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import pygame
pygame.font.init()
1 Window = pygame.display.set_mode((500, 500))
2 pygame.display.set_caption("SUDOKU GAME by DataFlair")
3 x = 0
4 z = 0
5 diff = 500 / 9
6 value= 0
7 defaultgrid =[
8     [0, 0, 4, 0, 6, 0, 0, 0, 5],
9     [7, 8, 0, 4, 0, 0, 0, 2, 0],
10    [0, 0, 2, 6, 0, 1, 0, 7, 8],
11    [6, 1, 0, 0, 7, 5, 0, 0, 9],
12    [0, 0, 7, 5, 4, 0, 0, 6, 1],
13    [0, 0, 1, 7, 5, 0, 9, 3, 0],
14    [0, 7, 0, 3, 0, 0, 0, 1, 0],
15    [0, 4, 0, 2, 0, 6, 0, 0, 7],
16    [0, 2, 0, 0, 0, 7, 4, 0, 0],
17 ]
18
19
20 font = pygame.font.SysFont("comicsans", 27)
21 font1 = pygame.font.SysFont("comicsans", 19)
22 def cord(pos):
23     global x
24     x = pos[0]//diff
25     global z
26     z = pos[1]//diff
27
28 def highlightbox():
29     for k in range(2):
30         pygame.draw.line(Window, (0, 0, 0), (x * diff-3, (z + k)*diff), (x * diff + diff + 3, (z + k)*diff), 7)
31         pygame.draw.line(Window, (0, 0, 0), ((x + k)* diff, z * diff), ((x + k) * diff, z * diff + diff), 7)
32
33 def drawlines():
34     for i in range (9):
35         for j in range (9):
36             if defaultgrid[i][j]!= 0:
37                 pygame.draw.rect(Window, (255, 255, 0), (i * diff, j * diff, diff + 1, diff + 1))
38                 text1 = font.render(str(defaultgrid[i][j]), 1, (0, 0, 0))
39                 Window.blit(text1, (i * diff + 15, j * diff + 15))
40     for l in range(10):
41         if l % 3 == 0 :
42             thick = 7
43         else:
44             thick = 1
45         pygame.draw.line(Window, (0, 0, 0), (0, l * diff), (500, l * diff), thick)
46         pygame.draw.line(Window, (0, 0, 0), (l * diff, 0), (l * diff, 500), thick)
47
48
49 def fillvalue(value):
50     text1 = font.render(str(value), 1, (0, 0, 0))
51     Window.blit(text1, (x * diff + 15, z * diff + 15))
52
53
54 def raiseerror():
55     text1 = font.render("wrong!", 1, (0, 0, 0))
56     Window.blit(text1, (20, 570))
57 def raiseerror1():
58     text1 = font.render("wrong ! enter a valid key for the game", 1, (0, 0, 0))
59     Window.blit(text1, (20, 570))
60
61
62 def validvalue(m, k, l, value):
63     for it in range(9):
64         if m[k][it]== value:

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65         return False
66     if m[it][l]== value:
67         return False
68     it = k//3
69     jt = l//3
70     for k in range(it * 3, it * 3 + 3):
71         for l in range (jt * 3, jt * 3 + 3):
72             if m[k][l]== value:
73                 return False
74     return True
75 def solvegame(defaultgrid, i, j):
76
77     while defaultgrid[i][j]!= 0:
78         if i<8:
79             i+= 1
80         elif i == 8 and j<8:
81             i = 0
82             j+= 1
83         elif i == 8 and j == 8:
84             return True
85
86 pygame.event.pump()
87 for it in range(1, 10):
88     if validvalue(defaultgrid, i, j, it)== True:
89         defaultgrid[i][j]= it
90         global x, z
91         x = i
92         z = j
93         Window.fill((255, 255, 255))
94         drawlines()
95         highlightbox()
96         pygame.display.update()
97         pygame.time.delay(20)
98         if solvegame(defaultgrid, i, j)== 1:
99             return True
100     else:
101         defaultgrid[i][j]= 0
102         Window.fill((0,0,0))
103
104         drawlines()
105         highlightbox()
106         pygame.display.update()
107         pygame.time.delay(50)
108     return False
109 def gameresult():
110     text1 = font.render("game finished", 1, (0, 0, 0))
111     Window.blit(text1, (20, 570))
112 flag=True
113 flag1 = 0
114 flag2 = 0
115 rs = 0
116 error = 0
117 while flag:
118     Window.fill((255,182,193))
119     for event in pygame.event.get():
120         if event.type == pygame.QUIT:
121             flag = False
122         if event.type == pygame.MOUSEBUTTONDOWN:
123             flag1 = 1
124             pos = pygame.mouse.get_pos()
125             cord(pos)
126         if event.type == pygame.KEYDOWN:
127             if event.key == pygame.K_LEFT:
128                 x-= 1
129                 flag1 = 1
130             if event.key == pygame.K_RIGHT:

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132         x+= 1
133         flag1 = 1
134     if event.key == pygame.K_UP:
135         y-= 1
136         flag1 = 1
137     if event.key == pygame.K_DOWN:
138         y+= 1
139         flag1 = 1
140     if event.key == pygame.K_1:
141         value = 1
142     if event.key == pygame.K_2:
143         value = 2
144     if event.key == pygame.K_3:
145         value = 3
146     if event.key == pygame.K_4:
147         value = 4
148     if event.key == pygame.K_5:
149         value = 5
150     if event.key == pygame.K_6:
151         value = 6
152     if event.key == pygame.K_7:
153         value = 7
154     if event.key == pygame.K_8:
155         value = 8
156     if event.key == pygame.K_9:
157         value = 9
158     if event.key == pygame.K_RETURN:
159         flag2 = 1
160     if event.key == pygame.K_r:
161         rs = 0
162         error = 0
163         flag2 = 0
164         defaultgrid=[
165             [0, 0, 0, 0, 0, 0, 0, 0, 0],
166             [0, 0, 0, 0, 0, 0, 0, 0, 0],
167             [0, 0, 0, 0, 0, 0, 0, 0, 0],
168             [0, 0, 0, 0, 0, 0, 0, 0, 0],
169             [0, 0, 0, 0, 0, 0, 0, 0, 0],
170             [0, 0, 0, 0, 0, 0, 0, 0, 0],
171             [0, 0, 0, 0, 0, 0, 0, 0, 0],
172             [0, 0, 0, 0, 0, 0, 0, 0, 0],
173             [0, 0, 0, 0, 0, 0, 0, 0, 0],
174             [0, 0, 0, 0, 0, 0, 0, 0, 0]
175         ]
176     if event.key == pygame.K_d:
177         rs = 0
178         error = 0
179         flag2 = 0
180         defaultgrid =[
181             [0, 0, 4, 0, 6, 0, 0, 0, 5],
182             [7, 8, 0, 4, 0, 0, 0, 2, 0],
183             [0, 0, 2, 6, 0, 1, 0, 7, 8],
184             [6, 1, 0, 0, 7, 5, 0, 0, 9],
185             [0, 0, 7, 5, 4, 0, 0, 6, 1],
186             [0, 0, 1, 7, 5, 0, 9, 3, 0],
187             [0, 7, 0, 3, 0, 0, 0, 1, 0],
188             [0, 4, 0, 2, 0, 6, 0, 0, 7],
189             [0, 2, 0, 0, 0, 7, 4, 0, 0],
190         ]
191     if flag2 == 1:
192         if solvegame(defaultgrid , 0, 0)== False:
193             error = 1
194         else:
195             rs = 1
196             flag2 = 0
197     if value != 0:
198         fillvalue(value)

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199     if validvalue(defaultgrid , int(x), int(z), value)== True:
200         defaultgrid[int(x)][int(z)]= value
201         flag1 = 0
202     else:
203         defaultgrid[int(x)][int(z)]= 0
204         raiseerror1()
205     value = 0
206
207     if error == 1:
208         raiseerror()
209     if rs == 1:
210         gameresult()
211     drawlines()
212     if flag1 == 1:
213         highlightbox()
214     pygame.display.update()

pygame.quit()
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