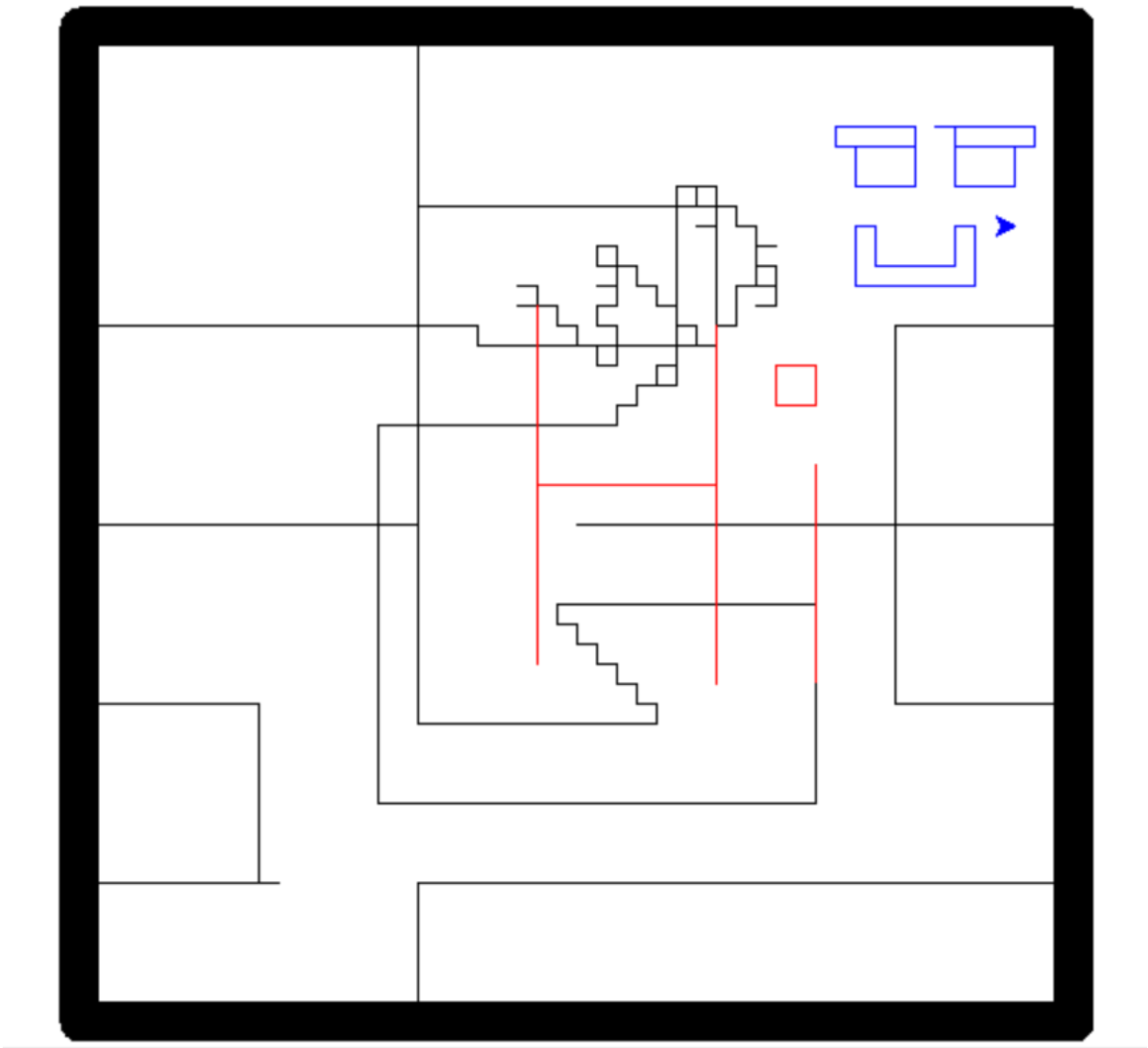


Etch A Sketch Project!

WALKTHROUGH VIDEO

Step 0. Create a new file [1:09 in video]

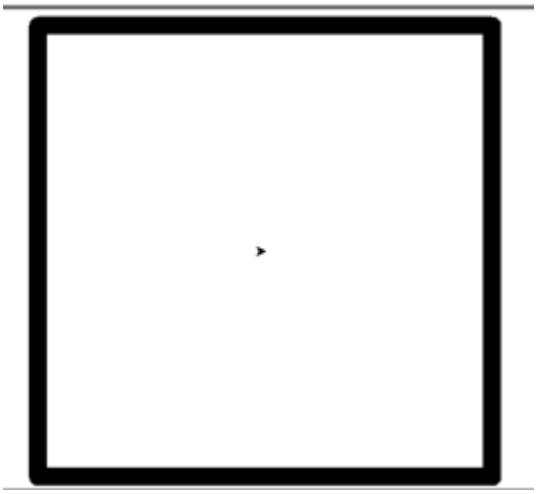
- On the computer, open up Virtual Studio Code
- Create a new file.
- Hit ctrl + s (Save the file). Make sure to save it in the desktop folder “Python Code”.
- INCLUDE YOUR NAMES IN THE FILE NAME!!!
- Go to the project folder and copy and paste the starter code into your file. Save!
- Run the file to make sure that there are no errors!

Step 1. Draw a border [2:26 in video]

- Complete the draw_canvas function

```
#STEP ONE: Complete this function to draw a box around your canvas
def draw_canvas(canvas_width):
    '''
    canvas_width - int, the width of the canvas that we are going to draw on
    Draw a square using the canvas width variable
    returns - nothing
    '''
    box = turtle.Turtle()
    box.width(20)
```

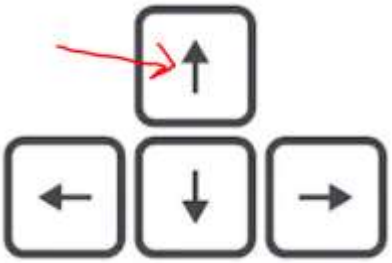
- When you are done, hit run. It should draw a box like this (but bigger):

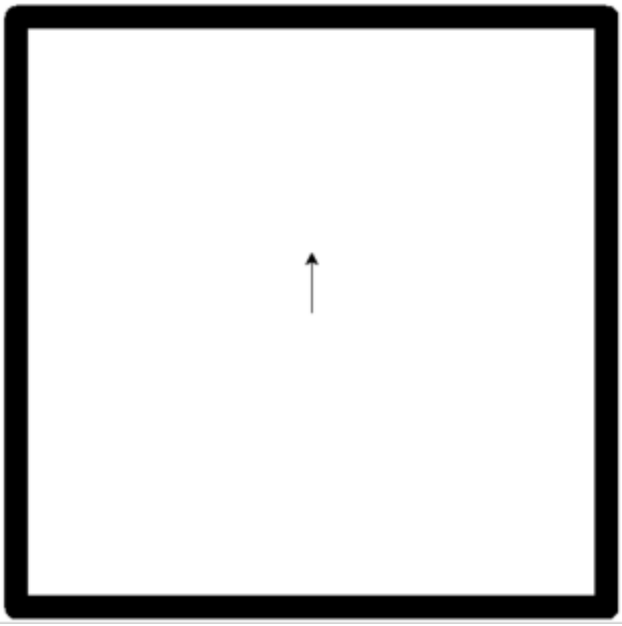


- Check for understanding: what happens if you change CANVAS_WIDTH = 100? (instead of 250-- it should be around line 12)

Step 2. Move around! [3:06 in video]

- Run the program. If you hit the up arrow, the pen should move up and draw a line like this:





- Complete the left(), right() and down() functions so that the pen can move in all four directions!
    - HINT : The following powerpoint is useful
    - HINT: Use the up() function as a model:

```
def up():
    '''
    Turns draw North and moves it up by distance amount
    '''
    check_border()
    draw.setheading(90) # faces up
    draw.forward(distance) #move turle forward by distance

turtle.onkeypress(up, "Up") # Create listener for Up key
```

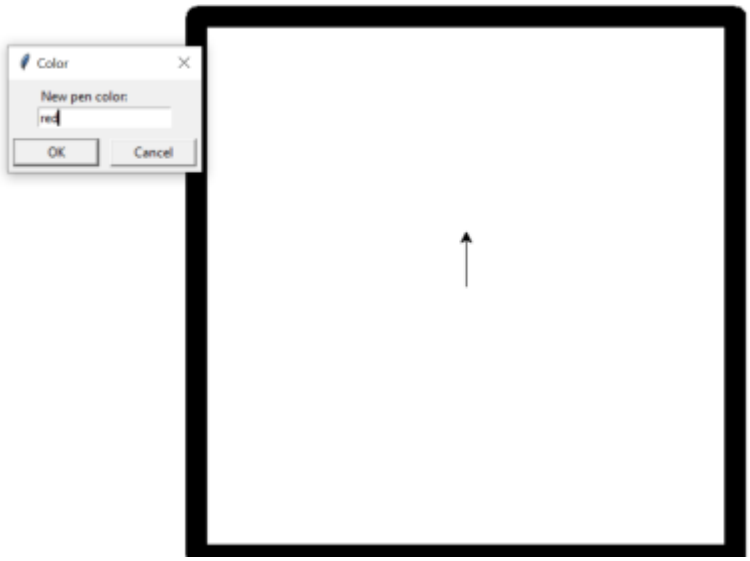
STEP 3. Pick the pen up / Put it down [4:22 in video]

```
# STEP 3: Penup / pendown
def change_pen():
    '''
    When the spacebar is pressed, switch the pen to be up if it is down
    or down if the pen is currently up.
    '''
    global isPendown
```

- Hint: The video will show you how to pick the pen up (how do you pick the pen up?)
- Hint: You will need an if statement…
- Hint: If isPendown is True, it means the pen is currently down and we want to pick it up!

STEP 4. Change the pen color [5:51 in video]

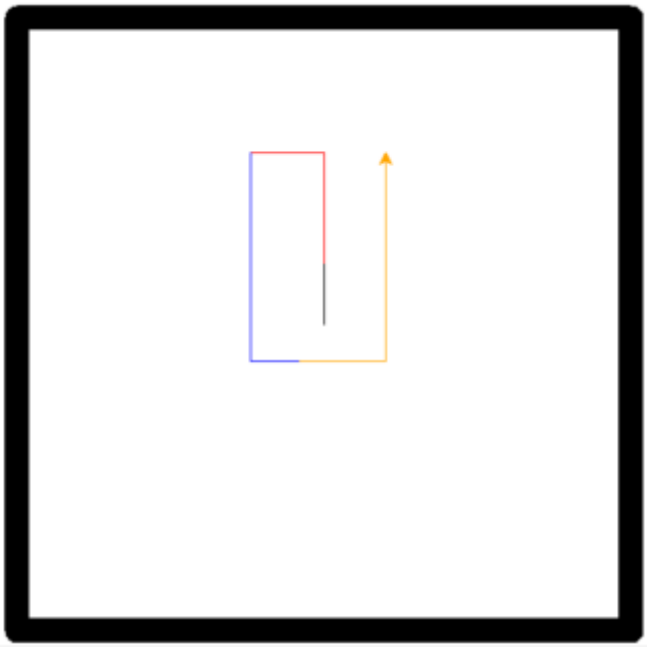
- When you press the ‘c’ key, a box should pop up that you can type into. Like this:



- But when we hit ok the pen is still black! Can you finish the change_color() function?

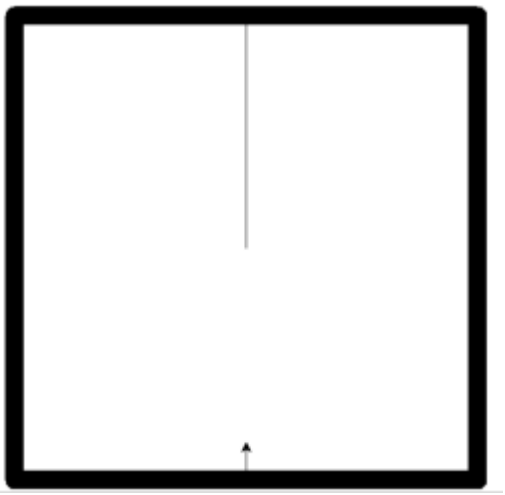
```
#STEP 4: change color!!
def change_color():
    new_color = turtle.textinput("Color", "New pen color:")
    #your code here


    turtle.listen()# DO NOT REMOVE

turtle.onkeypress(change_color, "c")
```

- When you are done, check to make sure that you can change colors!



STEP 5. Don't go off the edge! [6:42 in video]

- If you go up and touch the border, the turtle moves to the bottom of the screen like this:

- 
- Add if statements to do the same for the other three walls!
- HINT: This is VERY similar to W2D2 Pet Turtle video / assignment for some hints

STEP 6. Add your own features! [7:48 in video]

- *Make sure to save a separate copy of your working code first in case something breaks!!!*

Ideas:

- On a button press, change the pen width using the width() command (see border() function for example)
- Create another pen to draw with using the w,a,s,d keys so two people can draw at the same time!
- Have button press that will draw a shape (ex circle - look at the turtle circle function!)
- Have a button press that will erase the whole screen
- Have a button press that will create a stamp (leave an arrow mark behind - look at turtle stamp() function)
- Think of your own! Look at the different turtle functions for ideas

STEP 7. MAKE SURE YOU FINISH THE DESIGN REFLECTION AND SUBMIT YOUR CODE!!!!!!!

If you finish:

- Have you submitted all of your assignments?
- Have you done test corrections?
- If you answered yes to both of the above, feel free to either help other groups (do not write code for them), add more features to your project or do the other project for extra practice (and extra fun!)