

Entities.py

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1  # All entity classes in the game
2  #
3  # Author: Noah Teglskov
4
5  import pygame
6  from random import randint
7
8  # Global Static Variables
9  TILE_SIZE:int    = 40
10 WIDTH:int        = 17
11 HEIGHT:int       = 17
12
13 all_bodies = []
14 class Apple:
15     def __init__(self, x,y):
16         self.x = x
17         self.y = y
18     def __eq__(self, other):
19         try:
20             return self.x == other.x and self.y == other.y
21         except AttributeError as e:
22             return False
23     def render(self, screen, pg:pygame):
24         pg.draw.rect(screen, (255,105,97), pygame.Rect(self.x * TILE_SIZE, self.y *
TILE_SIZE, TILE_SIZE, TILE_SIZE))
25
26     def new_position(self):
27         legal = False
28         while not legal:
29             x = randint(0,WIDTH-1);y=randint(0,HEIGHT-1)
30             for body in all_bodies:
31                 if body.x == x and body.y == y:
32                     break
33             else:
34                 legal = True
35         self.x = x;self.y = y
36
37 class Body:
38     def __init__(self, x,y, prev:any,next:bool,player):
39         self.player = player
40         self.previous = prev
41         self.idx = prev.idx+1
42         self.x = x;self.y = y
43         if next:
44             next -= 1
45             self.next = Body(x+1,y,self,next,self.player)
46         all_bodies.append(self)
47
48     def debug(self):
49         return (f"Idx({self.idx}) - x:{self.x}, y:{self.y}")
50
51     def update(self):
52         self.x = self.previous.x;self.y = self.previous.y
53
54     def render(self, screen, pg:pygame):
55         pg.draw.rect(screen, self.player.colour, pygame.Rect(self.x * TILE_SIZE, self.y *
TILE_SIZE, TILE_SIZE, TILE_SIZE))

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56     #pg.draw.rect(screen, self.player.colour, pygame.Rect(self.x * TILE_SIZE+2, self.y
* TILE_SIZE+2, TILE_SIZE-4, TILE_SIZE-4))
57
58
59 class Head:
60     def __init__(self,x,y,length:int,player):
61         self.x = x;self.y = y
62         self.player = player
63         self.idx = 0
64         self.previous = False
65         length -= 1
66         if length:
67             self.next = Body(x+1,y,self,length,self.player)
68         all_bodies.append(self)
69
70     def debug(self):
71         return f"Head - x:{self.x}, y:{self.y}"
72
73     def update(self):
74         if 'x' in self.player.direction:
75             self.x += 1 if '+' in self.player.direction else -1
76             self.x = 0 if self.x > WIDTH-1 else self.x
77             self.x = WIDTH-1 if self.x < 0 else self.x
78         if 'y' in self.player.direction:
79             self.y += 1 if '+' in self.player.direction else -1
80             self.y = 0 if self.y > HEIGHT-1 else self.y
81             self.y = HEIGHT-1 if self.y < 0 else self.y
82
83
84         if any([(body.x == self.x and body.y == self.y and self != body) for body in
all_bodies]):
85             self.player.kill()
86     def render(self, screen, pg:pygame):
87         pg.draw.rect(screen, (min(round(self.player.colour[0]*1.3),255),
88                                 min(round(self.player.colour[1]*1.3),255),
89                                 min(round(self.player.colour[2]*1.3),255)),
90                     pygame.Rect(self.x * TILE_SIZE, self.y * TILE_SIZE, TILE_SIZE, TILE_SIZE))
91
92
93
94 class Player:
95     def __init__(self, start_x:int, start_y:int, colour, initial_length:int = 3):
96         self.alive = True
97         self.colour = colour
98         self.x:int = start_x ; self.y:int = start_y
99         self.direction = "+y"
100        self.length:int = initial_length
101        self.head:Head = Head(start_x,start_y,initial_length,self)
102        self.tail:Body = self.head.next.next.next
103        self.hasEaten = False
104
105    def update(self):
106        if not self.alive: return
107        prev = self.tail
108        if self.hasEaten:
109            newTail = Body(prev.x,prev.y,prev,False,self)
110            prev.next = newTail;self.tail = newTail
111            newTail.update();self.hasEaten = False
112        while prev:prev.update();prev = prev.previous
113

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114     #def render(self, screen, pg):
115     #     prev = self.tail
116     #     while prev: prev.render(self.colour, screen, pg);prev = prev.previous
117
118     def kill(self):
119         print("You died")
120         self.alive = False
121
122     def eat(self):
123         self.hasEaten = True
124
125
126 #all_bodies.append(Head(0,0,1,False))
127
128 #player = Player(3,0)
129
130
131
132
```