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1 """
2 This program creates a game of rock, paper, scissors where the
3 player plays against the computer. It records the scores of both
4 and prints them.
5 """
6
7 #Sets the size of the canvas
8 set_size(400, 400)
9
10 #Creates a function that creates the background of the canvas
11 def background():
12     background1 = Rectangle(400, 400)
13     background1.set_position(0, 0)
14     background1.set_color(Color.green)
15     add(background1)
16
17 #Creates a function that creates an image of the rock
18 def rockimage():
19     rockimg = Circle(30)
20     rockimg.set_position(75, 300)
21     rockimg.set_color(Color.gray)
22     add(rockimg)
23
24 #Creates a function that creates text that appears below the rock
25 def rocktext():
26     rocktxt = Text("ROCK")
27     rocktxt.set_position(50, 360)
28     rocktxt.set_color(Color.black)
29     rocktxt.set_font("12pt Arial")
30     add(rocktxt)
31
32 #Creates a function that creates an image of the paper
33 def paperimage():
34     paperimg = Rectangle(60, 75)
35     paperimg.set_position(175, 250)
36     paperimg.set_color(Color.white)
37     add(paperimg)
38
39 #Creates a function that creates the text that appears below the paper
40 def papertext():
41     papertxt = Text("PAPER")
42     papertxt.set_position(180, 360)

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43     papertxt.set_color(Color.black)
44     papertxt.set_font("12pt Arial")
45     add(papertxt)
46
47 #Creates a function that creates an image of the scissors
48 def scissorsimg():
49     scissorsimg1 = Text("V")
50     scissorsimg1.set_position(310, 300)
51     scissorsimg1.set_color(Color.black)
52     scissorsimg1.set_font("55pt Arial")
53     add(scissorsimg1)
54     scissorsimg2a = Circle(15)
55     scissorsimg2a.set_position(330, 313)
56     scissorsimg2a.set_color(Color.red)
57     add(scissorsimg2a)
58     scissorsimg3a = Circle(15)
59     scissorsimg3a.set_position(340, 313)
60     scissorsimg3a.set_color(Color.red)
61     add(scissorsimg3a)
62     scissorsimg2b = Circle(5)
63     scissorsimg2b.set_position(328, 313)
64     scissorsimg2b.set_color(Color.green)
65     add(scissorsimg2b)
66     scissorsimg3b = Circle(5)
67     scissorsimg3b.set_position(342, 313)
68     scissorsimg3b.set_color(Color.green)
69     add(scissorsimg3b)
70
71 #Creates a function that creates the text that appears below the scissors
72 def scissorstxt():
73     scissorstxt = Text("SCISSORS")
74     scissorstxt.set_position(290, 360)
75     scissorstxt.set_color(Color.black)
76     scissorstxt.set_font("12pt Arial")
77     add(scissorstxt)
78
79 #Creates a function that creates the background of the text that appears at the top
80 def titlebackground():
81     greenbackground = Rectangle(270, 180)
82     greenbackground.set_position(75, 70)
83     greenbackground.set_color(Color.green)
84     add(greenbackground)

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85     background2 = Rectangle(250, 120)
86     background2.set_position(75, 70)
87     background2.set_color(Color.orange)
88     add(background2)
89     background2a = Circle(13)
90     background2a.set_position(75, 70)
91     background2a.set_color(Color.green)
92     add(background2a)
93     background2b = Circle(13)
94     background2b.set_position(75, 190)
95     background2b.set_color(Color.green)
96     add(background2b)
97     background2c = Circle(13)
98     background2c.set_position(325, 70)
99     background2c.set_color(Color.green)
100    add(background2c)
101    background2d = Circle(13)
102    background2d.set_position(325, 190)
103    background2d.set_color(Color.green)
104    add(background2d)
105
106    #Creates a function that creates the text that appears at the top
107    def titletext():
108        titletxt1 = Text("ROCK")
109        titletxt1.set_position(90, 105)
110        titletxt1.set_color(Color.black)
111        titletxt1.set_font("30pt Impact")
112        add(titletxt1)
113        titletxt2 = Text("PAPER")
114        titletxt2.set_position(90, 145)
115        titletxt2.set_color(Color.black)
116        titletxt2.set_font("30pt Impact")
117        add(titletxt2)
118        titletxt3 = Text("SCISSORS")
119        titletxt3.set_position(89, 185)
120        titletxt3.set_color(Color.black)
121        titletxt3.set_font("30pt Impact")
122        add(titletxt3)
123        titletxt4 = Text("vs. The")
124        titletxt4.set_position(250, 110)
125        titletxt4.set_color(Color.black)
126        titletxt4.set_font("12pt Impact")

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127     add(titletxt4)
128     titletxt5 = Text("Computer")
129     titletxt5.set_position(250, 130)
130     titletxt5.set_color(Color.black)
131     titletxt5.set_font("12pt Impact")
132     add(titletxt5)
133     titletxt6 = Text("Choose an Option")
134     titletxt6.set_position(130, 220)
135     titletxt6.set_color(Color.black)
136     titletxt6.set_font("15pt Impact")
137     add(titletxt6)
138
139 #Creates a function to create the whole initial visualization
140 def visualization():
141     background()
142     rockimage()
143     rocktext()
144     paperimage()
145     papertext()
146     scissorsimage()
147     scissorstext()
148     titlebackground()
149     titletext()
150
151 #Creates a function that creates the visualization that appears when you win
152 def win(computer_choice):
153     titlebackground()
154     wintxt = Text("YOU WIN!")
155     wintxt.set_position(77, 150)
156     wintxt.set_color(Color.black)
157     wintxt.set_font("40pt Impact")
158     add(wintxt)
159     compchoicetxt = Text(" The Computer chose: " + computer_choice.upper())
160     compchoicetxt.set_position(65, 220)
161     compchoicetxt.set_color(Color.black)
162     compchoicetxt.set_font("15pt Impact")
163     add(compchoicetxt)
164
165 #Creates a function that creates the visualization that appears when you lose
166 def loss(computer_choice):
167     titlebackground()
168     wintxt = Text("YOU LOSE!")

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169     wintxt.set_position(78, 150)
170     wintxt.set_color(Color.black)
171     wintxt.set_font("35pt Impact")
172     add(wintxt)
173     compchoicetxt = Text(" The Computer chose: " + computer_choice.upper())
174     compchoicetxt.set_position(65, 220)
175     compchoicetxt.set_color(Color.black)
176     compchoicetxt.set_font("15pt Impact")
177     add(compchoicetxt)
178
179 #Creates a function that creates the visualization that appears when you tie
180 def tie(computer_choice):
181     titlebackground()
182     tietxt = Text("YOU TIE!")
183     tietxt.set_position(80, 150)
184     tietxt.set_color(Color.black)
185     tietxt.set_font("40pt Impact")
186     add(tietxt)
187     compchoicetxt = Text(" The Computer chose: " + computer_choice.upper())
188     compchoicetxt.set_position(65, 220)
189     compchoicetxt.set_color(Color.black)
190     compchoicetxt.set_font("15pt Impact")
191     add(compchoicetxt)
192
193 #Formats the win/loss counters: player's score/computer's score
194 score = [0, 0]
195
196 #Function to determine who wins based off of the player and computer's choice
197 def determine_winner(player_choice, computer_choice):
198     global score
199
200     if player_choice == computer_choice:
201         return "Tie"
202     elif(
203         (player_choice == "rock" and computer_choice == "scissors") or
204         (player_choice == "paper" and computer_choice == "rock") or
205         (player_choice == "scissors" and computer_choice == "paper")
206     ):
207         score[0] += 1
208         return "Player"
209     else:
210         score[1] += 1

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211         return "Computer"
212
213 #Function to handle mouse clicks for each choice
214 def click(x, y):
215     if x >= 30 and x <= 120 and y >= 250 and y <= 380:
216         player_click = "rock"
217     elif x >= 155 and x <= 245 and y >= 250 and y <= 380:
218         player_click = "paper"
219     elif x >= 280 and x <= 370 and y >= 250 and y <= 380:
220         player_click = "scissors"
221     computer_choice = random.choice(["rock", "paper", "scissors"])
222     result = determine_winner(player_click, computer_choice)
223     if result == "Player":
224         win(computer_choice)
225     elif result == "Computer":
226         loss(computer_choice)
227     elif result == "Tie":
228         tie(computer_choice)
229
230     #Prints the player and computer's scores after each click
231     print("-----")
232     print("Player Score:", score[0])
233     print("Computer Score:", score[1])
234
235 add_mouse_click_handler(click)
236
237 #Program functioning
238 visualization()

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