e9295d19-90d9-42f4-af3c-fa5b0e469c14 | CMU CS Academy

```
1  app.background='lightBlue'
2  hardButton=Rect(10,10,70,20,fill='red',border='black')
3  hardButtonLabel=Label('WIND',45,20,bold=True)
4
5  #making nature background
6  bigBush=Star(25,175,50,6,fill='forestGreen',roundness=80)
7  smallBush=Star(70,180,40,6,fill='darkGreen',roundness=80)
8  boulder=Polygon(275,195,315,170,325,150,340,115,400,110,400,195,fill='tan')
9  grass=Rect(0,195,400,155, fill='paleGreen')
10 clouds=Group(Circle(65,70,30,fill='white'),
11     Circle(100,75,20,fill='white'),
12     Circle(30,75,20,fill='white'),
13     Circle(340,30,30,fill='white'),
14     Circle(375,35,20,fill='white'),
15     Circle(305,35,20,fill='white'),
16     )
17
18 #making sun, scorebar, and day counter at the bottom
19 bottomPart=Rect(0,348,400,52,fill='white',border='black')
20 greenBar=Rect(10,365,150,20,fill="limeGreen")
21 clearBar=Rect(10,365,150,20,fill=None,border='black')
22 day=Label(0,290,375,size=30)
23 dayFront=Label("DAYS:",255,375,bold=True)
24 score=Label(0,375,375,size=30)
25 scoreFront=Label("SCORE:",335,375,bold=True)
26 sun=Circle(345,40,30,fill=gradient('gold',"yellow"),border='gold',borderWidth=1)
27
28 #making the flower
29 flowerStem=Line(200,210,200,310,lineWidth=5,fill='green')
30 flowerPetals=Group(
31     Oval(200,210,30,100,fill='pink'),
32     Oval(200,210,100,30,fill='pink'),
33     Oval(200,210,30,100,rotateAngle=45,fill='pink'),
34     Oval(200,210,30,100,rotateAngle=315,fill='pink'))
35
36 #making pop-ups for when before game is started and when it ends
37 gameOverLabel = Label('TAP SPACE TO WATER FLOWER', 200, 200, size=12, bold=True)
38 gameOverGroup = Group(
39     Rect(200, 210, 200, 60, fill='white', align='center',border='black'),
40     gameOverLabel,
41     Label('Press space to continue!', 200, 225)
42     )
43
44 #making showerhead
45 showerHead=Group(
46     Line(200,0,200,60,fill='grey',lineWidth=15),
47     Line(150,60,250,60,fill='grey',lineWidth=20),
48     Circle(175,70,5,fill='darkGrey'),
49     Circle(200,70,5,fill='darkGrey'),
50     Circle(225,70,5,fill='darkGrey'),
51     )
52
53 #making showerdrops for the showerhead
```

```python
54 showerDrops=Group()
55 def drawShowerDrop(x,y):
56     showerDrop=Group(
57         Circle(115, 90,5,fill='blue'),
58         Circle(140,90,5,fill='blue'),
59         Circle(165,90,5,fill='blue'),
60         )
61     showerDrop.centerX=x
62     showerDrop.centerY=y
63     showerDrops.add(showerDrop)
64 #to make half of the showerdrops dark blue
65     for showerDrop in showerDrops.children:
66         if(x%2)==1:
67             showerDrop.fill='darkblue'
68
69 #making the showerdrops
70 drawShowerDrop(191,100)
71 drawShowerDrop(191,140)
72 drawShowerDrop(191,180)
73 drawShowerDrop(191,220)
74 drawShowerDrop(191,260)
75 drawShowerDrop(191,300)
76 drawShowerDrop(200,120)
77 drawShowerDrop(200,160)
78 drawShowerDrop(200,200)
79 drawShowerDrop(200,240)
80 drawShowerDrop(200,280)
81 showerDrops.visible=False
82
83 def hardLevel(makeGameHarder):
84 #making it so that when the game becomes harder, the shower drops become misaligned
   with the showerhead
85     if (makeGameHarder==True):
86         hardButton.fill='green'
87         for showerDrop in showerDrops.children:
88             if(showerDrop.fill=='darkblue'):
89                 showerDrop.centerX=showerHead.centerX+30
90             else:
91                 showerDrop.centerX=showerHead.centerX+40
92     if (makeGameHarder==False):
93 #making it so that when the game is not supposed to be harder, the shower drops are
   returned to their orignal position
94         hardButton.fill='red'
95         for showerDrop in showerDrops.children:
96             if(showerDrop.fill=='darkblue'):
97                 showerDrop.centerX=showerHead.centerX-10
98             else:
99                 showerDrop.centerX=showerHead.centerX
100
101 #restarts the game once it is over
102 def restartGame():
103     app.stepsPerSecond = 30
104     greenBar.width=150
105     score.value=0
106     day.value=0
107
```

```
108 #displays a message based on wether or not you won and turns off hard level so the n
    ext game is back at base level
109 def gameMessage(win):
110     if(win==True):
111         gameOverLabel.value = 'GAME WON!'
112         hardLevel(False)
113     if(win==False):
114         gameOverLabel.value ='YOU LOST!'
115         hardLevel(False)
116     gameOverGroup.visible = True
117
118 def onKeyPress(key):
119 #if the space key is pressed, the showerdops will be visible and start message will
    disapper
120     if (key=='space'):
121         showerDrops.visible=True
122         gameOverGroup.visible=False
123 #if the shower drops hit the flowers, the score goes up by one and the score bar elo
    ngates
124     if(showerDrops.hitsShape(flowerPetals)):
125         score.value+=1
126         greenBar.width+=20
127
128 #when key is not presses,the showerdrops stop falling
129 def onKeyRelease(key):
130     showerDrops.visible=False
131
132 def onStep():
133 #makes sun move
134     sun.centerX-=1
135 #makes the score bar decrease, flower move, and shower move when the game message di
    sappers because game has started
136     if(gameOverGroup.visible==False):
137         greenBar.width-=0.3
138         flowerPetals.centerX-=5
139         flowerStem.centerX-=5
140         showerHead.centerX+=5
141         showerDrops.centerX+=5
142 #makes everything that is moving goes back to the other side once it moves out of fr
    ame
143     if(showerDrops.centerX>=470):
144         showerDrops.centerX-=470
145     if(showerHead.centerX>=470):
146         showerHead.centerX-=470
147     if(flowerPetals.centerX<=-55):
148         flowerPetals.centerX=400
149         flowerStem.centerX=400
150     if(sun.centerX==-30):
151         sun.centerX=400
152         day.value+=1
153 #makes it so that when score of 10 is reached, the hard level is activated
154     if(score.value>=10):
155         hardLevel(True)
156 #makes it so that when score of 20 is reached, game is won and game is restarted
157     if(score.value>=20):
158         gameMessage(True)
159         restartGame()
```

```python
160    #makes it so that when score bar is or above 40, flower looks healthy and scorebar i
       s green
161        if(greenBar.width>=40):
162            greenBar.fill='limeGreen'
163            flowerPetals.fill="pink"
164    #makes it so that when score bar is below 40, flower looks unhealthy and scorebar is
       red
165        if(greenBar.width<=40):
166            greenBar.fill='red'
167            flowerPetals.fill="grey"
168 #makes it so that when scorebar is below 5, game is lost and restarted
169        if(greenBar.width<=5):
170            gameMessage(False)
171            restartGame()
172 #makes sure green bar doesn't get too long
173        if(greenBar.width>=151):
174            greenBar.width=150
175        for showerDrop in showerDrops.children:
176 #makes it so that showerdrops move when they are visible
177            if(showerDrop.visible==True):
178                showerDrop.centerY+=1
179 #makes it so that showerdrops return to other side once out of frame
180            if(showerDrop.centerY==300):
181                showerDrop.centerY=80
```