 3072
KMOD_MODE	Value: 16384
KMOD_NONE	Value: 0
KMOD_NUM	Value: 4096
KMOD_RALT	Value: 512
KMOD_RCTRL	Value: 128
KMOD_RMETA	Value: 2048
KMOD_RSHIFT	Value: 2
KMOD_SHIFT	Value: 3
	Value: 48
 K_1	Value: 49
 K_2	Value: 50
 K 3	Value: 51
K 4	Value: 52
K 5	Value: 53
	continued on next pag

Name	Description
K 6	Value: 54
	Value: 55
K 8	Value: 56
 K 9	Value: 57
K AMPERSAND	Value: 38
K ASTERISK	Value: 42
KAT	Value: 64
K BACKQUOTE	Value: 96
K BACKSLASH	Value: 92
K BACKSPACE	Value: 8
K BREAK	Value: 318
K CAPSLOCK	Value: 301
K CARET	Value: 94
K CLEAR	Value: 12
K COLON	Value: 58
K COMMA	Value: 44
K DELETE	Value: 127
K DOLLAR	Value: 36
K DOWN	Value: 274
K END	Value: 279
K EQUALS	Value: 61
K ESCAPE	Value: 27
K EURO	Value: 321
K EXCLAIM	Value: 33
K F1	Value: 282
K F10	Value: 291
K F11	Value: 292
K F12	Value: 293
K F13	Value: 294
K F14	Value: 295
K F15	Value: 296
K F2	Value: 283
K F3	Value: 284
K F4	Value: 285
K F5	Value: 286
K F6	Value: 287
K F7	Value: 288
K F8	Value: 289
K F9	Value: 290
K FIRST	Value: 0
K GREATER	Value: 62
K HASH	Value: 35
K HELP	Value: 315
K HOME	Value: 278
K INSERT	Value: 277
K KP0	Value: 256
K KP1	Value: 257
K KP2	Value: 258
K_KP3	Value: 259
K KP4	Value: 260
	continued on next nad

Name	Description
K KP5	Value: 261
K KP6	Value: 262
K_KP7	Value: 263
K_KP8	Value: 264
K KP9	Value: 265
K KP DIVIDE	Value: 267
K KP ENTER	Value: 271
K KP EQUALS	Value: 272
K KP MINUS	Value: 269
K KP MULTIPLY	Value: 268
K_KP_PERIOD	Value: 266
K KP PLUS	Value: 270
K LALT	Value: 308
KLAST	Value: 323
K LCTRL	Value: 306
K LEFT	Value: 276
K LEFTBRACKET	Value: 91
K LEFTPAREN	Value: 40
K LESS	Value: 60
K LMETA	Value: 310
K LSHIFT	Value: 304
K LSUPER	Value: 311
K MENU	Value: 319
K MINUS	Value: 45
K MODE	Value: 313
K NUMLOCK	Value: 300
K PAGEDOWN	Value: 281
K PAGEUP	Value: 280
K PAUSE	Value: 19
K PERIOD	Value: 46
K PLUS	Value: 43
K POWER	Value: 320
K PRINT	Value: 316
K QUESTION	Value: 63
K QUOTE	Value: 39
K QUOTEDBL	Value: 34
K RALT	Value: 307
K RCTRL	Value: 305
K RETURN	Value: 13
K RIGHT	Value: 275
K RIGHTBRACKET	Value: 93
K RIGHTPAREN	Value: 41
K RMETA	Value: 309
K RSHIFT	Value: 303
K RSUPER	Value: 312
K SCROLLOCK	Value: 302
K SEMICOLON	Value: 59
K_SEMICOLON K SLASH	Value: 47
K_SLASH K SPACE	
K_SPACE K SYSREQ	Value: 32 Value: 317
IZ DIDITER	value: 317  continued on next pag

Name	Description
K_TAB	Value: 9
K_UNDERSCORE	Value: 95
K_UNKNOWN	Value: 0
K_UP	Value: 273
K_a	Value: 97
K_b	Value: 98
Кс	Value: 99
K_d	Value: 100
Ке	Value: 101
Kf	Value: 102
K_g	Value: 103
Kh	Value: 104
K i	Value: 105
K j	Value: 106
K k	Value: 107
 K 1	Value: 108
K m	Value: 109
K n	Value: 110
K o	Value: 111
 K_p	Value: 112
K_q	Value: 113
Kr	Value: 114
Ks	Value: 115
Kt	Value: 116
K u	Value: 117
Kv	Value: 118
K w	Value: 119
Kx	Value: 120
 Ky	Value: 121
Kz	Value: 122
LIL ENDIAN	Value: 1234
MOUSEBUTTONDOWN	Value: 5
MOUSEBUTTONUP	Value: 6
MOUSEMOTION	Value: 4
NOEVENT	Value: 0
NOFRAME	Value: 32
NUMEVENTS	Value: 32
OPENGL	Value: 2
OPENGLBLIT	Value: 10
PREALLOC	Value: 16777216
QUIT	Value: 12
RESIZABLE	Value: 16
RLEACCEL	Value: 16384
RLEACCELOK	Value: 8192
SCRAP BMP	Value: 'image/bmp'
SCRAP CLIPBOARD	Value: 0
SCRAP PBM	Value: 'image/pbm'
SCRAP PPM	Value: 'image/ppm'
SCRAP SELECTION	Value: 1
SCRAP TEXT	Value: 'text/plain'
	continued on next nad

Name	Description
SRCALPHA	Value: 65536
SRCCOLORKEY	Value: 4096
SWSURFACE	Value: 0
SYSWMEVENT	Value: 13
TIMER_RESOLUTION	Value: 10
USEREVENT	Value: 24
UYVY_OVERLAY	Value: 1498831189
VIDEOEXPOSE	Value: 17
VIDEORESIZE	Value: 16
YUY2_OVERLAY	Value: 844715353
YV12_OVERLAY	Value: 842094169
YVYU_OVERLAY	Value: 1431918169
package	Value: 'pystroke'

### 8.2 Class HUDElement

Known Subclasses: pystroke.hud.HUDLine, pystroke.hud.HUDPolygon, pystroke.hud.HUDText

Generic part of a heads-up display

Author: James Heslin (PROGRAM\_IX)

#### 8.2.1 Methods

\_\_\_init\_\_\_(self, label, colour, visible=True)

Constructs a new HUDElement

**Parameters** 

label: Identifier of the element

(type=string)

colour: Colour of the element

(type=pygame.Colour)

visible: Whether the element is visible

(type=boolean)

Author: James Heslin (PROGRAM\_IX)

draw(self, screen)

Draw the element to the screen

Parameters

screen: The surface onto which the game will be rendered

(type=pygame.Surface)

Class HUDText Module pystroke.hud

## 8.3 Class HUDText

 $\begin{array}{c} \text{pystroke.hud.HUDElement} & ---\\ & \text{pystroke.hud.HUDText} \end{array}$ 

An element of a heads-up display consisting of text

Author: James Heslin (PROGRAM\_IX)

#### 8.3.1 Methods

\_\_\_init\_\_\_(self, label, colour, text, pos, size, width, visible=True)

Constructs a new HUDElement

Parameters

label: Identifier of the text

(type=string)

colour: Colour of the text

(type=pygame.Color)

text: Text to display

(type=string)

pos: Coordinates of text start point

(type=list/tuple containing two ints)

visible: Whether the text is visible

(type=boolean)

Overrides: pystroke.hud.HUDElement.\_\_\_init\_\_\_

Author: James Heslin (PROGRAM\_IX)

**draw**(self, screen)

Render the text to the screen

**Parameters** 

screen: The screen onto which the text should be rendered

(type=pygame.Surface)

Overrides: pystroke.hud.HUDElement.draw **Author:** James Heslin (PROGRAM\_IX)

#### 8.3.2 Class Variables

Name	Description
letters	Value: {'0': ((5, 15), (-5, -10), (-5, 15), (5, 15), (5, -10), (

Class HUDLine Module pystroke.hud

## 8.4 Class HUDLine

 $\begin{array}{c} \textbf{pystroke.hud.HUDElement} & \textcolor{red}{\boxed{\phantom{a}}} \\ \textbf{pystroke.hud.HUDLine} \end{array}$ 

An element of a heads-up display consisting of a line

Author: James Heslin (PROGRAM\_IX)

#### 8.4.1 Methods

\_\_init\_\_\_(self, label, colour, line, visible=True)

Constructs a new HUDLine

**Parameters** 

label: Identifier of the line

(type=string)

colour: Colour of the line

(type=pygame.Color)

line: Line arguments

(type=list/tuple containing start position tuple (int, int), end position

tuple (int, int), and width (int))

visible: Whether the line is visible

(type=boolean)

Overrides: pystroke.hud.HUDElement.\_\_\_init\_\_\_

Author: James Heslin (PROGRAM\_IX)

**draw**(self, screen)

Render the line to the screen

**Parameters** 

screen: The screen onto which the line should be rendered

(type = pygame. Surface)

Overrides: pystroke.hud.HUDElement.draw **Author:** James Heslin (PROGRAM\_IX)

## 8.5 Class HUDPolygon

pystroke.hud.HUDElement —

pystroke.hud.HUDPolygon

An element of a heads-up display consisting of a polygon

Class HUD Module pystroke.hud

#### 8.5.1 Methods

\_\_init\_\_\_(self, label, colour, lines, visible=True)

Constructs a new HUDElement

**Parameters** 

label: Identifier of the polygon

(type=string)

colour: Colour of the polygon

(type=pygame.Colour)

lines: Lines portion of the element

(type=list/tuple containing a tuple of points (each (int, int)) and an

int)

visible: Whether the element is visible

(type=boolean)

Overrides: pystroke.hud.HUDElement.\_\_\_init\_\_\_

Author: James Heslin (PROGRAM\_IX)

 $\mathbf{draw}(\mathit{self}, \mathit{screen})$ 

Render the polygon to the screen

**Parameters** 

screen: The screen onto which the polygon is to be rendered

(type=pygame.Surface)

Overrides: pystroke.hud.HUDElement.draw **Author:** James Heslin (PROGRAM IX)

#### 8.6 Class HUD

A heads-up display, which comprises various visual elements displayed on a screen to give information to a player

Author: James Heslin (PROGRAM\_IX)

### 8.6.1 Methods

 $_{
m init}_{
m (\it self)}$ 

Constructs a new HUD

Class HUD Module pystroke.hud

 $add(self, hud\_el)$ 

Add a new element to the HUD

Author: James Heslin (PROGRAM\_IX)

 $remove(self, hud\_el)$ 

Remove an element from the HUD

Author: James Heslin (PROGRAM\_IX)

draw(self, screen)

Renders all elements of the HUD to the screen

**Parameters** 

screen: The screen onto which the HUD is to be rendered

(type=pygame.Surface)

Author: James Heslin (PROGRAM\_IX)

get(self, label)

Returns a HUDElement with matching label from elements, otherwise returns None

**Parameters** 

label: The label of the HUDElement to retrieve

(type=string)

Return Value

The HUDElement with the specified label

(type=HUDElement or None)

# $9\quad Module\ pystroke.input\_engine$

# 9.1 Variables

Name	Description
ACTIVEEVENT	Value: 1
ANYFORMAT	Value: 268435456
ASYNCBLIT	Value: 4
AUDIO_S16	Value: 32784
AUDIO_S16LSB	Value: 32784
AUDIO_S16MSB	Value: 36880
AUDIO_S16SYS	Value: 32784
AUDIO_S8	Value: 32776
AUDIO_U16	Value: 16
AUDIO_U16LSB	Value: 16
AUDIO_U16MSB	Value: 4112
AUDIO_U16SYS	Value: 16
AUDIO_U8	Value: 8
BIG_ENDIAN	Value: 4321
BLEND_ADD	Value: 1
BLEND_MAX	Value: 5
BLEND_MIN	Value: 4
BLEND_MULT	Value: 3
BLEND_RGBA_ADD	Value: 6
BLEND_RGBA_MAX	Value: 16
BLEND_RGBA_MIN	Value: 9
BLEND_RGBA_MULT	Value: 8
BLEND_RGBA_SUB	Value: 7
BLEND_RGB_ADD	Value: 1
BLEND_RGB_MAX	Value: 5
BLEND_RGB_MIN	Value: 4
BLEND_RGB_MULT	Value: 3
BLEND_RGB_SUB	Value: 2
BLEND_SUB	Value: 2
BUTTON_X1	Value: 6
BUTTON_X2	Value: 7
DOUBLEBUF	Value: 1073741824
FULLSCREEN	Value: -2147483648
GL_ACCELERATED_VISU-	Value: 15
GL ACCUM ALPHA SIZE	Value: 11
GL_ACCUM_BLUE_SIZE	Value: 10
GL_ACCUM_BLUE_SIZE GL ACCUM GREEN SIZE	Value: 9
GL_ACCUM_GREEN_SIZE GL ACCUM RED SIZE	Value: 8
GL_ACCOM_RED_SIZE GL ALPHA SIZE	Value: 3
GL BLUE SIZE	Value: 2
GL BUFFER SIZE	Value: 4
GL DEPTH SIZE	Value: 6
GL DOUBLEBUFFER	Value: 5
GL GREEN SIZE	Value: 1
	,

Name	Description
GL MULTISAMPLEBUFFE-	Value: 13
RS	
GL MULTISAMPLESAMPL-	Value: 14
ES	
GL RED SIZE	Value: 0
GL STENCIL SIZE	Value: 7
GL STEREO	Value: 12
GL SWAP CONTROL	Value: 16
HAT CENTERED	Value: 0
HAT DOWN	Value: 4
HAT_LEFT	Value: 8
HAT LEFTDOWN	Value: 12
HAT_LEFTUP	Value: 9
HAT_RIGHT	Value: 2
HAT_RIGHTDOWN	Value: 6
HAT_RIGHTUP	Value: 3
HAT_UP	Value: 1
HWACCEL	Value: 256
HWPALETTE	Value: 536870912
HWSURFACE	Value: 1
IYUV_OVERLAY	Value: 1448433993
JOYAXISMOTION	Value: 7
JOYBALLMOTION	Value: 8
JOYBUTTONDOWN	Value: 10
JOYBUTTONUP	Value: 11
JOYHATMOTION	Value: 9
KEYDOWN	Value: 2
KEYUP	Value: 3
KMOD_ALT	Value: 768
KMOD_CAPS	Value: 8192
KMOD_CTRL	Value: 192
KMOD_LALT	Value: 256
KMOD_LCTRL	Value: 64
KMOD_LMETA	Value: 1024
KMOD_LSHIFT	Value: 1
KMOD_META	Value: 3072
KMOD_MODE	Value: 16384
KMOD_NONE	Value: 0
KMOD_NUM	Value: 4096
KMOD_RALT	Value: 512
KMOD_RCTRL	Value: 128
KMOD_RMETA	Value: 2048
KMOD_RSHIFT	Value: 2
KMOD_SHIFT	Value: 3
K_0	Value: 48
K_1	Value: 49
K_2	Value: 50
K_3	Value: 51
K_4	Value: 52
K_5	Value: 53

Name	Description
K_6	Value: 54
K_7	Value: 55
K_8	Value: 56
K_9	Value: 57
K_AMPERSAND	Value: 38
K_ASTERISK	Value: 42
K_AT	Value: 64
K_BACKQUOTE	Value: 96
K_BACKSLASH	Value: 92
K_BACKSPACE	Value: 8
K_BREAK	Value: 318
K_CAPSLOCK	Value: 301
K CARET	Value: 94
K CLEAR	Value: 12
K COLON	Value: 58
K_COMMA	Value: 44
K_DELETE	Value: 127
K_DOLLAR	Value: 36
K DOWN	Value: 274
K END	Value: 279
K EQUALS	Value: 61
K ESCAPE	Value: 27
K EURO	Value: 321
K EXCLAIM	Value: 33
K F1	Value: 282
 K F10	Value: 291
 K F11	Value: 292
 K F12	Value: 293
 K F13	Value: 294
 K F14	Value: 295
 K F15	Value: 296
K F2	Value: 283
K F3	Value: 284
K F4	Value: 285
 K F5	Value: 286
 K F6	Value: 287
	Value: 288
 K F8	Value: 289
	Value: 290
K FIRST	Value: 0
K GREATER	Value: 62
K HASH	Value: 35
K HELP	Value: 315
K_HOME	Value: 278
K_INSERT	Value: 277
K KP0	Value: 256
K KP1	Value: 257
K KP2	Value: 258
K KP3	Value: 259
K KP4	Value: 260

Name	Description
K_KP5	Value: 261
K KP6	Value: 262
K KP7	Value: 263
K KP8	Value: 264
K KP9	Value: 265
K KP DIVIDE	Value: 267
K KP ENTER	Value: 271
K_KP_EQUALS	Value: 272
K_KP_MINUS	Value: 269
K_KP_MULTIPLY	Value: 268
K_KP_PERIOD	Value: 266
K KP PLUS	Value: 270
K LALT	Value: 308
K LAST	Value: 323
K LCTRL	Value: 306
K LEFT	Value: 276
K LEFTBRACKET	Value: 91
K LEFTPAREN	Value: 40
K LESS	Value: 60
K LMETA	Value: 310
K LSHIFT	Value: 304
K LSUPER	Value: 311
K MENU	Value: 319
K MINUS	Value: 45
K MODE	Value: 313
K NUMLOCK	Value: 300
K PAGEDOWN	Value: 281
K PAGEUP	Value: 280
K PAUSE	Value: 19
K PERIOD	Value: 46
K PLUS	Value: 43
K POWER	Value: 320
K PRINT	Value: 316
K QUESTION	Value: 63
K QUOTE	Value: 39
K QUOTEDBL	Value: 34
K RALT	Value: 307
K RCTRL	Value: 307
K RETURN	Value: 13
K RIGHT	Value: 275
K_RIGHTBRACKET	Value: 93
K RIGHTPAREN	Value: 41
K RMETA	Value: 309
K RSHIFT	Value: 303
K_RSHIF1 K RSUPER	Value: 312
K SCROLLOCK	Value: 302
K_SCROLLOCK K SEMICOLON	Value: 502
K_SEMICOLON K SLASH	Value: 47
K_SPACE	Value: 47 Value: 32
K_SPACE K SYSREQ	
N_319UEA	Value: 317

Name	Description
K_TAB	Value: 9
K_UNDERSCORE	Value: 95
K_UNKNOWN	Value: 0
K_UP	Value: 273
K_a	Value: 97
K b	Value: 98
Kc	Value: 99
K d	Value: 100
K e	Value: 101
K f	Value: 102
 	Value: 103
K h	Value: 104
K i	Value: 105
K j	Value: 106
K k	Value: 107
K 1	Value: 108
K_1 K m	Value: 100
K_m	Value: 110
K_n K o	Value: 110
	Value: 111
K_p	
K_q	Value: 113
K_r	Value: 114
K_s	Value: 115
K_t	Value: 116
K_u	Value: 117
K_v	Value: 118
K_w	Value: 119
K_x	Value: 120
K_y	Value: 121
K_z	Value: 122
LIL_ENDIAN	Value: 1234
MOUSEBUTTONDOWN	Value: 5
MOUSEBUTTONUP	Value: 6
MOUSEMOTION	Value: 4
NOEVENT	Value: 0
NOFRAME	Value: 32
NUMEVENTS	Value: 32
OPENGL	Value: 2
OPENGLBLIT	Value: 10
PREALLOC	Value: 16777216
QUIT	Value: 12
RESIZABLE	Value: 16
RLEACCEL	Value: 16384
RLEACCELOK	Value: 8192
SCRAP BMP	Value: 'image/bmp'
SCRAP CLIPBOARD	Value: 0
SCRAP PBM	Value: 'image/pbm'
SCRAP PPM	Value: 'image/ppm'
SCRAP SELECTION	Value: 1
SCRAP TEXT	Value: 'text/plain'
SOURT TEVT	value: text/prain/

Name	Description
SRCALPHA	Value: 65536
SRCCOLORKEY	Value: 4096
SWSURFACE	Value: 0
SYSWMEVENT	Value: 13
TIMER_RESOLUTION	Value: 10
USEREVENT	Value: 24
UYVY_OVERLAY	Value: 1498831189
VIDEOEXPOSE	Value: 17
VIDEORESIZE	Value: 16
YUY2_OVERLAY	Value: 844715353
YV12_OVERLAY	Value: 842094169
YVYU_OVERLAY	Value: 1431918169
package	Value: 'pystroke'

# 9.2 Class InputEngine

 ${\it Receives input events from an EventEngine and uses them to maintain an up-to-date keyboard/mouse state}$ 

Author: James Heslin (PROGRAM\_IX)

### 9.2.1 Methods

init(self)	
Constructs a new InputEngine	
Author: James Heslin (PROGRAM_IX)	

mouse\_motion(self, event)

Processes MOUSEMOTION events

**Parameters** 

event: A MOUSEMOTION event

(type=pygame.Event)

Author: James Heslin (PROGRAM\_IX)

mouse\_b\_down(self, event)

Processes MOUSEBUTTONDOWN events

**Parameters** 

event: A MOUSEBUTTONDOWN event

(type=pygame.Event)

mouse\_b\_up(self, event)

Processes MOUSEBUTTONUP events

**Parameters** 

event: A MOUSEBUTTONUP event

(type=pygame.Event)

Author: James Heslin (PROGRAM\_IX)

**key\_down**(self, event)

Processes KEYDOWN events

Parameters

event: A KEYDOWN event

(type=pygame.Event)

Author: James Heslin (PROGRAM\_IX)

key\_up(self, event)

Processes KEYUP events

Parameters

event: A KEYUP event

(type=pygame.Event)

Author: James Heslin (PROGRAM\_IX)

reset(self)

Reset all the input values

Author: James Heslin (PROGRAM\_IX)

 $print\_all\_states(self)$ 

Print the states of all tracked inputs

# 10 Module pystroke.locals

# 10.1 Variables

Name	Description
SWITCH_FLAG	Value: 0
QUIT_FLAG	Value: 1
CONTINUE_FLAG	Value: 2
package	Value: None

# 11 Module pystroke.vector2

# 11.1 Variables

Name	Description
package	Value: 'pystroke'

# 11.2 Class Vector2

A two-dimensional vector

 ${\bf Author:}\ {\rm James}\ {\rm Heslin}\ ({\rm PROGRAM\_IX})$ 

## 11.2.1 Methods

 $_{\text{init}}_{\text{(self, }x=0.0, y=0.0)}$ 

Constructs a new Vector2

Parameters

 $\mathtt{x}\colon \ \mathbf{X}$  (horizontal) co-ordinate of vector

(type=double)

y: Y (vertical) co-ordinate of vector

(type=double)

Author: James Heslin (PROGRAM\_IX)

\_\_\_str\_\_\_(self)

Returns a string with the vector's co-ordinates

Return Value

A string containing the vector's co-ordinates

(type=string)

 ${\bf Author:}\ {\rm James}\ {\rm Heslin}\ ({\rm PROGRAM\_IX})$ 

### $from\_points(a, b)$

Returns a new Vector2 with the co-ordinates of the difference between the two points

#### **Parameters**

a: The first point to use in constructing the new Vector2

(type=tuple/list of two ints)

b: The second point to use in constructing the new Vector2

(type=tuple/list of two ints)

## Return Value

A new Vector2 constructed from the inputted points

(type = Vector2)

Author: James Heslin (PROGRAM\_IX)

# $\mathbf{get}\underline{\phantom{magnitude}}(\mathit{self})$

Returns the magnitude of the vector

#### Return Value

The magnitude of the vector

(type=double)

Author: James Heslin (PROGRAM\_IX)

#### normalised(self)

Returns a normalised copy of the vector

#### Return Value

Normalised copy of the vector

(type = Vector2)

Author: James Heslin (PROGRAM\_IX)

### dot\_product(self, other)

Returns the dot product of the vector and the input vector

#### **Parameters**

other: The vector to dot product against

(type=Vector2)

#### Return Value

The dot product of the vector and the input vector

(type=double)

### cross\_product(self, other)

Returns the cross product of the vector and the input vector

#### **Parameters**

other: The vector to cross product against

(type=Vector2)

#### Return Value

The cross product of the vector and the input vector

(type=double)

Author: James Heslin (PROGRAM\_IX)

### $\mathbf{clamp}(x, a, b)$

'Clamp' the value of x between a and b, i.e., return x if it is between a and b, a if x is lower than a, and b if x is larger than b

#### **Parameters**

x: The number to clamp

(type = double)

a: The lower bound of x's clamp

(type=double)

b: The upper bound of x's clamp

(type=double)

#### Return Value

The clamped value of  $\mathbf{x}$ 

(type=double)

Author: James Heslin (PROGRAM\_IX)

### $\mathbf{get}$ \_angle(self)

Returns the angle this vector is pointing to

## Return Value

The angle this vector points to (in radians)

(type=double)

 $\_$ add $\_\_$ (self, other)

Add the vector to other and return the result

**Parameters** 

other: The vector to add

(type=Vector2)

Return Value

The result of the vector being added to other

(type=Vector2)

Author: James Heslin (PROGRAM\_IX)

 $\_$ sub $\_\_$ (self, other)

Subtract other from the vector and return the result

**Parameters** 

other: The vector to subtract

(type=Vector2)

Return Value

The result of other being subtracted from the vector

(type = Vector 2)

Author: James Heslin (PROGRAM\_IX)

 $\underline{\phantom{a}}$   $\mathbf{neg}\underline{\phantom{a}}$  (self)

Negate the vector and return the result

Return Value

The negated vector

(type=Vector2)

Author: James Heslin (PROGRAM\_IX)

 $\underline{\phantom{a}}$   $\underline{\phantom{$ 

Multiply the vector by other and return the result

 ${f Parameters}$ 

sca: The scalar to multiply by

(type=double)

Return Value

The result of the vector being multiplied by sca

(type = Vector2)

 $\_$ div $\_\_$ (self, sca)

Divide the vector by sca and return the result

Parameters

sca: The scalar to divide by

 $(type{=}double)$ 

Return Value

The result of the vector being divided by sca

(type=Vector2)

 ${\bf Author:}\ {\rm James}\ {\rm Heslin}\ ({\rm PROGRAM\_IX})$ 

# 12 Module pystroke.vector2\_test

#### 12.1 Variables

Name	Description
package	Value: 'pystroke'

#### 12.2 Class TestVector2

```
object — unittest.case.TestCase — pystroke.vector2_test.TestVector2
```

#### 12.2.1 Methods

```
\begin{tabular}{ll} \bf set Up (\it self) \\ \hline \begin{tabular}{ll} \bf Hook method for setting up the test fixture before exercising it. \\ \hline \begin{tabular}{ll} \bf Overrides: unittest.case.TestCase.setUp extit(inherited documentation) \\ \hline \end{tabular}
```

 $\boxed{\textbf{test\_str}(\textit{self})}$ 

# $Inherited\ from\ unit test. case.\ Test Case$

\_\_call\_\_(), \_\_eq\_\_(), \_\_hash\_\_(), \_\_init\_\_(), \_\_ne\_\_(), \_\_repr\_\_(), \_\_str\_\_(), addCleanup(), addTypeEqualityFunc(), assertAlmostEqual(), assertAlmostEqual(), assertEquals(), assertDictContainsSubset(), assertDictEqual(), assertEqual(), assertIs(), assertIs(), assertIsInstance(), assertIsNone(), assertIsNot(), assertIsNotNone(), assertItemsEqual(), assertLess(), assertLessEqual(), assertListEqual(), assertMulti-LineEqual(), assertNotAlmostEqual(), assertNotAlmostEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertRaises(), assertRaisesRegexp(), assertRegexpMatches(), assertSequenceEqual(), assertSetEqual(), assertTrue(), assertTupleEqual(), assert\_(), countTestCases(), debug(), defaultTestResult(), doCleanups(), fail(), failIf(), failIfAlmostEqual(), failIfEqual(), failUnless(), failUnlessAlmostEqual(), failUnlessEqual(), failUnless-Raises(), id(), run(), setUpClass(), shortDescription(), skipTest(), tearDown(), tearDownClass()

## Inherited from object

#### 12.2.2 Properties

Name	Description
Inherited from object	
class	

#### 12.2.3 Class Variables

Name	Description
Inherited from unittest.case. TestCase	
longMessage, maxDiff	

## 12.3 Class TestMagnitude

### 12.3.1 Methods

```
setUp(self)

Hook method for setting up the test fixture before exercising it.

Overrides: unittest.case.TestCase.setUp extit(inherited documentation)
```

 $\mathbf{test}$ \_magnitude(self)

# $Inherited\ from\ unittest. case. Test Case$

\_\_call\_\_(), \_\_eq\_\_(), \_\_hash\_\_(), \_\_init\_\_(), \_\_ne\_\_(), \_\_repr\_\_(), \_\_str\_\_(), addCleanup(), addTypeEqualityFunc(), assertAlmostEqual(), assertEqual(), assertEqual(), assertEqual(), assertEqual(), assertEqual(), assertIsqual(), assertIsqual(), assertIsqual(), assertIsqual(), assertIsqual(), assertIsNotNone(), assertItemsEqual(), assertLess(), assertLessEqual(), assertListEqual(), assertMulti-LineEqual(), assertNotAlmostEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertNotRegexpMatches(), assertRaises(), assertRaisesRegexp(), assertRegexpMatches(), assertSequenceEqual(), assertSetEqual(), assertTrue(), assertTupleEqual(), assert\_(), countTestCases(),

 $\label{eq:debug} $$ debug(), \ defaultTestResult(), \ doCleanups(), \ fail(), \ failIf(), \ failIfAlmostEqual(), \ failIfEqual(), \ failUnless(), \ failUnlessEqual(), \ failUn$ 

# Inherited from object

$\_\_delattr\_$	(), _	$\_\_$ format $\_$	(),	_getattribu	ite(),	new	(),r	educe(	)
reduce	ex	(), seta	ttr ()	), sizeof	(),	subclassh	ook (	)	

## 12.3.2 Properties

Name	Description
Inherited from object	
class	

### 12.3.3 Class Variables

Name	Description
Inherited from unittest.case.	TestCase
longMessage, maxDiff	

## 12.4 Class TestNormalised

```
object —
unittest.case.TestCase —
pystroke.vector2_test.TestNormalised
```

#### 12.4.1 Methods

```
\begin{tabular}{ll} \bf set \bf Up (\it self) \\ \bf Hook method for setting up the test fixture before exercising it. \\ \bf Overrides: unittest.case.TestCase.set \bf Up \ extit (inherited \ documentation) \\ \hline \end{tabular}
```

 $Inherited\ from\ unit test. case. Test Case$ 

test\_normalised(self)

call(),eq(),hash(),init(),ne(),repr(),
str(), addCleanup(), addTypeEqualityFunc(), assertAlmostEqual(), asser-
tAlmostEquals(), assertDictContainsSubset(), assertDictEqual(), assertEqual(), as-
sertEquals(), assertFalse(), assertGreater(), assertGreaterEqual(), assertIn(), as-
sertIs(), assertIsInstance(), assertIsNone(), assertIsNot(), assertIsNotNone(), as-
sertItemsEqual(), assertLess(), assertLessEqual(), assertListEqual(), assertMulti-
LineEqual(), assertNotAlmostEqual(), assertNotAlmostEquals(), assertNotEqual(),
assertNotEquals(), assertNotIn(), assertNotIsInstance(), assertNotRegexpMatches(),
assertRaises(), assertRaisesRegexp(), assertRegexpMatches(), assertSequenceEqual()
assertSetEqual(), assertTrue(), assertTupleEqual(), assert_(), countTestCases(),
debug(), defaultTestResult(), doCleanups(), fail(), failIf(), failIfAlmostEqual(),
failIfEqual(), failUnless(), failUnlessAlmostEqual(), failUnlessEqual(), failUnless-
Raises(), id(), run(), setUpClass(), shortDescription(), skipTest(), tearDown(),
tearDownClass()

# Inherited from object

delattr(), _	$\underline{}$ format $\underline{}$ (), $\underline{}$	$\_\_$ getattribute $\_$	(),new(), _	$\underline{}$ reduce $\underline{}$ (),
reduce_ex	(),setattr	(),sizeof	(),subclasshook_	()

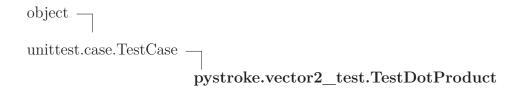
## 12.4.2 Properties

Name	Description
Inherited from object	
class	

## 12.4.3 Class Variables

Name	Description
Inherited from unittest.case.	TestCase
longMessage, maxDiff	

# 12.5 Class TestDotProduct



#### 12.5.1 Methods

# $\mathbf{setUp}(self)$

Hook method for setting up the test fixture before exercising it.

Overrides: unittest.case.TestCase.setUp extit(inherited documentation)

 ${f test\_dot\_product}(\mathit{self})$ 

# $Inherited\ from\ unittest. case. Test Case$

\_\_call\_\_(), \_\_eq\_\_(), \_\_hash\_\_(), \_\_init\_\_(), \_\_ne\_\_(), \_\_repr\_\_(), \_\_str\_\_(), addCleanup(), addTypeEqualityFunc(), assertAlmostEqual(), assertAlmostEqual(), assertEquals(), assertDictContainsSubset(), assertDictEqual(), assertEqual(), assertIs(), assertIs(), assertIsInstance(), assertIsNone(), assertIsNot(), assertIsNotNone(), assertItemsEqual(), assertLess(), assertLessEqual(), assertListEqual(), assertMulti-LineEqual(), assertNotAlmostEqual(), assertNotAlmostEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertRaises(), assertRaisesRegexp(), assertRegexpMatches(), assertSequenceEqual(), assertSetEqual(), assertTrue(), assertTupleEqual(), assert\_(), countTestCases(), debug(), defaultTestResult(), doCleanups(), fail(), failIf(), failIfAlmostEqual(), failIfEqual(), failUnless(), failUnlessAlmostEqual(), failUnlessEqual(), failUnless-Raises(), id(), run(), setUpClass(), shortDescription(), skipTest(), tearDown(), tearDownClass()

## Inherited from object

$\_$ _delattr $\_$ _	_(),	$_{ m format}$ (	),	$_{ m getattribute}$	(), .	new(), _	reduce_	()
reduce_ex	x().	,setattr_	()	,sizeof	_(),	_subclasshook_	()	

#### 12.5.2 Properties

Name	Description
Inherited from object	
class	

#### 12.5.3 Class Variables

Name	Description
Inherited from unittest.case.	TestCase
longMessage, maxDiff	

## 12.6 Class TestCrossProduct

object —		
unittest. case. Test Case		
	pystroke.vector2_	$\_{ m test.TestCrossProduct}$

### 12.6.1 Methods

# $\mathbf{setUp}(self)$

Hook method for setting up the test fixture before exercising it.

Overrides: unittest.case.TestCase.setUp extit(inherited documentation)

 ${f test\_cross\_product}(self)$ 

## $Inherited\ from\ unit test. case.\ Test Case$

\_\_call\_\_(), \_\_eq\_\_(), \_\_hash\_\_(), \_\_init\_\_(), \_\_ne\_\_(), \_\_repr\_\_(), \_\_str\_\_(), addCleanup(), addTypeEqualityFunc(), assertAlmostEqual(), assertEqual(), assertEquals(), assertDictContainsSubset(), assertDictEqual(), assertEqual(), assertEquals(), assertIsInstance(), assertIsNone(), assertIsNot(), assertIsNotNone(), assertItemsEqual(), assertLess(), assertLessEqual(), assertListEqual(), assertMulti-LineEqual(), assertNotAlmostEqual(), assertNotAlmostEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertNotIsInstance(), assertNotRegexpMatches(), assertRaises(), assertRaises(), assertRaisesRegexp(), assertRegexpMatches(), assertSequenceEqual(), assertSetEqual(), assertTrue(), assertTupleEqual(), assert\_(), countTestCases(), debug(), defaultTestResult(), doCleanups(), fail(), failIf(), failIfAlmostEqual(), failIfEqual(), failUnless(), failUnlessAlmostEqual(), failUnlessEqual(), failUnless-Raises(), id(), run(), setUpClass(), shortDescription(), skipTest(), tearDown(), tearDownClass()

#### Inherited from object

delattr(	),fo	$\operatorname{rmat}_{}()$	,	getattribute	$\underline{\hspace{1cm}}(),$	new()	),r	$educe_{}()$
reduce_ex_	(), _	setattr_	(),	sizeof	_(),	_subclassho	ok(	

#### 12.6.2 Properties

Name	Description
Inherited from object	

Name	Description
class	

#### 12.6.3 Class Variables

Name	Description
Inherited from unittest.case.	TestCase
longMessage, maxDiff	

## 12.7 Class TestGetAngle

```
object —
unittest.case.TestCase —
pystroke.vector2_test.TestGetAngle
```

#### 12.7.1 Methods

# $\mathbf{setUp}(self)$

Hook method for setting up the test fixture before exercising it.

Overrides: unittest.case.TestCase.setUp extit(inherited documentation)

```
\boxed{\textbf{test\_get\_angle}(\textit{self})}
```

### $Inherited\ from\ unittest. case.\ Test Case$

\_\_call\_\_(), \_\_eq\_\_(), \_\_hash\_\_(), \_\_init\_\_(), \_\_ne\_\_(), \_\_repr\_\_(), \_\_str\_\_(), addCleanup(), addTypeEqualityFunc(), assertAlmostEqual(), assertEqual(), assertEquals(), assertDictContainsSubset(), assertDictEqual(), assertEqual(), assertEqual(), assertIsqual(), assertMulti-LineEqual(), assertNotAlmostEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertRaises(), assertRaisesqual(), assertRaisesqual(), assertRaisesqual(), assertSequenceEqual(), assertSetEqual(), assertTrue(), assertTupleEqual(), failIf(), failIfAlmostEqual(), failIfEqual(), failUnless(), failUnlessAlmostEqual(), failUnlessEqual(), failUnlessEqual

Inh	erited from object		
	delattr(),format reduce_ex(),setat	(),getattribute(),new(),reduce ctr(),sizeof(),subclasshook()	()
12.7	.2 Properties		
	Name Inherited from objectclass	Description	
12.7	.3 Class Variables		
	Name Inherited from unittest case.		
	longMessage, maxDiff		
	8 Class TestAdd  fect — fittest.case.TestCase —	${ m ke.vector 2\_test. Test Add}$	
obj	B Class TestAdd  Sect —  Stttest.case.TestCase —  pystrok	${ m ke.vector 2\_test. Test Add}$	
obj	B Class TestAdd  Sect —  Statest.case.TestCase —  pystrok	${ m ke.vector 2\_test. Test Add}$	
obj	B Class TestAdd  ject — ittest.case.TestCase — pystrok  1 Methods  setUp(self)	ke.vector2_test.TestAdd  the test fixture before exercising it.	
obj	B Class TestAdd  Sect —  Stttest.case.TestCase —  pystrok  1 Methods  SetUp(self)  Hook method for setting up		
obj	B Class TestAdd  Sect —  Stttest.case.TestCase —  pystrok  1 Methods  SetUp(self)  Hook method for setting up	the test fixture before exercising it.	

tAlmostEquals(), assertDictContainsSubset(), assertDictEqual(), assertEqual(), assertEquals(), assertIslnstance(), assertIslnstance(), assertIsNone(), assertIsNot(), assertIsNotNone(), assertIsNotNone(), assertItemsEqual(), assertLess(), assertLessEqual(), assertListEqual(), assertMulti-LineEqual(), assertNotAlmostEqual(), assertNotEquals(), assertNotEquals(), assertNotEquals(), assertNotEquals(), assertNotEquals(), assertNotRegexpMatches(), assertRaises(), assertRaisesRegexp(), assertRegexpMatches(), assertSequenceEqual(), assertSetEqual(), assertTrue(), assertTupleEqual(), assert\_(), countTestCases(), debug(), defaultTestResult(), doCleanups(), fail(), failIf(), failIfAlmostEqual(), failIfEqual(), failUnless(), failUnlessAlmostEqual(), failUnlessEqual(), failUnless-Raises(), id(), run(), setUpClass(), shortDescription(), skipTest(), tearDown(), tearDownClass()

# Inherited from object

$\_\_delattr\_\_$	_(),for	rmat(),	ge	tattribute	(), _	new(),	reduce	(),
reduce e	x (),	setattr	(),	sizeof	(),	subclasshool	k ()	

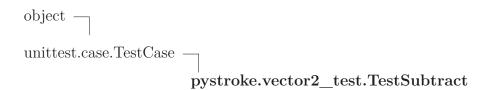
### 12.8.2 Properties

Name	Description
Inherited from object	
class	

#### 12.8.3 Class Variables

Name	Description
Inherited from unittest.case.	$\overline{TestCase}$
longMessage, maxDiff	

## 12.9 Class TestSubtract



#### 12.9.1 Methods

# setUp(self)

Hook method for setting up the test fixture before exercising it.

Overrides: unittest.case.TestCase.setUp extit(inherited documentation)

 $\texttt{test\_subtract}(self)$ 

## $Inherited\ from\ unit test. case.\ Test Case$

\_\_call\_\_(), \_\_eq\_\_(), \_\_hash\_\_(), \_\_init\_\_(), \_\_ne\_\_(), \_\_repr\_\_(), \_\_str\_\_(), addCleanup(), addTypeEqualityFunc(), assertAlmostEqual(), assertAlmostEqual(), assertEquals(), assertDictContainsSubset(), assertDictEqual(), assertEqual(), assertIs(), assertIs(), assertIsInstance(), assertIsNone(), assertIsNot(), assertIsNotNone(), assertItemsEqual(), assertLess(), assertLessEqual(), assertListEqual(), assertMulti-LineEqual(), assertNotAlmostEqual(), assertNotAlmostEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertRaises(), assertRaisesRegexp(), assertRegexpMatches(), assertSequenceEqual(), assertSetEqual(), assertTrue(), assertTupleEqual(), assert\_(), countTestCases(), debug(), defaultTestResult(), doCleanups(), fail(), failIf(), failIfAlmostEqual(), failIfEqual(), failUnless(), failUnlessAlmostEqual(), failUnlessEqual(), failUnless-Raises(), id(), run(), setUpClass(), shortDescription(), skipTest(), tearDown(), tearDownClass()

## Inherited from object

$\_\_delattr\_\_$	L(),	$format_{\underline{}}()$	),	$\_{ m getattribute}$	(),	$\underline{}$ new $\underline{}$ (),	redu	$\mathrm{ce}_{}()$ .
reduce_ex	z(),	setattr_	()	,sizeof	_(),	_subclasshool	<()	

### 12.9.2 Properties

Name	Description
Inherited from object	
class	

#### 12.9.3 Class Variables

Name	Description
Inherited from unittest.case.	TestCase
longMessage, maxDiff	

## 12.10 Class TestNeg

object —		
unittest.case.TestCase		
	$pystroke.vector2_$	$_{ m test.TestNeg}$

#### 12.10.1 Methods

 $\mathbf{setUp}(self)$ 

Hook method for setting up the test fixture before exercising it.

Overrides: unittest.case.TestCase.setUp extit(inherited documentation)

 ${f test\_neg}(self)$ 

# $Inherited\ from\ unittest. case. Test Case$

\_\_call\_\_(), \_\_eq\_\_(), \_\_hash\_\_(), \_\_init\_\_(), \_\_ne\_\_(), \_\_repr\_\_(), \_\_str\_\_(), addCleanup(), addTypeEqualityFunc(), assertAlmostEqual(), assertAlmostEqual(), assertEquals(), assertDictContainsSubset(), assertDictEqual(), assertEqual(), assertIs(), assertIs(), assertIsInstance(), assertIsNone(), assertIsNot(), assertIsNotNone(), assertItemsEqual(), assertLess(), assertLessEqual(), assertListEqual(), assertMulti-LineEqual(), assertNotAlmostEqual(), assertNotAlmostEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertRaises(), assertRaisesRegexp(), assertRegexpMatches(), assertSequenceEqual(), assertSetEqual(), assertTrue(), assertTupleEqual(), assert\_(), countTestCases(), debug(), defaultTestResult(), doCleanups(), fail(), failIf(), failIfAlmostEqual(), failIfEqual(), failUnless(), failUnlessAlmostEqual(), failUnlessEqual(), failUnless-Raises(), id(), run(), setUpClass(), shortDescription(), skipTest(), tearDown(), tearDownClass()

## Inherited from object

$_{ m delattr}$	(), _	for	mat()	),	getattribute	(), _	new(),	reduc	e()
reduce	ex	().	setattr	().	sizeof	().	subclasshool	s ()	

#### 12.10.2 Properties

Name	Description
Inherited from object	

Name	Description		
class			

#### 12.10.3 Class Variables

Name	Description	
Inherited from unittest.case.	TestCase	
longMessage, maxDiff		

## 12.11 Class TestMul

```
object —
unittest.case.TestCase —
pystroke.vector2_test.TestMul
```

#### 12.11.1 Methods

# setUp(self)

Hook method for setting up the test fixture before exercising it.

Overrides: unittest.case.TestCase.setUp extit(inherited documentation)

test\_mul(self)

# $Inherited\ from\ unittest. case. Test Case$

\_\_call\_\_(), \_\_eq\_\_(), \_\_hash\_\_(), \_\_init\_\_(), \_\_ne\_\_(), \_\_repr\_\_(), \_\_str\_\_(), addCleanup(), addTypeEqualityFunc(), assertAlmostEqual(), assertEqual(), assertEquals(), assertDictContainsSubset(), assertDictEqual(), assertEqual(), assertEqual(), assertIsqual(), assertIsqual(), assertIsqual(), assertIsqual(), assertIsqual(), assertIsqual(), assertIsqual(), assertIsqual(), assertItemsEqual(), assertLess(), assertLessEqual(), assertListEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertNotEqual(), assertNotRegexpMatches(), assertRaises(), assertRaisesRegexp(), assertRegexpMatches(), assertSequenceEqual(), assertSetEqual(), assertTrue(), assertTupleEqual(), assert\_(), countTestCases(), debug(), defaultTestResult(), doCleanups(), fail(), failIf(), failIfAlmostEqual(), failIfEqual(), failUnless(), failUnlessAlmostEqual(), failUnlessEqual(), failUnless-Raises(), id(), run(), setUpClass(), shortDescription(), skipTest(), tearDown(),

tearDownClass()

## Inherited from object

```
___delattr__(), __format__(), __getattribute__(), __new__(), __reduce__(), __reduce__ex__(), __sizeof__(), __sizeof__(), __subclasshook__()
```

#### 12.11.2 Properties

Name	Description
Inherited from object	
class	

#### 12.11.3 Class Variables

Name	Description	
Inherited from unittest.case.	TestCase	
longMessage, maxDiff		

### 12.12 Class TestDiv

```
object —
unittest.case.TestCase —
pystroke.vector2_test.TestDiv
```

### 12.12.1 Methods

 $\begin{tabular}{ll} \bf set Up(\it self) \\ \bf Hook method for setting up the test fixture before exercising it. \\ \bf Overrides: unittest.case.TestCase.setUp extit(inherited documentation) \\ \end{tabular}$ 

 $\mathbf{test\_div}(self)$ 

# $Inherited\ from\ unit test. case.\ Test Case$

\_\_call\_\_(), \_\_eq\_\_(), \_\_hash\_\_(), \_\_init\_\_(), \_\_ne\_\_(), \_\_repr\_\_(), \_\_str\_\_(), addCleanup(), addTypeEqualityFunc(), assertAlmostEqual(), assertEqual(), asse

sertEquals(), assertFalse(), assertGreater(), assertGreaterEqual(), assertIn(), assertIs(), assertIsInstance(), assertIsNone(), assertIsNot(), assertIsNotNone(), assertItemsEqual(), assertLess(), assertLessEqual(), assertListEqual(), assertMulti-LineEqual(), assertNotAlmostEqual(), assertNotEquals(), assertNotEqual(), assertNotEquals(), assertNotEquals(), assertNotEquals(), assertNotEquals(), assertRaises(), assertRaisesRegexp(), assertRegexpMatches(), assertSequenceEqual(), assertSetEqual(), assertTrue(), assertTupleEqual(), assert\_(), countTestCases(), debug(), defaultTestResult(), doCleanups(), fail(), failIf(), failIfAlmostEqual(), failIfEqual(), failUnless(), failUnlessAlmostEqual(), failUnlessEqual(), failUnless-Raises(), id(), run(), setUpClass(), shortDescription(), skipTest(), tearDown(), tearDownClass()

# Inherited from object

delattr(	),for	$rmat_{\underline{\hspace{1cm}}}(),$	,ge	etattribute	e(), _	new(),	reduce_	()
reduce ex	(),	setattr	(),	sizeof	(),	subclasshook	()	

## 12.12.2 Properties

Name	Description
Inherited from object	
class	

#### 12.12.3 Class Variables

Name	Description	
Inherited from unittest.case.	st.case. TestCase	
longMessage, maxDiff		

# 13 Module pystroke.vex

# 13.1 Variables

Name	Description
ACTIVEEVENT	Value: 1
ANYFORMAT	Value: 268435456
ASYNCBLIT	Value: 4
AUDIO_S16	Value: 32784
AUDIO_S16LSB	Value: 32784
AUDIO_S16MSB	Value: 36880
AUDIO_S16SYS	Value: 32784
AUDIO_S8	Value: 32776
AUDIO_U16	Value: 16
AUDIO_U16LSB	Value: 16
AUDIO_U16MSB	Value: 4112
AUDIO_U16SYS	Value: 16
AUDIO_U8	Value: 8
BIG_ENDIAN	Value: 4321
BLEND_ADD	Value: 1
BLEND_MAX	Value: 5
BLEND_MIN	Value: 4
BLEND_MULT	Value: 3
BLEND_RGBA_ADD	Value: 6
BLEND_RGBA_MAX	Value: 16
BLEND_RGBA_MIN	Value: 9
BLEND_RGBA_MULT	Value: 8
BLEND_RGBA_SUB	Value: 7
BLEND_RGB_ADD	Value: 1
BLEND_RGB_MAX	Value: 5
BLEND_RGB_MIN	Value: 4
BLEND_RGB_MULT	Value: 3
BLEND_RGB_SUB	Value: 2
BLEND_SUB	Value: 2
BUTTON_X1	Value: 6
BUTTON_X2	Value: 7
DOUBLEBUF	Value: 1073741824
FULLSCREEN	Value: -2147483648
GL_ACCELERATED_V-	Value: 15
ISUAL	
GL_ACCUM_ALPHA_S-	Value: 11
IZE	
GL_ACCUM_BLUE_SI-	Value: 10
ZE	

Name	Description
GL_ACCUM_GREEN	Value: 9
SIZE	
GL_ACCUM_RED_SIZ-	Value: 8
E	
GL_ALPHA_SIZE	Value: 3
GL_BLUE_SIZE	Value: 2
GL_BUFFER_SIZE	Value: 4
GL_DEPTH_SIZE	Value: 6
GL_DOUBLEBUFFER	Value: 5
GL_GREEN_SIZE	Value: 1
GL_MULTISAMPLEBU-	Value: 13
FFERS	
GL_MULTISAMPLESA-	Value: 14
MPLES	
GL_RED_SIZE	Value: 0
GL_STENCIL_SIZE	Value: 7
GL_STEREO	Value: 12
GL_SWAP_CONTROL	Value: 16
HAT_CENTERED	Value: 0
HAT_DOWN	Value: 4
HAT_LEFT	Value: 8
HAT_LEFTDOWN	Value: 12
HAT_LEFTUP	Value: 9
HAT_RIGHT	Value: 2
HAT_RIGHTDOWN	Value: 6
HAT_RIGHTUP	Value: 3
HAT_UP	Value: 1
HWACCEL	Value: 256
HWPALETTE	Value: 536870912
HWSURFACE	Value: 1
IYUV_OVERLAY	Value: 1448433993
JOYAXISMOTION	Value: 7
JOYBALLMOTION	Value: 8
JOYBUTTONDOWN	Value: 10
JOYBUTTONUP	Value: 11
JOYHATMOTION	Value: 9
KEYDOWN	Value: 2
KEYUP	Value: 3
KMOD_ALT	Value: 768
KMOD_CAPS	Value: 8192
KMOD_CTRL	Value: 192
KMOD_LALT	Value: 256

Name	Description
KMOD_LCTRL	Value: 64
KMOD_LMETA	Value: 1024
KMOD_LSHIFT	Value: 1
KMOD_META	Value: 3072
KMOD_MODE	Value: 16384
KMOD_NONE	Value: 0
KMOD_NUM	Value: 4096
KMOD_RALT	Value: 512
KMOD_RCTRL	Value: 128
KMOD_RMETA	Value: 2048
KMOD_RSHIFT	Value: 2
KMOD_SHIFT	Value: 3
K_0	Value: 48
K_1	Value: 49
K_2	Value: 50
K_3	Value: 51
K_4	Value: 52
K_5	Value: 53
K_6	Value: 54
K_7	Value: 55
K_8	Value: 56
K_9	Value: 57
K_AMPERSAND	Value: 38
K_ASTERISK	Value: 42
K_AT	Value: 64
K_BACKQUOTE	Value: 96
K_BACKSLASH	Value: 92
K_BACKSPACE	Value: 8
K_BREAK	Value: 318
K_CAPSLOCK	Value: 301
K_CARET	Value: 94
K_CLEAR	Value: 12
K_COLON	Value: 58
K_COMMA	Value: 44
K_DELETE	Value: 127
K_DOLLAR	Value: 36
K_DOWN	Value: 274
K_END	Value: 279
K_EQUALS	Value: 61
K_ESCAPE	Value: 27
K_EURO	Value: 321
K_EXCLAIM	Value: 33

Name	Description
K_F1	Value: 282
K_F10	Value: 291
K_F11	Value: 292
K_F12	Value: 293
K_F13	Value: 294
K_F14	Value: 295
K_F15	Value: 296
K_F2	Value: 283
K_F3	Value: 284
K_F4	Value: 285
K_F5	Value: 286
K_F6	Value: 287
K_F7	Value: 288
K_F8	Value: 289
K_F9	Value: 290
K_FIRST	Value: 0
K_GREATER	Value: 62
K_HASH	Value: 35
K_HELP	Value: 315
K_HOME	Value: 278
K_INSERT	Value: 277
K_KP0	Value: 256
K_KP1	Value: 257
K_KP2	Value: 258
K_KP3	Value: 259
K_KP4	Value: 260
K_KP5	Value: 261
K_KP6	Value: 262
K_KP7	Value: 263
K_KP8	Value: 264
K_KP9	Value: 265
K_KP_DIVIDE	Value: 267
K_KP_ENTER	Value: 271
K_KP_EQUALS	Value: 272
K_KP_MINUS	Value: 269
K_KP_MULTIPLY	Value: 268
K_KP_PERIOD	Value: 266
K_KP_PLUS	Value: 270
K_LALT	Value: 308
K_LAST	Value: 323
K_LCTRL	Value: 306
K_LEFT	Value: 276

Name	Description
K_LEFTBRACKET	Value: 91
K_LEFTPAREN	Value: 40
K_LESS	Value: 60
K_LMETA	Value: 310
K_LSHIFT	Value: 304
K_LSUPER	Value: 311
K_MENU	Value: 319
K_MINUS	Value: 45
K_MODE	Value: 313
K_NUMLOCK	Value: 300
K_PAGEDOWN	Value: 281
K_PAGEUP	Value: 280
K_PAUSE	Value: 19
K_PERIOD	Value: 46
K_PLUS	Value: 43
K_POWER	Value: 320
K_PRINT	Value: 316
K_QUESTION	Value: 63
K_QUOTE	Value: 39
K_QUOTEDBL	Value: 34
K_RALT	Value: 307
K_RCTRL	Value: 305
K_RETURN	Value: 13
K_RIGHT	Value: 275
K_RIGHTBRACKET	Value: 93
K_RIGHTPAREN	Value: 41
K_RMETA	Value: 309
K_RSHIFT	Value: 303
K_RSUPER	Value: 312
K_SCROLLOCK	Value: 302
K_SEMICOLON	Value: 59
K_SLASH	Value: 47
K_SPACE	Value: 32
K_SYSREQ	Value: 317
K_TAB	Value: 9
K_UNDERSCORE	Value: 95
K_UNKNOWN	Value: 0
K_UP	Value: 273
K_a	Value: 97
K_b	Value: 98
K_c	Value: 99
K_d	Value: 100

Name	Description
K_e	Value: 101
K_f	Value: 102
K_g	Value: 103
K_h	Value: 104
K_i	Value: 105
K_j	Value: 106
K_k	Value: 107
K_l	Value: 108
K_m	Value: 109
K_n	Value: 110
K_o	Value: 111
K_p	Value: 112
K_q	Value: 113
K_r	Value: 114
K_s	Value: 115
K_t	Value: 116
K_u	Value: 117
K_v	Value: 118
K_w	Value: 119
K_x	Value: 120
K_y	Value: 121
K_z	Value: 122
LIL_ENDIAN	Value: 1234
MOUSEBUTTONDOWN	Value: 5
MOUSEBUTTONUP	Value: 6
MOUSEMOTION	Value: 4
NOEVENT	Value: 0
NOFRAME	Value: 32
NUMEVENTS	Value: 32
OPENGL	Value: 2
OPENGLBLIT	Value: 10
PREALLOC	Value: 16777216
QUIT	Value: 12
RESIZABLE	Value: 16
RLEACCEL	Value: 16384
RLEACCELOK	Value: 8192
SCRAP_BMP	Value: 'image/bmp'
SCRAP_CLIPBOARD	Value: 0
SCRAP_PBM	Value: 'image/pbm'
SCRAP_PPM	Value: 'image/ppm'
SCRAP_SELECTION	Value: 1
SCRAP_TEXT	Value: 'text/plain'

Name	Description
SRCALPHA	Value: 65536
SRCCOLORKEY	Value: 4096
SWSURFACE	Value: 0
SYSWMEVENT	Value: 13
TIMER_RESOLUTION	Value: 10
USEREVENT	Value: 24
UYVY_OVERLAY	Value: 1498831189
VIDEOEXPOSE	Value: 17
VIDEORESIZE	Value: 16
YUY2_OVERLAY	Value: 844715353
YV12_OVERLAY	Value: 842094169
YVYU_OVERLAY	Value: 1431918169
package	Value: 'pystroke'

# 13.2 Class Vex

Vector sprite class (consider renaming) - consists of a list of points which are rendered relative to an x and y at draw time

Author: James Heslin (PROGRAM\_IX)

## 13.2.1 Methods

 $\_\_str\_\_(self)$ 

Returns a string containing the  ${\bf x}$  and  ${\bf y}$  of the vector sprite

Return Value

A string containing the x and y of the vector sprite

(type=string)

 $_{init}$   $_{(self, x, y, colour, points, width, scale_x=1, scale_y=1)}$ 

Constructs a new Vex

## **Parameters**

x: The X (horizontal) co-ordinate of the vector sprite

(type=int)

y: The Y (vertical) co-ordinate of the vector sprite

(type=int)

colour: The colour of the vector sprite

(type=pygame.Color)

points: The points that make up the vector sprite

(type=list/tuple of tuples (int, int))

width: The width of the vector sprite's lines

(type=int)

scale\_x: The horizontal multiplier of the vector sprite's size

(type=double)

scale\_y: The vertical multiplier of the vector sprite's size

(type=double)

Author: James Heslin (PROGRAM\_IX)

## $\operatorname{dir}_{\operatorname{\underline{\hspace{1cm}}}}\operatorname{vec}(\operatorname{self})$

Return a copy of the vector sprite's direction vector (the first vector in its list of points), adjusted to have absolute co-ordinates

# Return Value

A copy of the vector sprites's direction vector, with absolute co-ordinates

(type=Vector2)

Author: James Heslin (PROGRAM\_IX)

## rel dir(self)

Returns a copy of the relative direction vector

# Return Value

A copy of the relative direction vector

(type=Vector2)

## **draw**(self, surface)

Renders the vector sprite to the surface specified

#### **Parameters**

surface: The surface onto which the vector sprite is to be rendered

(type=pygame.Surface)

Author: James Heslin (PROGRAM\_IX)

## update(self, surface)

Updates the vector sprite with respect to the specified surface

## Parameters

surface: The surface to update the vector sprite against

(type=pygame.Surface)

Author: James Heslin (PROGRAM\_IX)

## $\mathbf{distance\_to}(\mathit{self}, p)$

Returns the distance between the centre of the vector sprite and the specified point

### **Parameters**

p: The point to compare to the vector sprite

(type=Vector2)

## Return Value

The distance between the centre of the vector sprite and the specified point

(type=double)

Author: James Heslin (PROGRAM IX)

# $vector\_between(self, p)$

Returns the vector between the vector sprite and the specified point

#### **Parameters**

p: The point to compare to the vector sprite

(type=Vector2)

### Return Value

The vector between the vector sprite and the specified point

(type=Vector2)

# angle\_to\_face\_point(self, p)

Return the rotation angle (in radians) required for the vector sprite to face a specified point (face: the vector sprite's direction vector is pointing towards the point)

### **Parameters**

p: The point to face (type=Vector2)

### Return Value

The rotation angle (in radians) required for the vector sprite to face p (type=double)

Author: James Heslin (PROGRAM\_IX)

# rotate\_to\_face\_point(self, p)

Rotate the vex to face a specified point

### **Parameters**

p: The point to face (type=Vector2)

Author: James Heslin (PROGRAM\_IX)

# rotate\_by\_radians(self, a)

Rotate the shape by a given number of radians

#### **Parameters**

a: The number of radians to rotate the vector sprite by (type=double)

# $move\_abs(self, x, y, surface)$

Move the vector sprite in the X/Y plane without leaving the bounds of the specified surface - performs vector calculation to make sure diagonal movement is not faster than cardinal

#### **Parameters**

x: The X (horizontal) movement amount

(type=double)

y: The Y (vertical) movement amount

(type=double)

surface: The surface to use to restrict the movement of the vector

sprite

(type=pygame.Surface)

Author: James Heslin (PROGRAM\_IX)

# $move\_rel(self, x, y, surface)$

Move the vector sprite in the X/Y plane without leaving the bounds of the specified surface - assumes all inputs have already been calculated to restrict movement speed

#### **Parameters**

x: The X (horizontal) movement amount

(type=double)

y: The Y (vertical) movement amount

(type=double)

surface: The surface to use to restrict the movement of the vector

sprite

(type=pygame.Surface)

Author: James Heslin (PROGRAM IX)

# get\_relative\_points\_tuple(self)

Returns a list of 2D points as tuples, relative to vector sprite position, respective of scale

### Return Value

A list of tuples representing the points in the vector sprite, with co-ordinates relative to the vector sprite's position, respective of scale

(type=list of tuples (int, int))

## get\_absolute\_points\_tuple(self)

Returns a list of 2D points as tuples, relative to origin, respective of scale

## Return Value

A list of tuples representing the points in the vector sprite, with co-ordinates relative to the origin, respective of scale

(type=list of tuples (int, int))

Author: James Heslin (PROGRAM\_IX)

## get\_relative\_points\_vector2(self)

Returns a list of Vector2 objects representing 2D points, relative to vector sprite position, respective of scale

### Return Value

A list of Vector2 objects representing the points in the vector sprite, with co-ordinates relative to the vector sprite's position, respective of scale

(type=list of Vector2 objects)

Author: James Heslin (PROGRAM\_IX)

## get\_absolute\_points\_vector2(self)

Returns a list of Vector2 objects representing 2D points, relative to origin, respective of scale

#### Return Value

A list of Vector2 objects representing the points in the vector sprite, with co-ordinates relative to the origin, respective of scale

(type=list of Vector2 objects)

# $point\_inside(self, v)$

Determines roughly if a given point is inside the vector sprite, can be used for crude collision detection

## **Parameters**

v: The point to check

(type=Vector2)

# Return Value

True if the point is inside the vector sprite, False otherwise

(type=boolean)

Author: James Heslin (PROGRAM\_IX)

### 13.2.2 Class Variables

Name	Description
radius	Value: 20

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