

c0a242882d / ProjExD_3

<> Code

Issues 6

Pull requests

Discussions

Actions

Projects

Wiki

Sec

Branches

New branch

- Overview
- Yours
- Active
- Stale
- All

Q Search branches...

Default

Branch	Updated	Check status	Behind	Ahead	Pull request	
main	31 minutes ago			Default		...

Your branches



Branch	Updated	Check status	Behind	Ahead	Pull request	
issue6	1 minute ago		0	1		...
issue5	1 minute ago		0	1		...
issue4	1 minute ago		0	1		...
issue3	2 minutes ago		0	1		...
issue2	4 minutes ago		0	1		...




View more branches >









Active branches

Branch	Updated	Check status	Behind	Ahead	Pull request	
issue6	1 minute ago		0	1		...
issue5	1 minute ago		0	1		...
issue4	1 minute ago		0	1		...
issue3	2 minutes ago		0	1		...
issue2	4 minutes ago		0	1		...

View more branches >

 c0a242882d / ProjExD_3



 **Code**  Issues **6**  Pull requests  Discussions  Actions  Projects  Wiki  Sec

 **main** **ProjExD_3 / fight_kokaton.py** 

Go to file

t

...



c0a242882d 演習3:爆発表示

5864b97 · 34 minutes ago



263 lines (232 loc) · 9.11 KB

Code

Blame

Raw



```
1  import os
2  import random
3  import sys
4  import time
5  import pygame as pg
6
7
8  WIDTH = 1100 # ゲームウィンドウの幅
9  HEIGHT = 650 # ゲームウィンドウの高さ
10 NUM_OF_BOMBS = 5 # 爆弾の数
11 os.chdir(os.path.dirname(os.path.abspath(__file__)))
12
13
14 def check_bound(obj_rct: pg.Rect) -> tuple[bool, bool]:
15     """
16     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
17     引数：こうかとんや爆弾、ビームなどのRect
18     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：False）
19     """
20     yoko, tate = True, True
21     if obj_rct.left < 0 or WIDTH < obj_rct.right:
22         yoko = False
23     if obj_rct.top < 0 or HEIGHT < obj_rct.bottom:
24         tate = False
25     return yoko, tate
26
27
28 class Bird:
29     """
30     ゲームキャラクター（こうかとん）に関するクラス
31     """
32     delta = { # 押下キーと移動量の辞書
33         pg.K_UP: (0, -5),
34         pg.K_DOWN: (0, +5),
35         pg.K_LEFT: (-5, 0),
36         pg.K_RIGHT: (+5, 0),
37     }
38     img0 = pg.transform.rotozoom(pg.image.load("fig/3.png"), 0, 0.9)
39     img = pg.transform.flip(img0, True, False) # デフォルトのこうかとん（右向き）
40     imgs = { # 0度から反時計回りに定義
41         (+5, 0): img, # 右
42         (+5, -5): pg.transform.rotozoom(img, 45, 0.9), # 右上
```

```

43         (0, -5): pg.transform.rotozoom(img, 90, 0.9), # 上
44         (-5, -5): pg.transform.rotozoom(img0, -45, 0.9), # 左上
45         (-5, 0): img0, # 左
46         (-5, +5): pg.transform.rotozoom(img0, 45, 0.9), # 左下
47         (0, +5): pg.transform.rotozoom(img, -90, 0.9), # 下
48         (+5, +5): pg.transform.rotozoom(img, -45, 0.9), # 右下
49     }
50
51     def __init__(self, xy: tuple[int, int]):
52         """
53         こうかとん画像Surfaceを生成する
54         引数 xy: こうかとん画像の初期位置座標タプル
55         """
56         self.img = __class__.imgs[(+5, 0)]
57         self.rct: pg.Rect = self.img.get_rect()
58         self.rct.center = xy
59
60     def change_img(self, num: int, screen: pg.Surface):
61         """
62         こうかとん画像を切り替え、画面に転送する
63         引数1 num: こうかとん画像ファイル名の番号
64         引数2 screen: 画面Surface
65         """
66         self.img = pg.transform.rotozoom(pg.image.load(f"fig/{num}.png"), 0, 0.9)
67         screen.blit(self.img, self.rct)
68
69     def update(self, key_lst: list[bool], screen: pg.Surface):
70         """
71         押下キーに応じてこうかとんを移動させる
72         引数1 key_lst: 押下キーの真理値リスト
73         引数2 screen: 画面Surface
74         """
75         sum_mv = [0, 0]
76         for k, mv in __class__.delta.items():
77             if key_lst[k]:
78                 sum_mv[0] += mv[0]
79                 sum_mv[1] += mv[1]
80         self.rct.move_ip(sum_mv)
81         if check_bound(self.rct) != (True, True):
82             self.rct.move_ip(-sum_mv[0], -sum_mv[1])
83         if not (sum_mv[0] == 0 and sum_mv[1] == 0):
84             self.img = __class__.imgs[tuple(sum_mv)]
85         screen.blit(self.img, self.rct)
86
87
88     class Beam:
89         """
90         こうかとんが放つビームに関するクラス
91         """
92     def __init__(self, bird: "Bird"):
93         """
94         ビーム画像Surfaceを生成する
95         引数 bird: ビームを放つこうかとん (Birdインスタンス)
96         """
97         self.img = pg.image.load("fig/beam.png")
98         self.rct = self.img.get_rect()
99         self.rct.centery = bird.rct.centery
100        self.rct.left = bird.rct.right # ビームの左座標=こうかとんの右座標

```

```
101         self.vx, self.vy = +5, 0
102
103     def update(self, screen: pg.Surface):
104         """
105         ビームを速度ベクトルself.vx, self.vyに基づき移動させる
106         引数 screen: 画面Surface
107         """
108         if check_bound(self.rct) == (True, True):
109             self.rct.move_ip(self.vx, self.vy)
110             screen.blit(self.img, self.rct)
111
112
113     class Bomb:
114         """
115         爆弾に関するクラス
116         """
117     def __init__(self, color: tuple[int, int, int], rad: int):
118         """
119         引数に基づき爆弾円Surfaceを生成する
120         引数1 color: 爆弾円の色タプル
121         引数2 rad: 爆弾円の半径
122         """
123         self.img = pg.Surface((2*rad, 2*rad))
124         pg.draw.circle(self.img, color, (rad, rad), rad)
125         self.img.set_colorkey((0, 0, 0))
126         self.rct = self.img.get_rect()
127         self.rct.center = random.randint(0, WIDTH), random.randint(0, HEIGHT)
128         self.vx, self.vy = +5, +5
129
130     def update(self, screen: pg.Surface):
131         """
132         爆弾を速度ベクトルself.vx, self.vyに基づき移動させる
133         引数 screen: 画面Surface
134         """
135         yoko, tate = check_bound(self.rct)
136         if not yoko:
137             self.vx *= -1
138         if not tate:
139             self.vy *= -1
140         self.rct.move_ip(self.vx, self.vy)
141         screen.blit(self.img, self.rct)
142
143     class Score:
144     def __init__(self):
145         self.fonto = pg.font.SysFont("hgp創英角林° ヴァ° 体", 30)
146         self.color = (0, 0, 255)
147         self.value = 0
148         self.img = self.fonto.render(f"スコア: {self.value}", 0, self.color)
149         self.rect = self.img.get_rect()
150         self.rect.center = 100, HEIGHT-50
151     def update(self, screen: pg.Surface):
152         self.img = self.fonto.render(f"スコア: {self.value}", 0, self.color)
153         screen.blit(self.img, self.rect)
154
155     class Explosion:
156         """
157         爆発エフェクトに関するクラス
158         """
```

```

159  ✓ def __init__(self, center: tuple[int, int]):
160      """
161      爆発画像Surfaceを生成する
162      引数 center: 爆発の中心座標
163      """
164      ex_img = pg.image.load("fig/explosion.gif") #爆発gifを読み込む
165      self.imgs = [
166          ex_img,
167          pg.transform.flip(ex_img, True, False),
168          pg.transform.flip(ex_img, False, True),
169      ]
170      self.life = 30 # 爆発の表示時間
171      self.rct = self.imgs[0].get_rect()
172      self.rct.center = center
173
174  ✓ def update(self, screen: pg.Surface):
175      """
176      爆発画像を交互に反転表示して爆発演出
177      引数 screen: 画面Surface
178      """
179      self.life -= 1 #爆発経過時間を1減算
180      img = self.imgs[self.life % len(self.imgs)]
181      screen.blit(img, self.rct)
182
183
184
185  ✓ def main():
186      pg.display.set_caption("たたかえ！こうかとん")
187      screen = pg.display.set_mode((WIDTH, HEIGHT))
188      bg_img = pg.image.load("fig/pg_bg.jpg")
189      bird = Bird((300, 200))
190      bomb = Bomb((255, 0, 0), 10)
191      score = Score()
192      bombs=[] # 爆弾用の空のリスト
193      beams=[] # ビーム用のリスト
194      explosions = [] # Explosionインスタンス用の空のリスト
195      for _ in range(NUM_OF_BOMBS):
196          bombs.append(Bomb((255,0,0),10))
197      # 内包表記
198      beam = None # ゲーム初期化時にはビームは存在しない
199      clock = pg.time.Clock()
200      tmr = 0
201      while True:
202          for event in pg.event.get():
203              if event.type == pg.QUIT:
204                  return
205              if event.type == pg.KEYDOWN and event.key == pg.K_SPACE:
206                  # スペースキー押下でBeamクラスのインスタンス生成
207                  beams.append(Beam(bird))
208          screen.blit(bg_img, [0, 0])
209
210          for n2,bomb2 in enumerate(bombs):
211              for n,beam2 in enumerate(beams):
212                  if bomb2.rct.colliderect(beam2.rct):
213                      explosions.append(Explosion(bomb.rct.center)) #爆発追加
214                      bombs[n2]=None
215                      beams[n]=None
216                      bird.change_img(6, screen)

```

```
217         pg.display.update()
218         score.value += 1 # スコアを1点加算
219         beams = [beam for beam in beams if beam is not None]
220         bombs=[bomb for bomb in bombs if bomb is not None]
221
222         new_explosions = []
223         for ex in explosions:
224             if ex.life > 0: # 爆発時間が0以上なら表示
225                 ex.update(screen)
226                 new_explosions.append(ex)
227         explosions = new_explosions # 新しい画像に置き換える
228
229         for bomb in bombs:
230             if bird.rct.colliderect(bomb.rct):
231                 # ゲームオーバー時に、こうかとん画像を切り替え、1秒間表示させる
232                 bird.change_img(8, screen)
233                 fonto = pg.font.Font(None, 80)
234                 txt = fonto.render("Game Over", True, (255, 0, 0))
235                 screen.blit(txt, [WIDTH//2-150, HEIGHT//2])
236
237                 score.update(screen) # スコアの描画
238
239                 pg.display.update()
240                 time.sleep(1)
241                 return
242
243
244
245         key_lst = pg.key.get_pressed()
246         bird.update(key_lst, screen)
247         for i,beam in enumerate(beams):
248             if check_bound(beam.rct)==(False,False): # ビームが存在する時
249                 del beams[i]
250             else:
251                 beam.update(screen)
252         for bomb in bombs:
253             bomb.update(screen)
254         pg.display.update()
255         tmr += 1
256         clock.tick(50)
257
258
259 if __name__ == "__main__":
260     pg.init()
261     main()
262     pg.quit()
263     sys.exit()
```

c0a242882d / ProjExD_3

<> Code

Issues 6

Pull requests

Discussions

Actions

Projects

Wiki

Sec

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#) or [learn more about diff comparisons](#).

base: main

←

compare: issue1

Discuss and review the changes in this comparison with others. [Learn about pull requests](#)

Create pull request

1 commit

1 file changed

1 contributor

Commits on Jun 24, 2025

空白修正 #1

225647b

<>

c0a242882d committed 15 minutes ago





This comparison is taking too long to generate.




Unfortunately it looks like we can't render this comparison for you right now. It might be too big, or there might be something weird with your repository.

You can try running this command locally to see the comparison on your machine:

```
git diff main...issue1
```

Retry

 c0a242882d / ProjExD_3




[Code](#) [Issues](#) **6** [Pull requests](#) [Discussions](#) [Actions](#) [Projects](#) [Wiki](#) [Security](#)

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also

[compare across forks](#) or [learn more about diff comparisons](#).

 base: main  compare: issue2

Discuss and review the changes in this comparison with others. [Learn about pull requests](#)

Create pull request

1 commit

1 file changed

1 contributor

Commits on Jun 24, 2025

空白修正 #1

 c0a242882d committed 16 minutes ago



225647b



Showing 1 changed file with 4 additions and 4 deletions.

Split



Unified




8 fight_kokaton.py		
189	189	bird = Bird((300, 200))
190	190	bomb = Bomb((255, 0, 0), 10)
191	191	score = Score()
192	-	bombs=[] # 爆弾用の空のリスト
193	-	beams=[] # ビーム用のリスト
	192	+ bombs=[] # 爆弾用の空のリスト
	193	+ beams=[] # ビーム用のリスト
194	194	explosions = [] # Explosionインスタンス用の空のリスト
195	195	for _ in range(NUM_OF_BOMBS):
196	196	bombs.append(Bomb((255,0,0),10))
210	210	for n2,bomb2 in enumerate(bombs):
211	211	for n,beam2 in enumerate(beams):
212	212	if bomb2.rct.colliderect(beam2.rct):
213	-	explosions.append(Explosion(bomb.rct.center)) #爆発追加
	213	+ explosions.append(Explosion(bomb.rct.center)) # 爆発追加
214	214	bombs[n2]=None
215	215	beams[n]=None
216	216	bird.change_img(6, screen)
245	245	key_lst = pg.key.get_pressed()
246	246	bird.update(key_lst, screen)
247	247	for i,beam in enumerate(beams):
248	-	if check_bound(beam.rct)==(False,False): # ビームが存在する時
	248	+ if check_bound(beam.rct)==(False,False): # ビームが存在する時
249	249	del beams[i]
250	250	else:

251

251

beam.[update](#)(screen)


 c0a242882d / ProjExD_3




[Code](#) [Issues 6](#) [Pull requests](#) [Discussions](#) [Actions](#) [Projects](#) [Wiki](#) [Security](#)

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#) or [learn more about diff comparisons](#).

 base: main  compare: issue3 


Discuss and review the changes in this comparison with others. [Learn about pull requests](#)

[Create pull request](#) 1 commit 1 file changed 1 contributor Commits on Jun 24, 2025

空白修正 #1

 c0a242882d committed 16 minutes ago

225647b

 Showing 1 changed file with 4 additions and 4 deletions.

Split



Unified




8 fight_kokaton.py		
189	189	bird = Bird((300, 200))
190	190	bomb = Bomb((255, 0, 0), 10)
191	191	score = Score()
192	-	bombs=[] # 爆弾用の空のリスト
193	-	beams=[] # ビーム用のリスト
	192	+ bombs=[] # 爆弾用の空のリスト
	193	+ beams=[] # ビーム用のリスト
194	194	explosions = [] # Explosionインスタンス用の空のリスト
195	195	for _ in range(NUM_OF_BOMBS):
196	196	bombs.append(Bomb((255,0,0),10))
210	210	for n2,bomb2 in enumerate(bombs):
211	211	for n,beam2 in enumerate(beams):
212	212	if bomb2.rct.colliderect(beam2.rct):
213	-	explosions.append(Explosion(bomb.rct.center)) #爆発追加
	213	+ explosions.append(Explosion(bomb.rct.center)) # 爆発追加
214	214	bombs[n2]=None
215	215	beams[n]=None
216	216	bird.change_img(6, screen)
245	245	key_lst = pg.key.get_pressed()
246	246	bird.update(key_lst, screen)
247	247	for i,beam in enumerate(beams):
248	-	if check_bound(beam.rct)==(False,False): # ビームが存在する時
	248	+ if check_bound(beam.rct)==(False,False): # ビームが存在する時
249	249	del beams[i]
250	250	else:

251

251

beam.[update](#)(screen)


 c0a242882d / ProjExD_3



[Code](#) [Issues 6](#) [Pull requests](#) [Discussions](#) [Actions](#) [Projects](#) [Wiki](#) [Security](#)

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#) or [learn more about diff comparisons](#).

 base: main  compare: issue4 


Discuss and review the changes in this comparison with others. [Learn about pull requests](#)


[Create pull request](#) 1 commit 1 file changed 1 contributor Commits on Jun 24, 2025

空白修正 #1

 c0a242882d committed 16 minutes ago

225647b



 Showing 1 changed file with 4 additions and 4 deletions.[Split](#)[Unified](#)




8 fight_kokaton.py 		
189	189	bird = Bird((300, 200))
190	190	bomb = Bomb((255, 0, 0), 10)
191	191	score = Score()
192	-	bombs=[] # 爆弾用の空のリスト
193	-	beams=[] # ビーム用のリスト
	192	+ bombs=[] # 爆弾用の空のリスト
	193	+ beams=[] # ビーム用のリスト
194	194	explosions = [] # Explosionインスタンス用の空のリスト
195	195	for _ in range(NUM_OF_BOMBS):
196	196	bombs.append(Bomb((255,0,0),10))
210	210	for n2,bomb2 in enumerate(bombs):
211	211	for n,beam2 in enumerate(beams):
212	212	if bomb2.rct.colliderect(beam2.rct):
213	-	explosions.append(Explosion(bomb.rct.center)) #爆発追加
	213	+ explosions.append(Explosion(bomb.rct.center)) # 爆発追加
214	214	bombs[n2]=None
215	215	beams[n]=None
216	216	bird.change_img(6, screen)
245	245	key_lst = pg.key.get_pressed()
246	246	bird.update(key_lst, screen)
247	247	for i,beam in enumerate(beams):
248	-	if check_bound(beam.rct)==(False,False): # ビームが存在する時
	248	+ if check_bound(beam.rct)==(False,False): # ビームが存在する時
249	249	del beams[i]
250	250	else:

251

251

beam.[update](#)(screen)


 c0a242882d / ProjExD_3



[Code](#) [Issues 6](#) [Pull requests](#) [Discussions](#) [Actions](#) [Projects](#) [Wiki](#) [Security](#)

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#) or [learn more about diff comparisons](#).

 base: main  compare: issue5


Discuss and review the changes in this comparison with others. [Learn about pull requests](#)

[Create pull request](#) 1 commit 1 file changed 1 contributor Commits on Jun 24, 2025

空白修正 #1

 c0a242882d committed 16 minutes ago

225647b



 Showing 1 changed file with 4 additions and 4 deletions.[Split](#)[Unified](#)




8 fight_kokaton.py		
189	189	bird = Bird((300, 200))
190	190	bomb = Bomb((255, 0, 0), 10)
191	191	score = Score()
192	-	bombs=[] # 爆弾用の空のリスト
193	-	beams=[] # ビーム用のリスト
	192	+ bombs=[] # 爆弾用の空のリスト
	193	+ beams=[] # ビーム用のリスト
194	194	explosions = [] # Explosionインスタンス用の空のリスト
195	195	for _ in range(NUM_OF_BOMBS):
196	196	bombs.append(Bomb((255,0,0),10))
210	210	for n2,bomb2 in enumerate(bombs):
211	211	for n,beam2 in enumerate(beams):
212	212	if bomb2.rct.colliderect(beam2.rct):
213	-	explosions.append(Explosion(bomb.rct.center)) #爆発追加
	213	+ explosions.append(Explosion(bomb.rct.center)) # 爆発追加
214	214	bombs[n2]=None
215	215	beams[n]=None
216	216	bird.change_img(6, screen)
245	245	key_lst = pg.key.get_pressed()
246	246	bird.update(key_lst, screen)
247	247	for i,beam in enumerate(beams):
248	-	if check_bound(beam.rct)==(False,False): # ビームが存在する時
	248	+ if check_bound(beam.rct)==(False,False): # ビームが存在する時
249	249	del beams[i]
250	250	else:

251

251

beam.[update](#)(screen)

 c0a242882d / ProjExD_3



[Code](#) [Issues 6](#) [Pull requests](#) [Discussions](#) [Actions](#) [Projects](#) [Wiki](#) [Security](#)

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#) or [learn more about diff comparisons](#).

 base: main  compare: issue6


Discuss and review the changes in this comparison with others. [Learn about pull requests](#)

[Create pull request](#) 1 commit 1 file changed 1 contributor Commits on Jun 24, 2025

空白修正 #1

 c0a242882d committed 17 minutes ago

225647b

 Showing 1 changed file with 4 additions and 4 deletions.

Split

Unified

8 fight_kokaton.py		
189	189	bird = Bird((300, 200))
190	190	bomb = Bomb((255, 0, 0), 10)
191	191	score = Score()
192	-	bombs=[] # 爆弾用の空のリスト
193	-	beams=[] # ビーム用のリスト
	192	+ bombs=[] # 爆弾用の空のリスト
	193	+ beams=[] # ビーム用のリスト
194	194	explosions = [] # Explosionインスタンス用の空のリスト
195	195	for _ in range(NUM_OF_BOMBS):
196	196	bombs.append(Bomb((255,0,0),10))
210	210	for n2,bomb2 in enumerate(bombs):
211	211	for n,beam2 in enumerate(beams):
212	212	if bomb2.rct.colliderect(beam2.rct):
213	-	explosions.append(Explosion(bomb.rct.center)) #爆発追加
	213	+ explosions.append(Explosion(bomb.rct.center)) # 爆発追加
214	214	bombs[n2]=None
215	215	beams[n]=None
216	216	bird.change_img(6, screen)
245	245	key_lst = pg.key.get_pressed()
246	246	bird.update(key_lst, screen)
247	247	for i,beam in enumerate(beams):
248	-	if check_bound(beam.rct)==(False,False): # ビームが存在する時
	248	+ if check_bound(beam.rct)==(False,False): # ビームが存在する時
249	249	del beams[i]
250	250	else:

251

251

beam.[update](#)(screen)