Tutors Only

Extension: Play Again!

Making a play again button for on our game over screen

Task 1.1: The button

Let's make a button for the player to click!

1. Make a rectangle variable and set it to a height, width and position where you want it to be.

2. In your draw function, draw the rectangle with whatever colour you want it to be

Hint

To set up a rectangle you need code that looks like this:

```
myRect = Rect((x,y),(width,height))
```

To then draw that to the screen you need code that looks like:

```
screen.draw.filled_rect(myRect,(r,g,b))
```

Task 1.2: Adding some text

Now we need the button to say something like `"Play again?"`

1. In your draw function, directly under where you've drawn the rectangle onto the screen, draw some text to the screen in the middle of the button that says something like play again?.

2. To make this text centered on the button make the x value the button's x value plus half its height and the y value the button's y value plus half its width

Hint

To write text onto the screen you need code that looks like this:

```
screen.draw.text("My text",center = (x,y) color = (r,g,b))
```

Task 1.3: Testing for clicks!

Now that you're displaying a button you need to test if it has been clicked.

1. Go to your on_mouse_down() function
2. You need to put what's called a "parameter" inside the two brackets. It needs to be called `pos`
3. Then inside the function you need an if statement to check whether pos is inside the button rectangle. If it is you should reset all of the values that we originally set at the beginning of the game. This includes bird's x and y values, all the pipe's x and y values, gameOver, and score, and any other values that need to be reset after a game.

Hint

To check if a point is inside a rectangle you need to use this code:

```
if myRect.collidepoint(pos):
```

★ BONUS 1.4: Pretty buttons!

Waiting for the next lecture? Try adding this bonus feature!!

Now that you've gotten the basic button code working, you can play around with it to make it look better. For this you could work with colours or the text. You could also experiment with making the button an image.

★ BONUS 1.5: Pretty code

Waiting for the next lecture? Try adding this bonus feature!!

Now that you have a button and it resets the game when clicked, let's make a function so that its easier to read.

1. Make a new function called restart()

2. Copy everything that you reset from your on_mouse_down() function into this new function

3. In the section where you were resetting all of those values, call the restart() function

TUTOR TIPS

The code should look like this:

```
# <The student's name>
# start modules
import pgzrun
import sys
from random import *

# create constants
WIDTH = 800
HEIGHT = 600
score = 0
gap = 210
gameOver = False
button = Rect((150,375),(500,100))

# print welcome
print("The game is about to start!")
print('Click the mouse to "flap" upwards')
print("Dodge the pipes and the floor")
print("Good luck and have fun!")

# make background
background = Actor("bg")
background.x = 400
background.y = 300

# make bird
bird = Actor("bird")
bird.x = 160
bird.y = 300

# make pipes
pipes = []

genY1 = randint(155,445)
topPipe1 = Actor("top")
topPipe1.x = 266
```

```
topPipe1.y = genY1 - (300 + (gap//2))
pipes.append(topPipe1)
bottomPipe1 = Actor("bottom")
bottomPipe1.x = 266
bottomPipe1.y = genY1 + 300 (gap//2)
pipes.append(bottomPipe1)

genY2 = randint(155,445)
topPipe2 = Actor("top")
topPipe2.x = 532
topPipe2.y = genY2 - (300 + (gap//2))
pipes.append(topPipe2)
bottomPipe2 = Actor("bottom")
bottomPipe2.x = 532
bottomPipe2.y = genY2 + 300 + (gap//2)
pipes.append(bottomPipe2)

genY3 = randint(155,445)
topPipe3 = Actor("top")
topPipe3.x = 798
topPipe3.y = genY3 - (300 + (gap//2))
pipes.append(topPipe3)
bottomPipe3 = Actor("bottom")
bottomPipe3.x = 798
bottomPipe3.y = genY3 + 300 + (gap//2)
pipes.append(bottomPipe3)

# draw everything to screen
def draw():
    if gameOver == True:
        screen.fill((0,0,0))
        screen.draw.text(f“Game Over!\n Your score was {score}”, center
= (400,300), fontsize = 60)
        screen.draw.filled_rect(button,(255,0,0))
        screen.draw.text(“Play again?”, center = (400,425), fontsize =
60)
    else:
        # draw background
        background.draw()
    # draw characters
        bird.draw()

        for pipe in pipes:
            pipe.draw()

# update everything
```

```
def update():
    global score, gameOver
    if gameOver == False:
        # update bird
        bird.y = bird.y + 1
        # update pipes
        genY = randint(155,445)
        for pipe in pipes:
            pipe.x = pipe.x - 1
            if pipe.x < - 44:
                pipe.x = WIDTH
                if pipe.image == “top”:
                    score = score + 1
                    pipe.y = genY - (300 + (gap//2))
                else:
                    pipe.y = genY + 300 + (gap//2)

        # bird hits bottom of screen
        if bird.y > HEIGHT:
            print("Game Over!")
            print(f"Your score was {score}")
            gameOver = True

        # bird hits pipes
        for pipe in pipes:
            if bird.colliderect(pipe):
                print("Game Over!")
                print(f"Your score was {score}")
                gameOver = True

# moving
def on_mouse_down(pos):
    global score, gameOver, pipes
    if gameOver == True:
        if button.collidepoint(pos):
            score = 0
            gameOver = False

            bird.y = 300

            genY1 = randint(155,445)
            topPipe1.x = 266
            topPipe1.y = genY1 - (300+(gap//2))
            bottomPipe1.x = 266
            bottomPipe1.y = genY1 + 300 + (gap//2)
```

```
            genY2 = randint(155,445)
            topPipe2.x = 545
            topPipe2.y = genY2 - (300+(gap//2))
            bottomPipe2.x = 545
            bottomPipe2.y = genY2 + 300 + (gap//2)


            genY3 = randint(155,445)
            topPipe3.x = 810
            topPipe3.y = genY3 - (300+(gap//2))
            bottomPipe3.x = 810
            bottomPipe3.y = genY3 + 300 + (gap//2)

            pipes=[topPipe1,bottomPipe1,topPipe2,bottomPipe2,
topPipe3,bottomPipe3]
    else:
        bird.y = bird.y - 50

# runs everything
pgzrun.go()
```