# pystroke

# API Documentation

# January 8, 2013

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Variables Package pystroke

# 1 Package pystroke

## 1.1 Modules

- behaviour (Section 2, p. 3)
- behaviour\_engine (Section 3, p. 4)
- draw\_engine (Section 4, p. 5)
- event\_engine (Section 5, p. 11)
- game (Section 6, p. 17)
- game\_engine (Section 7, p. 18)
- hud (Section 8, p. 24)
- input\_engine (Section 9, p. 34)
- vector2 (Section 10, p. 41)
- vex (Section 11, p. 46)

## 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	
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_CITEL  KMOD_LALT	Value: 256
KMOD_LALI KMOD LCTRL	Value: 64
KMOD_LCTILE KMOD_LMETA	Value: 1024
KMOD_LMETA  KMOD_LSHIFT	Value: 1
KMOD_LSHIF1 KMOD_META	Value: 3072
KMOD_META  KMOD MODE	Value: 16384
KMOD_MODE KMOD NONE	Value: 0
KMOD_NONE KMOD_NUM	Value: 4096
KMOD_NOM KMOD_RALT	Value: 512
KMOD_RAL1 KMOD_RCTRL	Value: 128
KMOD_RCTRL KMOD_RMETA	Value: 2048
KMOD_RMETA  KMOD_RSHIFT	Value: 2
KMOD_RSHIFT  KMOD_SHIFT	Value: 3
KMOD_SHIFT	Value: 48
K_0 K 1	Value: 49
K_1 K 2	Value: 50
K_2 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_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: 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 RESIZABLE	Value: 12
	Value: 16
RLEACCEL RLEACCELOK	Value: 16384 Value: 8192
SCRAP BMP	Value: 'image/bmp'
SCRAP_DMP SCRAP CLIPBOARD	Value: 0
SCRAP PBM	Value: 'image/pbm'
SCRAP_PDM SCRAP_PPM	Value: 'image/ppm'
SCRAP_FFM SCRAP SELECTION	Value: 1 Value: 1
SCRAP_SELECTION SCRAP TEXT	Value: 'text/plain'
DOMAI _ I EAI	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'

## 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)

## 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
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 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. JJ

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: 40  Value: 60	
K LMETA Value: 310	
K LSHIFT Value: 304	
K LSUPER Value: 311	
K MENU Value: 319	
K MINUS Value: 319  Value: 45	
_	
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	

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)

 $print\_input\_states(self)$ 

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 begin running the game

# 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-	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. JJ

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 nee

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
Kc	Value: 99
Kd	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: 109
K n	Value: 110
K o	Value: 111
K_p	Value: 112
K_q	Value: 113
K r	Value: 114
K s	Value: 114 Value: 115
K t	Value: 116
K u	Value: 117
K_v	Value: 117
K_W	Value: 119
K x	Value: 113
K_y	Value: 121
K z	Value: 121 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: 10 Value: 16777216
QUIT	Value: 10///216
RESIZABLE	Value: 12 Value: 16
RLEACCEL	Value: 16 Value: 16384
RLEACCELOK	Value: 16384 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

,	/ 10	\	
init (	SPIT	screen)	١
	00019	oci ccio,	

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)

Author: James Heslin (PROGRAM IX)

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

Performs per-frame logic

Author: James Heslin (PROGRAM\_IX)

## $\mathbf{draw}(self)$

Draws all necessary elements using the DrawEngine

Author: James Heslin (PROGRAM\_IX)

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

The main loop of the game

# 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 Value: 15
GL_ACCELERATED_VISU-	value: 15
AL CL ACCIM ALDUA SIZE	Value: 11
GL_ACCUM_ALPHA_SIZE 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	Value: 3
GL_ALI IIA_SIZE GL BLUE SIZE	Value: 2
GL_BUFFER SIZE	Value: 4
GL_BOTTER_SIZE GL DEPTH SIZE	Value: 6
GL DOUBLEBUFFER	Value: 5
GL GREEN SIZE	Value: 1
~~: <u>~</u>	,

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
	continued on next naa

Name	Description
K_6	Value: 54
K 7	Value: 55
	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 pag

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 PAGEDOWN	Value: 281
K_PAGEDOWN K_PAGEUP	Value: 281 Value: 280
K_FAGEUF K_PAUSE	Value: 19
K PERIOD	Value: 46
K PLUS	Value: 40 Value: 43
K POWER	Value: 45 Value: 320
K PRINT	Value: 320 Value: 316
K_PRINT K QUESTION	Value: 63
K_QUESTION K QUOTE	Value: 39
K_QUOTEDBL	Value: 39 Value: 34
_ = •	Value: 34 Value: 307
K_RALT	
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
Ка	Value: 97
K b	Value: 98
Kc	Value: 99
K d	Value: 100
K e	Value: 101
K f	Value: 102
 Kg	Value: 103
K h	Value: 104
Ki	Value: 105
K_j	Value: 106
 K_k	Value: 107
 K_l	Value: 108
 K_m	Value: 109
Kn	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
 K_v	Value: 118
K_w	Value: 119
Kx	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'
	continued on next pac

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,	colo	ur	)
----------------------	-------	--------	------	----	---

Constructs a new HUDElement

**Parameters** 

label: Identifier of the element

(type=string)

colour: Colour of the element

(type=pygame.Colour)

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)

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)

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

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

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

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

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

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)

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))

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)

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)

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

Author: James Heslin (PROGRAM\_IX)

draw(self, 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

\_\_init\_\_\_(self)

Constructs a new HUD

Author: James Heslin (PROGRAM\_IX)

 $add(self, hud\_el)$ 

Add a new element to the HUD

Class HUD Module pystroke.hud

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 Value: 4
BLEND_RGB_MIN BLEND_RGB_MULT	
BLEND_RGB_MUL1 BLEND RGB SUB	Value: 3 Value: 2
BLEND_RGB_SUB BLEND_SUB	Value: 2
BUTTON X1	Value: 6
BUTTON X2	Value: 7
DOUBLEBUF	Value: 1073741824
FULLSCREEN	Value: -2147483648
GL ACCELERATED VISU-	Value: 15
AL	varue. 10
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
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_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'

# 9.2 Class InputEngine

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

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)

 $\mathbf{key\_down}(\mathit{self}, \mathit{event})$ 

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)

print\_all\_states(self)

Print the states of all tracked inputs

# 10 Module pystroke.vector2

## 10.1 Variables

Name	Description
package	Value: 'pystroke'

# 10.2 Class Vector2

A two-dimensional vector

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

## 10.2.1 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 x

(type=double)

Author: James Heslin (PROGRAM\_IX)

#### radians\_between(self, other)

Return the radians between the vector and the input vector

#### **Parameters**

other: The other vector making the angle

(type=Vector2)

#### Return Value

The number of radians between the vector and the input vector

TODO: Determine if this actually works, it's not being used

(type=double)

## $get\_angle(self)$

Returns the angle this vector is pointing to

#### Return Value

The angle this vector points to (in radians)

(type=double)

Author: James Heslin (PROGRAM\_IX)

## $\_$ 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=Vector2)

Author: James Heslin (PROGRAM\_IX)

## $_{\mathbf{neg}}(self)$

Negate the vector and return the result

#### Return Value

The negated vector

(type=Vector2)

 $_{\mathbf{mul}}_{(self, sca)}$ 

Multiply the vector by other and return the result

**Parameters** 

sca: The scalar to multiply by

(type=double)

Return Value

The result of the vector being multiplied by sca

(type = Vector 2)

Author: James Heslin (PROGRAM\_IX)

 $_{\mathbf{div}}_{\mathbf{self}}$ , 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)

# 11 Module pystroke.vex

# 11.1 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
K_0	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
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
	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 nag

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_ITHIVI 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_RMETA K RSHIFT	Value: 303
K_RSUPER	Value: 312
K_RSUPER K_SCROLLOCK	Value: 302
K_SCROLLOCK K SEMICOLON	Value: 59
K_SEMICOLON K SLASH	Value: 47
K_SLASH 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
Ка	Value: 97
K b	Value: 98
Kc	Value: 99
Kd	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 l	Value: 108
Km	Value: 109
K n	Value: 110
K o	Value: 111
K_p	Value: 112
K_q	Value: 113
Kr	Value: 114
Ks	Value: 115
K t	Value: 116
K u	Value: 117
K_v	Value: 118
K_w	Value: 119
Kx	Value: 120
K_y	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 pag

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'

# 11.2 Class Vex

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

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

## 11.2.1 Methods

 $\_$ str $\_$ (self)

Returns a string containing the x and y of the vector sprite

Return Value

A string containing the x and y of the vector sprite

(type=string)

 $_{\text{init}}$   $_{\text{(self, }x, \ y, \ colour, \ points, \ width)}$ 

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)

Author: James Heslin (PROGRAM\_IX)

## $\operatorname{\mathbf{dir}}_{\operatorname{\mathbf{vec}}}(\operatorname{\mathit{self}})$

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)

## 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)

#### $distance\_to(self, p)$

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 = Vector 2)

## Return Value

The vector between the vector sprite and the specified point

(type = Vector2)

Author: James Heslin (PROGRAM\_IX)

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

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)

## 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)

Author: James Heslin (PROGRAM IX)

## move(self, x, y, surface)

Move the vector sprite in the X/Y plane without leaving the bounds of the specified surface

#### **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

#### Return Value

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

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

Author: James Heslin (PROGRAM\_IX)

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

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

#### Return Value

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

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

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

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

#### Return Value

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

(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

#### Return Value

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

(type=list of Vector2 objects)

Author: James Heslin (PROGRAM\_IX)

## $point\_inside(self, v)$

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)

#### 11.2.2 Class Variables

Name	Description
radius	Value: 20

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