







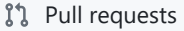




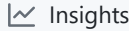
 C0A22088 / ProjExD\_03

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  main  ProjExD\_03 / fight\_kokaton.py 

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C0A22088 練習 1

2 hours ago



182 lines (157 loc) · 5.63 KB

```
1  import random
2  import sys
3  import time
4
5  import pygame as pg
6
7
8  WIDTH = 1600 # ゲームウィンドウの幅
9  HEIGHT = 900 # ゲームウィンドウの高さ
10
11
12  def check_bound(obj_rct: pg.Rect) -> tuple[bool, bool]:
13      """
14      オブジェクトが画面内or画面外を判定し、真理値タプルを返す関数
15      引数：こうかとん、または、爆弾SurfaceのRect
16      戻り値：横方向、縦方向のはみ出し判定結果（画面内：True／画面外
17      """
18      yoko, tate = True, True
19      if obj_rct.left < 0 or WIDTH < obj_rct.right:
20          yoko = False
21      if obj_rct.top < 0 or HEIGHT < obj_rct.bottom:
22          tate = False
23      return yoko, tate
24
25
26  class Bird:
27      """
28      ゲームキャラクター（こうかとん）に関するクラス
29      """
30      delta = { # 押下キーと移動量の辞書
31          pg.K_UP: (0, -5),
32          pg.K_DOWN: (0, +5),
33          pg.K_LEFT: (-5, 0),
34          pg.K_RIGHT: (+5, 0),
35      }
36
37  def __init__(self, num: int, xy: tuple[int, int]):
38      """
39      こうかとん画像Surfaceを生成する
40      引数1 num: こうかとん画像ファイル名の番号
41      引数2 xy: こうかとん画像の位置座標タプル
42      """
43      self.img = pg.transform.flip( # 左右反転
44          pg.transform.rotozoom( # 2倍に拡大
45              pg.image.load(f"ex03/fig/{num}.png"),
46              0,
```

```

47         2.0),
48         True,
49         False
50     )
51     self.rct = self.img.get_rect()
52     self.rct.center = xy
53
54     def change_img(self, num: int, screen: pg.Surface):
55         """
56         こうかとん画像を切り替え、画面に転送する
57         引数1 num: こうかとん画像ファイル名の番号
58         引数2 screen: 画面Surface
59         """
60         self.img = pg.transform.rotozoom(pg.image.load(f"ex03
61         screen.blit(self.img, self.rct)
62
63     def update(self, key_lst: list[bool], screen: pg.Surface)
64         """
65         押下キーに応じてこうかとんを移動させる
66         引数1 key_lst: 押下キーの真理値リスト
67         引数2 screen: 画面Surface
68         """
69         sum_mv = [0, 0]
70         for k, mv in __class__.delta.items():
71             if key_lst[k]:
72                 sum_mv[0] += mv[0]
73                 sum_mv[1] += mv[1]
74         self.rct.move_ip(sum_mv)
75         if check_bound(self.rct) != (True, True):
76             self.rct.move_ip(-sum_mv[0], -sum_mv[1])
77         screen.blit(self.img, self.rct)
78
79
80     class Bomb:
81         """
82         爆弾に関するクラス
83         """
84     def __init__(self, color: tuple[int, int, int], rad: int)
85         """
86         引数に基づき爆弾円Surfaceを生成する
87         引数1 color: 爆弾円の色タプル
88         引数2 rad: 爆弾円の半径
89         """
90         self.img = pg.Surface((2*rad, 2*rad))
91         pg.draw.circle(self.img, color, (rad, rad), rad)
92         self.img.set_colorkey((0, 0, 0))
93         self.rct = self.img.get_rect()
94         self.rct.center = random.randint(0, WIDTH), random.ra
95         self.vx, self.vy = +5, +5
96
97     def update(self, screen: pg.Surface):
98         """
99         爆弾を速度ベクトルself.vx, self.vyに基づき移動させる
100        引数 screen: 画面Surface
101        """
102        yoko, tate = check_bound(self.rct)
103        if not yoko:
104            self.vx *= -1
105        if not tate:
106            self.vy *= -1
107        self.rct.move_ip(self.vx, self.vy)
108        screen.blit(self.img, self.rct)

```

```
109
110
111 ✓ class Beam:
112     """
113     こうかとんが放つビームに関するクラス
114     """
115 ✓ def __init__(self, bird: Bird):
116     """
117     引数に基づきビームSurfaceを生成する
118     引数 bird: ビームを放つこうかとん
119     """
120     self.img = pg.transform.rotozoom(pg.image.load(f"ex03
121     self.rct = self.img.get_rect()
122     self.rct.left = bird.rct.right
123     self.rct.centery = bird.rct.centery
124     self.vx, self.vy = +5, 0
125
126 ✓ def update(self, screen: pg.Surface):
127     """
128     ビームを速度ベクトルself.vx, self.vyに基づき移動させる
129     引数 screen: 画面Surface
130     """
131     self.rct.move_ip(self.vx, self.vy)
132     screen.blit(self.img, self.rct)
133
134
135 ✓ def main():
136     pg.display.set_caption("たたかえ！こうかとん")
137     screen = pg.display.set_mode((WIDTH, HEIGHT))
138     bg_img = pg.image.load("ex03/fig/pg_bg.jpg")
139     bird = Bird(3, (900, 400))
140     bomb = Bomb((255, 0, 0), 10)
141     beam = None
142
143     clock = pygame.time.Clock()
```



main ▾

ProjExD\_03 / fight\_kokaton.py

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Code

Blame

Raw



```
135 def main():
149     if event.type == pg.KEYDOWN and event.key == pg.K
150         beam = Beam(bird) # ビームクラスのインスタンス
151
152     screen.blit(bg_img, [0, 0])
153
154     if bomb is not None:
155         if bird.rct.colliderect(bomb.rct):
156             # ゲームオーバー時に、こうかとん画像を切り替え、1
157             bird.change_img(8, screen)
158             pg.display.update()
159             time.sleep(1)
160             return
161
162     if beam is not None and bomb is not None:
163         if bomb.rct.colliderect(beam.rct):
164             bomb = None
165             beam = None
166
167     key_lst = pg.key.get_pressed()
168     bird.update(key_lst, screen)
169     if bomb is not None:
170         bomb.update(screen)
```

## Symbols



Find definitions and references for functions and other symbols in this file by clicking a symbol below or in the code.

Filter symbols



const WIDTH

const HEIGHT

func check\_bound

▼ class Bird

func \_\_init\_\_

func change\_img

func update

▼ class Bomb

func \_\_init\_\_

func update

▼ class Beam

func \_\_init\_\_

func update

```
171         if beam is not None:
172             beam.update(screen)
173         pg.display.update()
174         tmr += 1
175         clock.tick(50)
176
177
178 if __name__ == "__main__":
179     pg.init()
180     main()
181     pg.quit()
182     sys.exit()
```

```
func main
```

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