

Course Name	ITD 2313 – Script Programming
Instructor	Andy Tripp
Student Name	Timothy Obinda
Due date	11/02/2025
Grade	Put grade earned here
Grading Comments	Put instructor comments here

INSTRUCTIONS FOR THE EXERCISE

You should always read the instructions in full. It is best to do a full read through before starting the assignment. Each screenshot needs to be appropriately labeled.

In this instruction, you are given information to execute specific examples in the text. You are given the Section, Subsection, and a page number to identify a set of steps. On each page listed, there will be 1 or more numbered tasks to perform. These numbered tasks will be what you are to type in, execute, and then grab the screen shots of. Those screenshots will then go into your submission document.

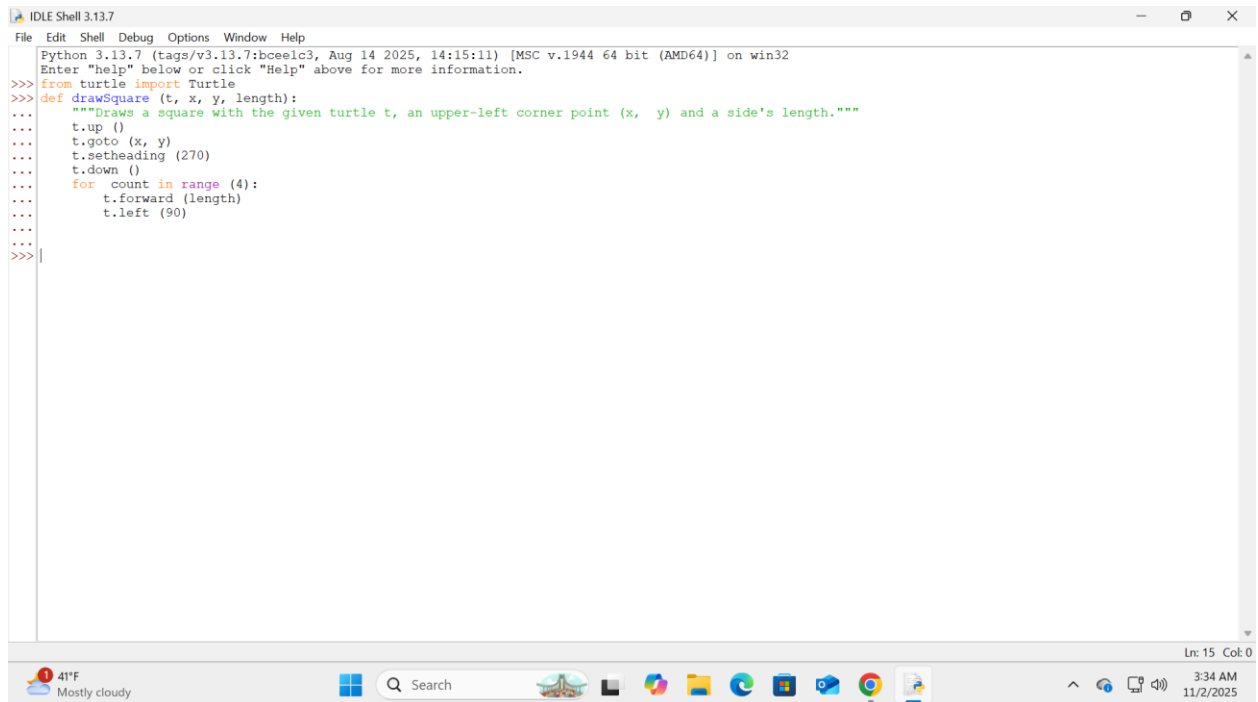
Some advice, copy this instruction set into your submission document and then put the screen shots under each numbered task. Each individual book page in the instructions should be in a different screen shot. For any single book page, you may have all the numbered tasks on that page to be in a single screen shot.

Simple Graphics

Turtle Operations

Page 191

1. The middle of the page has the draw square function code example block does spill over to the top of the next page. Create an example that utilizes the function and grabs a screen shot of the results.

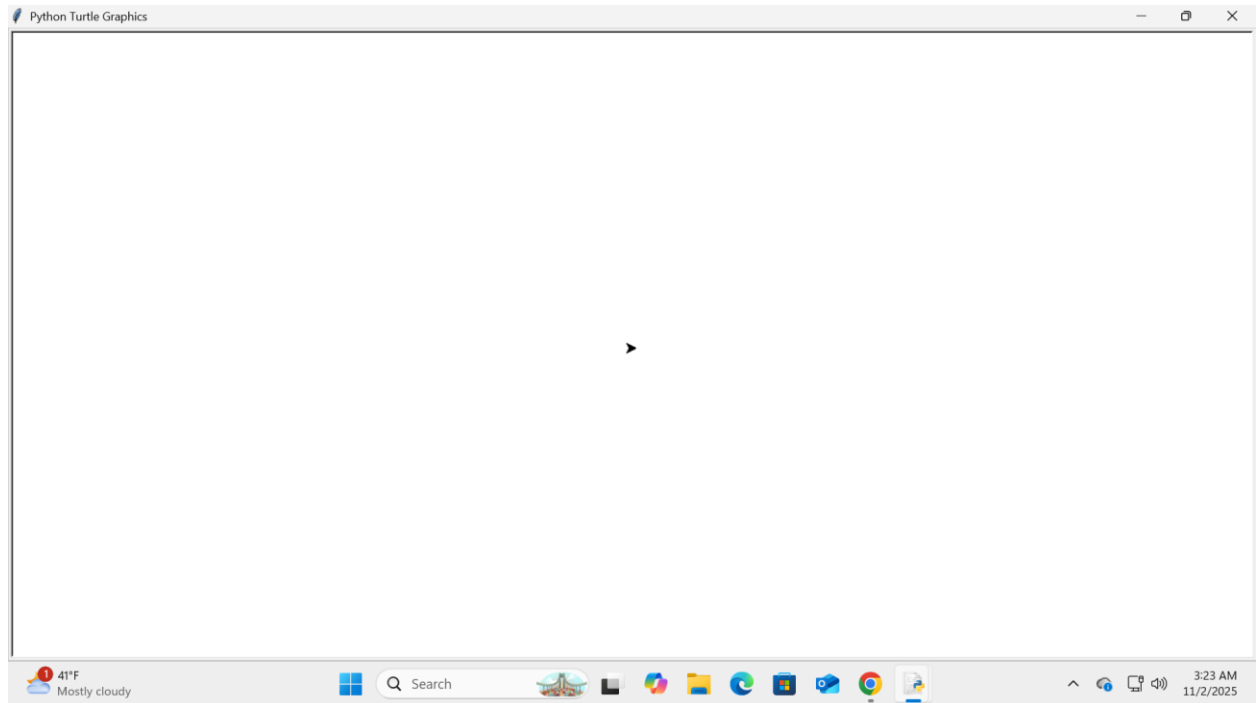


```
Python 3.13.7 (tags/v3.13.7:bce1c3, Aug 14 2025, 14:15:11) [MSC v.1944 64 bit (AMD64)] on win32
Enter "help" below or click "Help" above for more information.
>>> from turtle import Turtle
>>> def drawSquare (t, x, y, length):
...     """Draws a square with the given turtle t, an upper-left corner point (x, y) and a side's length."""
...     t.up ()
...     t.goto (x, y)
...     t.setheading (270)
...     t.down ()
...     for count in range (4):
...         t.forward (length)
...         t.left (90)
...
>>>
```

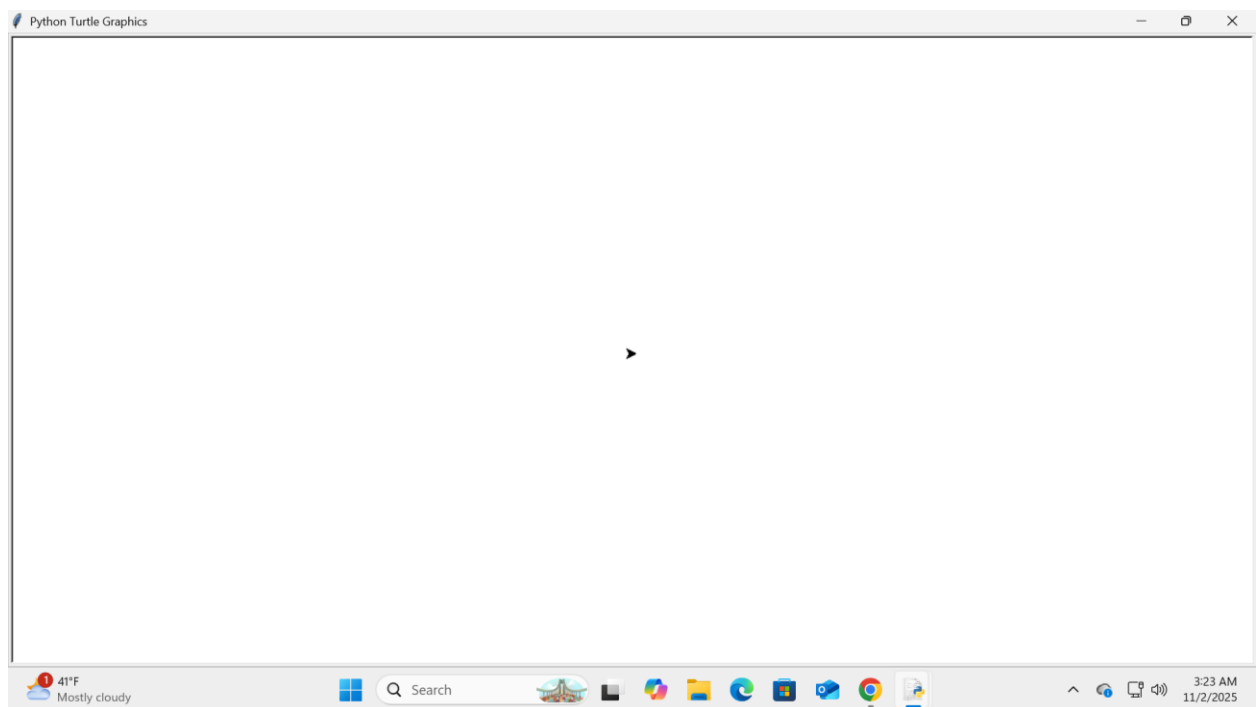
Object Instantiation and *turtle* module

Pages 192 – 193

1. You will need to create a python program file for this one for best results but you can enter it into the interactive if you want. On page 192, there are 2 single line code example blocks that set up the turtle object. Those will need to be entered before doing the code on page 193.



2. The steps in the middle of the page should build the image at the bottom of the page. Do the steps and implement them.

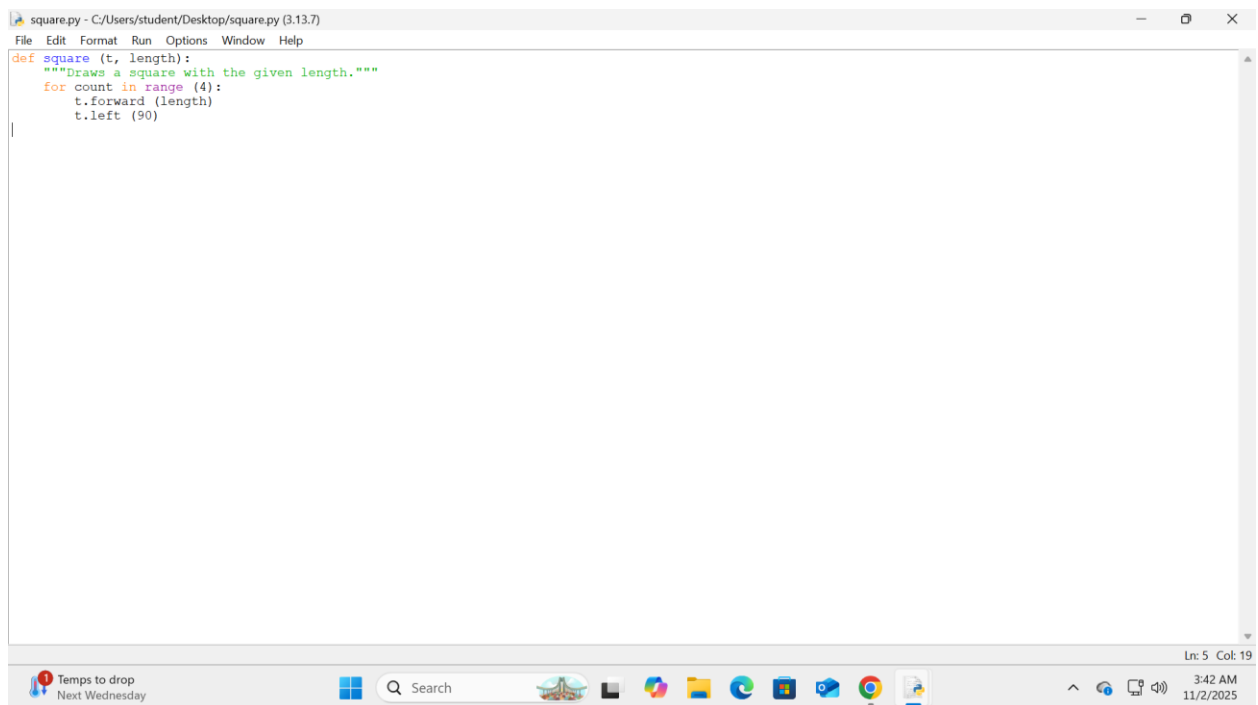


3. You may need to review the pages preceding pages to set up the turtle module.

Drawing two-dimensional object

Page 194

1. There is a square function, and a hexagon function code example blocks on this page. Create the code that will utilize those functions once you have them entered. It may be easier to accomplish this using a python program file instead of interactive mode.



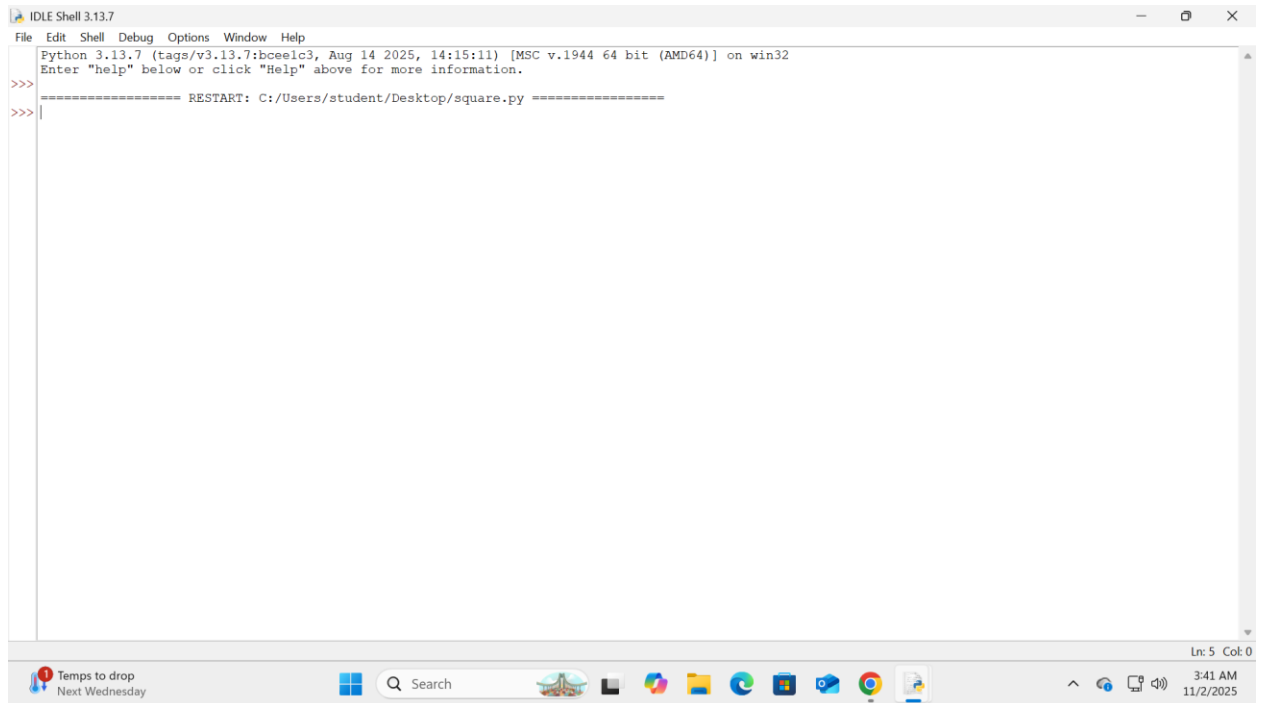
```
square.py - C:/Users/student/Desktop/square.py (3.13.7)
File Edit Format Run Options Window Help
def square(t, length):
    """Draws a square with the given length."""
    for count in range(4):
        t.forward(length)
        t.left(90)
|
```

Ln: 5 Col: 19

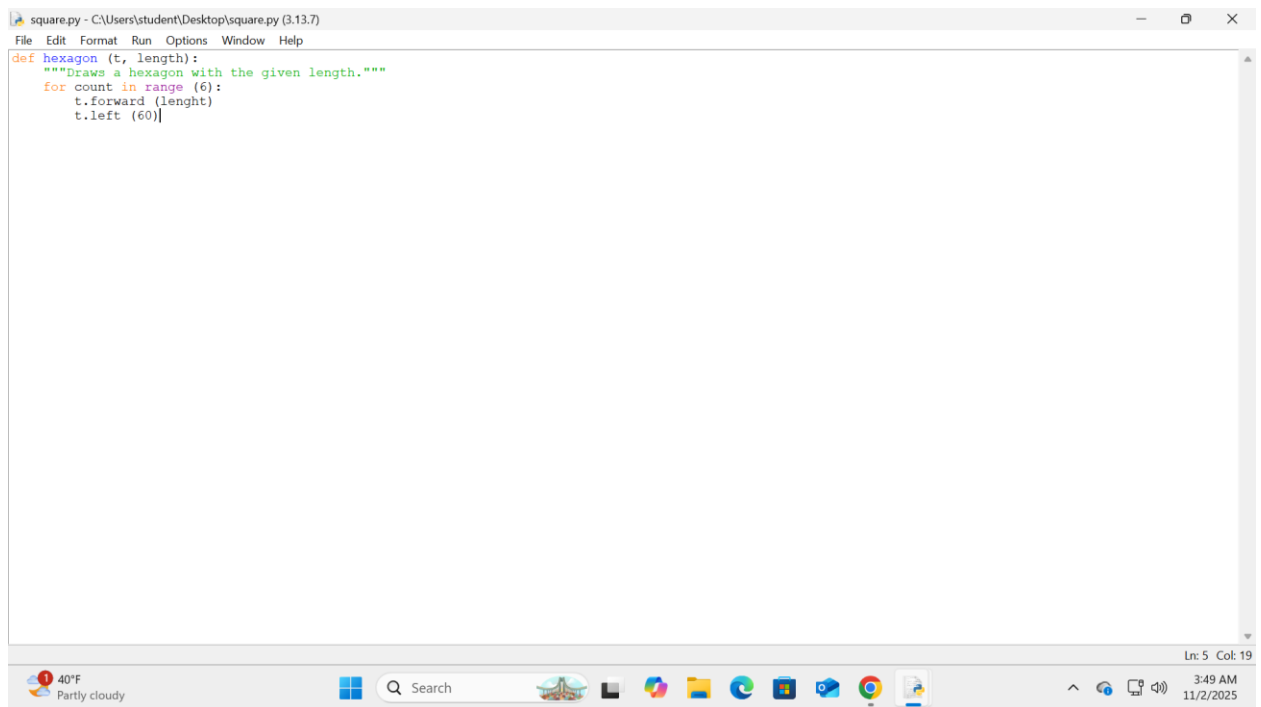
Temps to drop
Next Wednesday

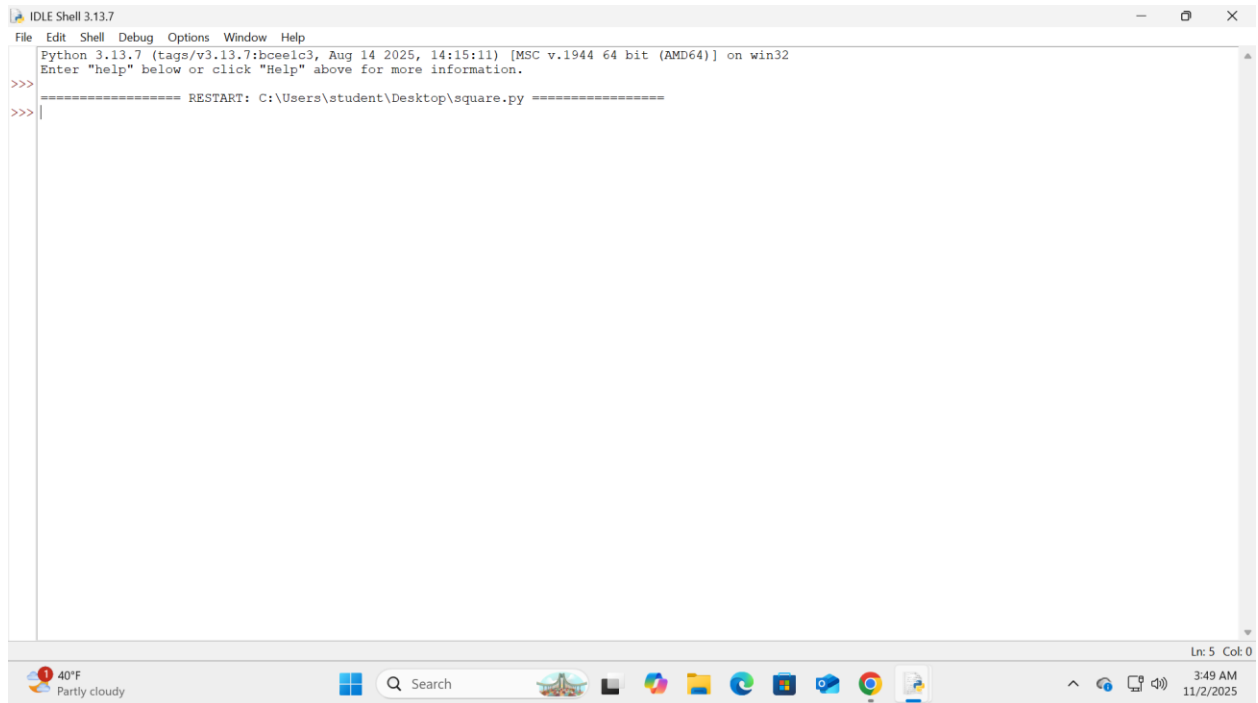
Search

3:42 AM
11/2/2025



2. Draw the square separately from the hexagon. One screen shot showing a square drawn.

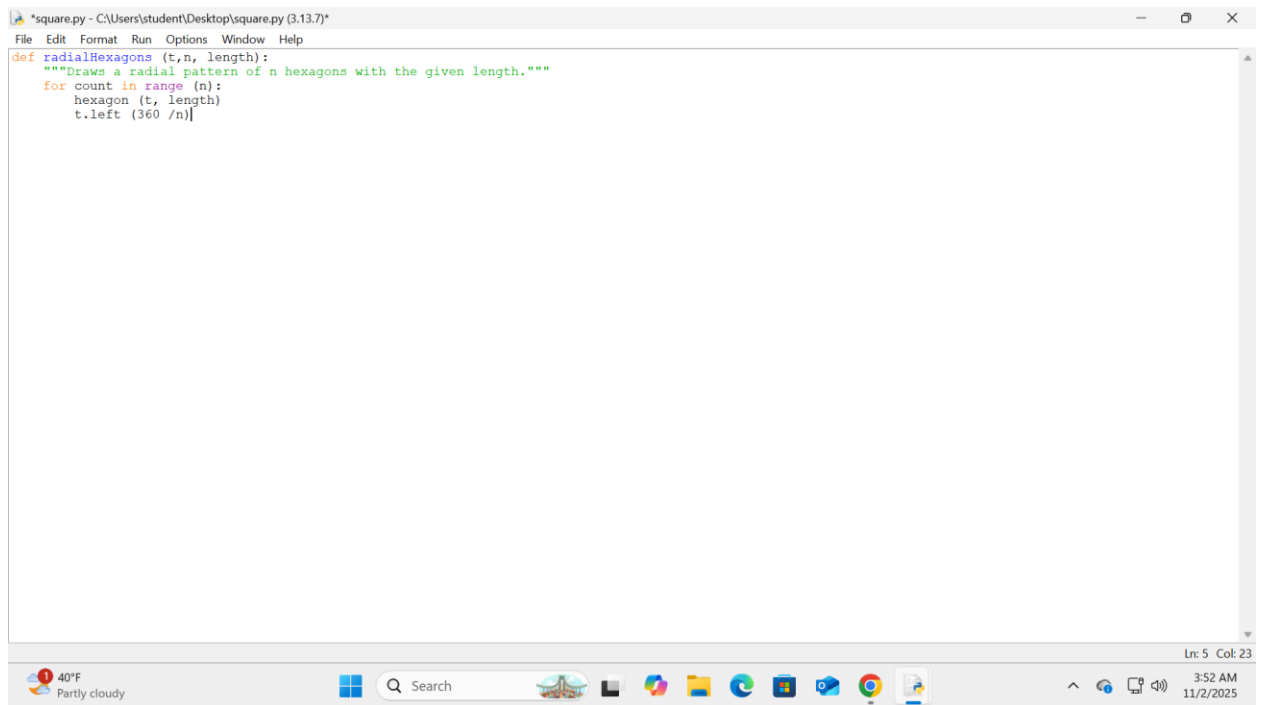




3. The second screen shot shows the Hexagon being drawn.

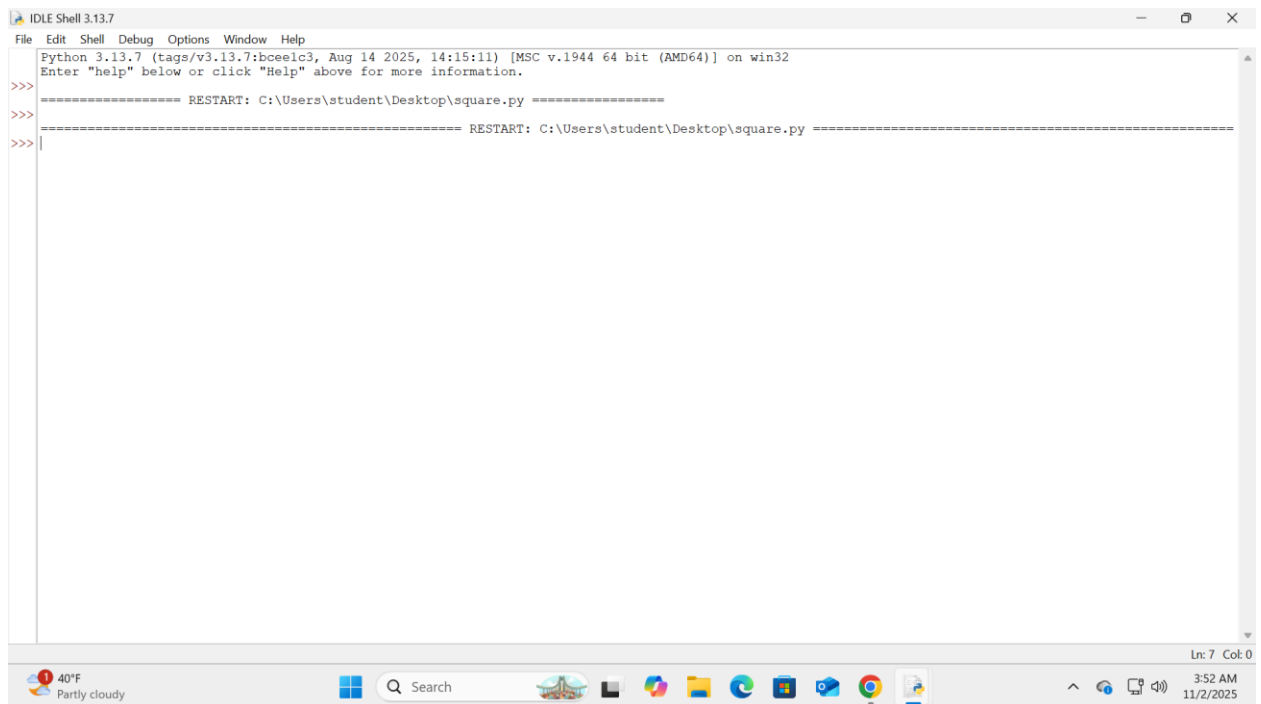
Page 194 – 195

1. Now do the RadialHexagons code and grab the screen shot. It starts at the bottom of page 194.



A screenshot of a text editor window titled "square.py - C:\Users\student\Desktop\square.py (3.13.7)". The editor contains a Python function definition for "radialHexagons". The function takes three arguments: "t", "n", and "length". A docstring describes it as "Draws a radial pattern of n hexagons with the given length." The function uses a "for" loop to iterate from 0 to "n-1", calling a "hexagon" function with "t" and "length", and then rotating "t" by 360 degrees divided by "n". The status bar at the bottom right shows "Ln: 5 Col: 23".

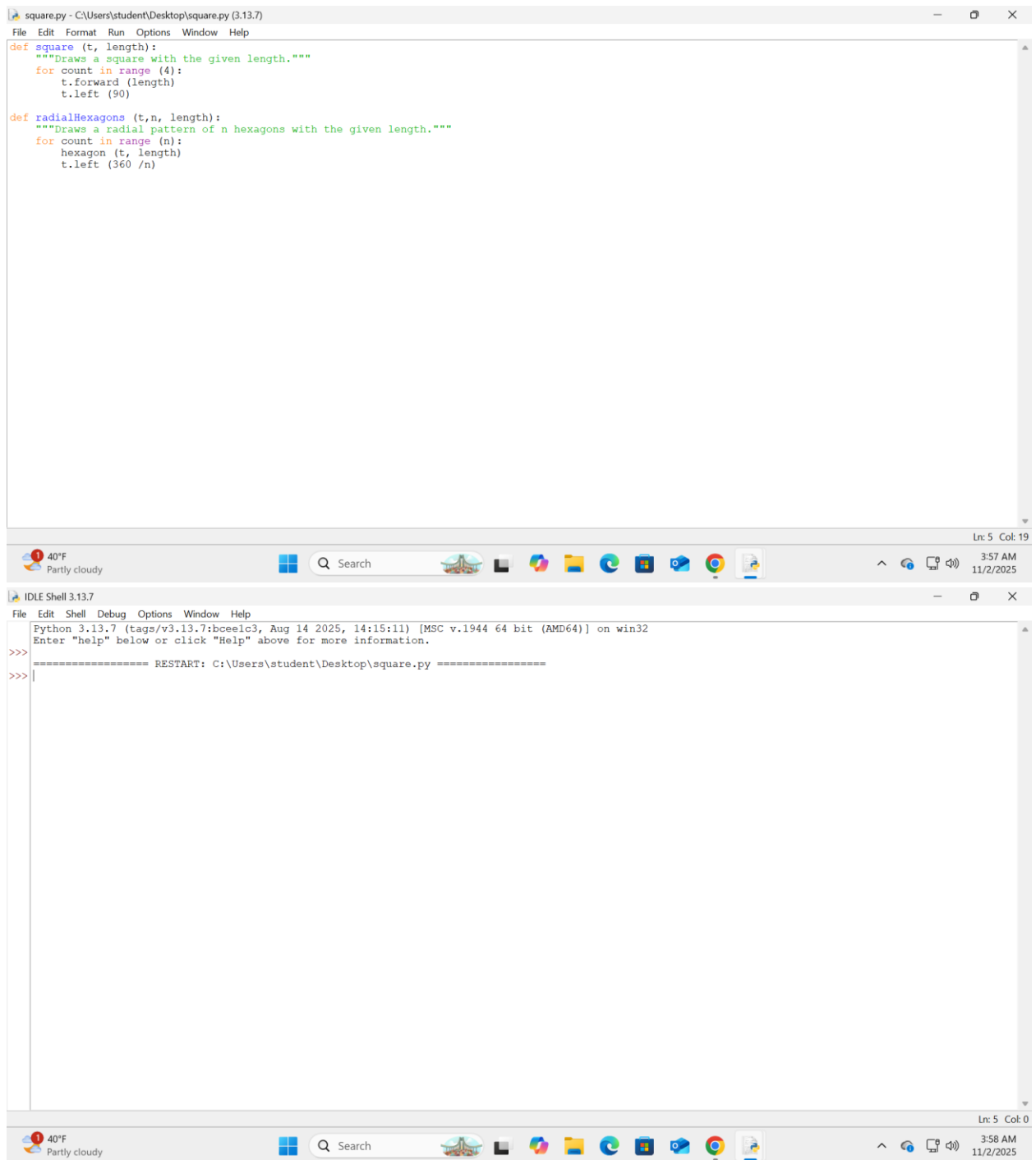
```
def radialHexagons (t,n, length):  
    """Draws a radial pattern of n hexagons with the given length."""  
    for count in range (n):  
        hexagon (t, length)  
        t.left (360 /n)
```



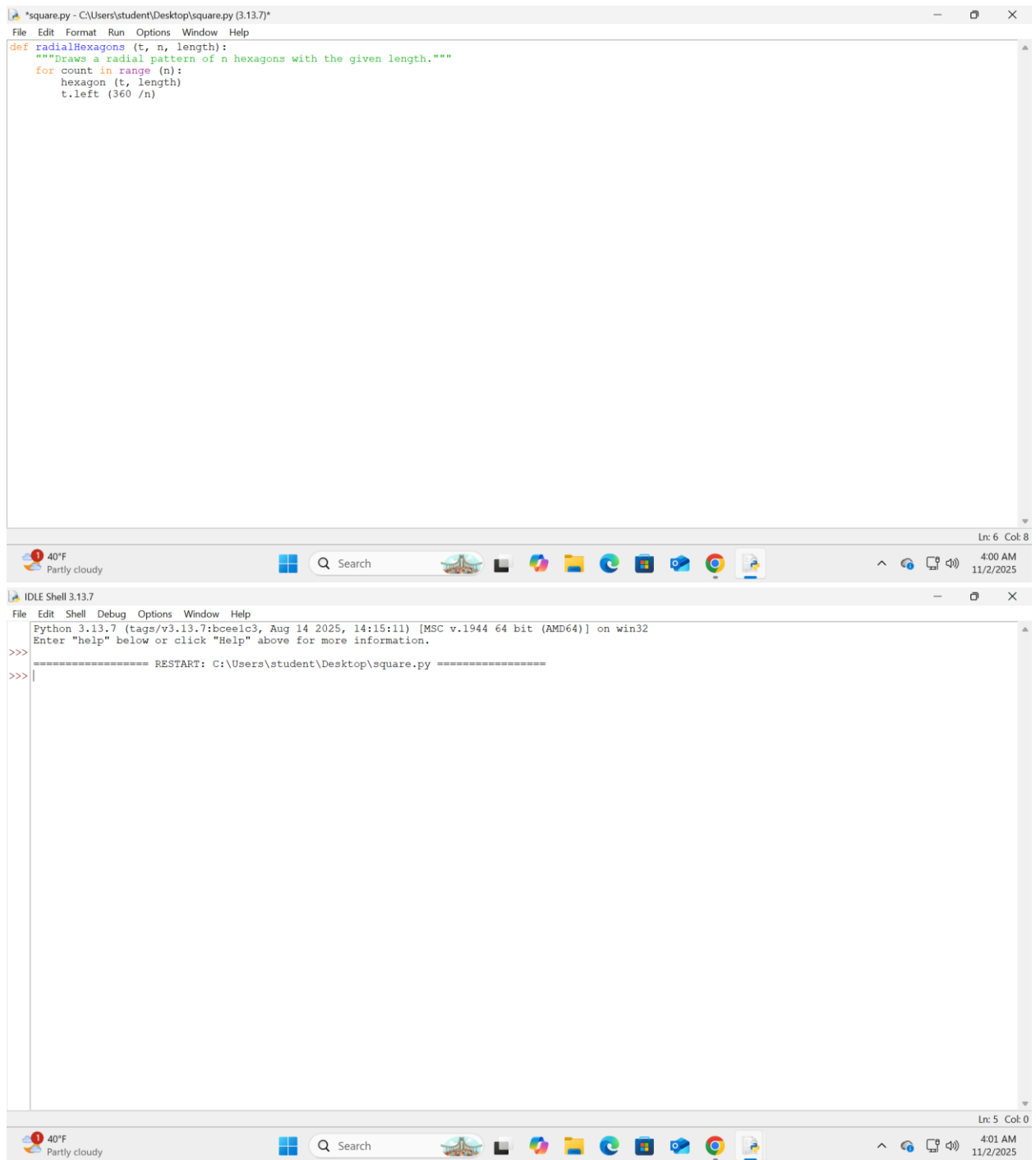
A screenshot of the IDLE Shell window for Python 3.13.7. It shows the execution of the script. The first line of output is the Python version and build information. The second line is a prompt for help. The third line shows the restart command. The fourth line shows the restart command again, followed by a blank line. The status bar at the bottom right shows "Ln: 7 Col: 0".

```
Python 3.13.7 (tags/v3.13.7:bce1c3, Aug 14 2025, 14:15:11) [MSC v.1944 64 bit (AMD64)] on win32  
Enter "help" below or click "Help" above for more information.  
>>> ===== RESTART: C:\Users\student\Desktop\square.py =====  
>>> ===== RESTART: C:\Users\student\Desktop\square.py =====  
>>> |
```

2. Use the function at the top and then the steps below that for the radial hexagon image



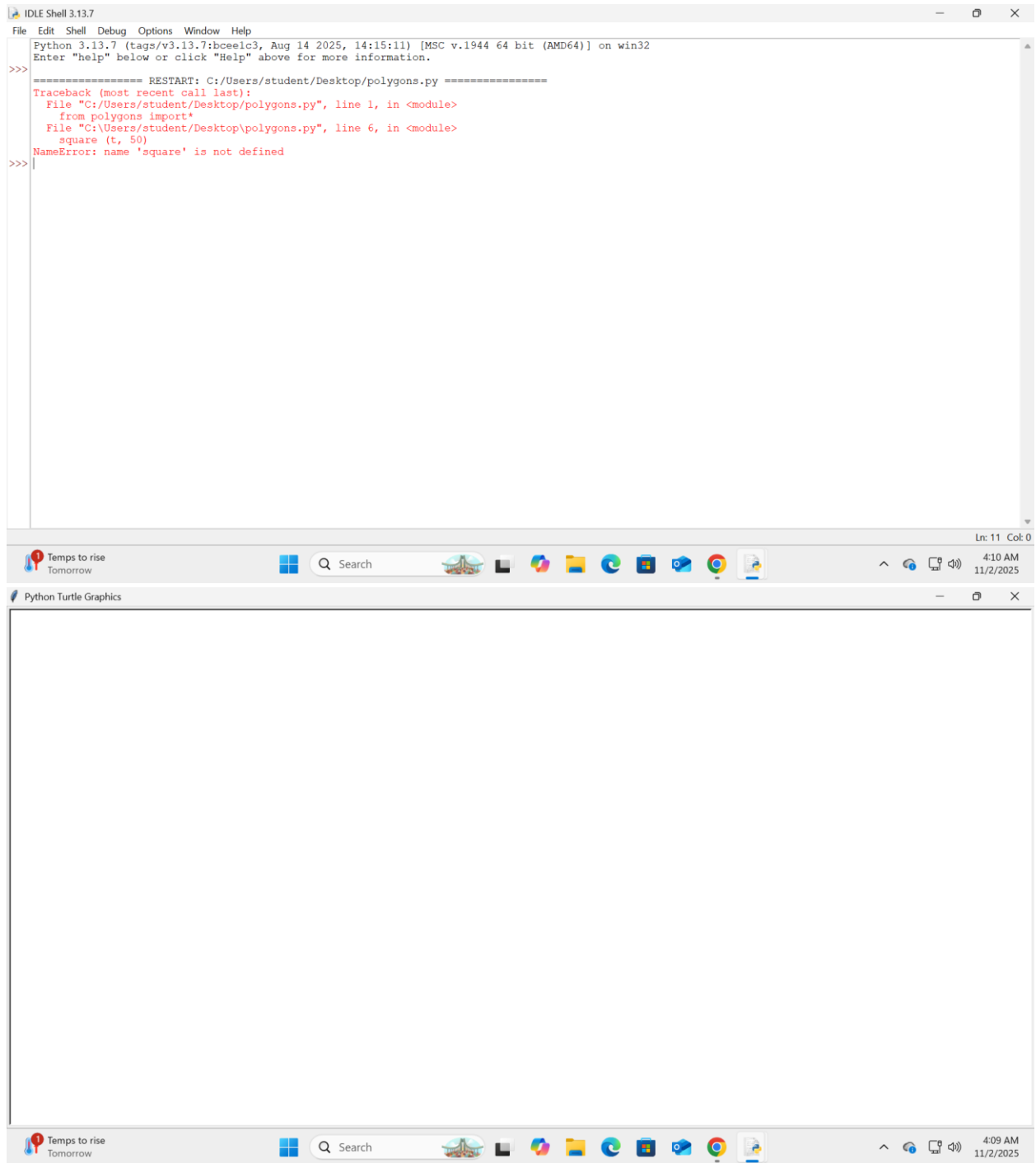
3. Finish the subsection by doing the radial patterns function and examples near the bottom of the page.



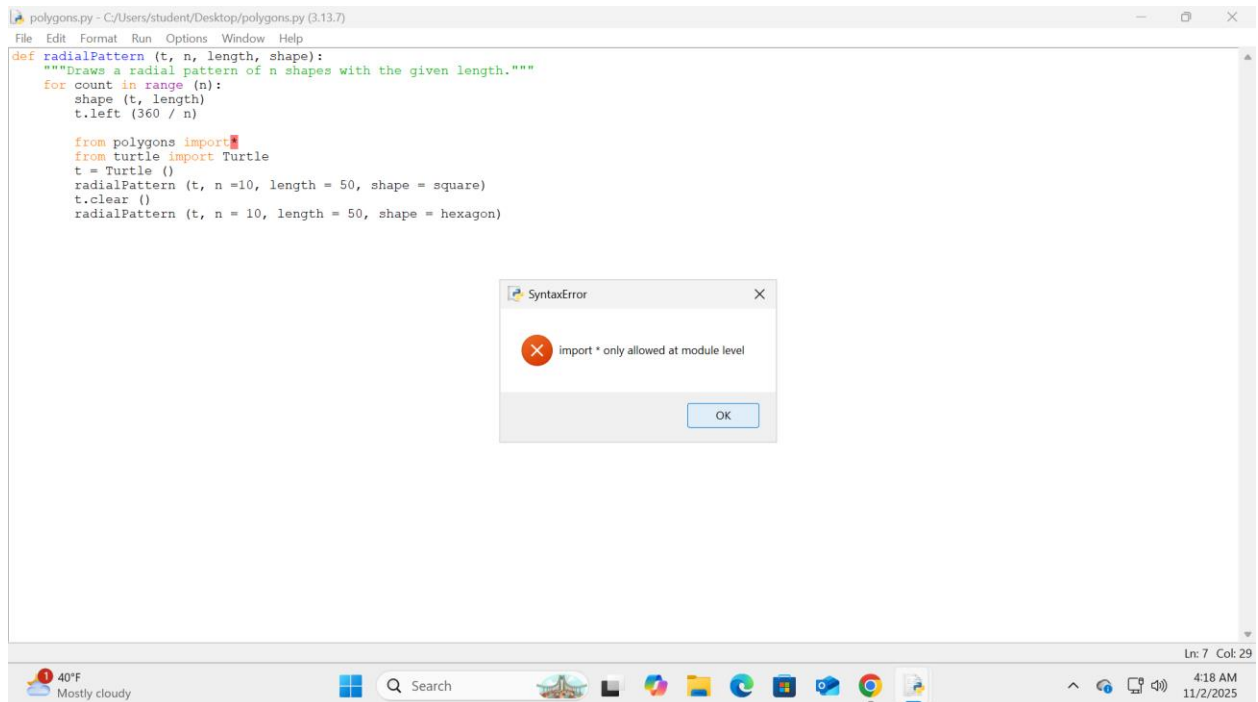
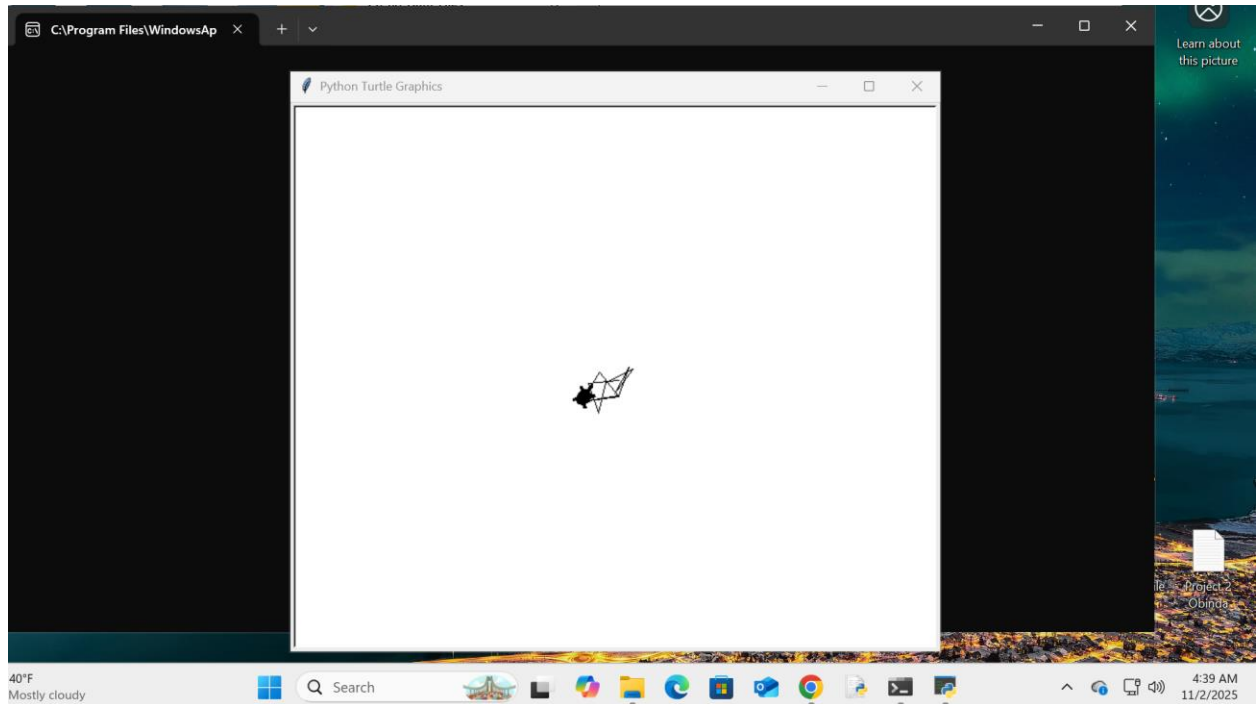
Examining a Object's Attributes

Pages 195-197

1. On page 195, there are some examples of how to use the attributes, and you may not see any results in the turtle screen.



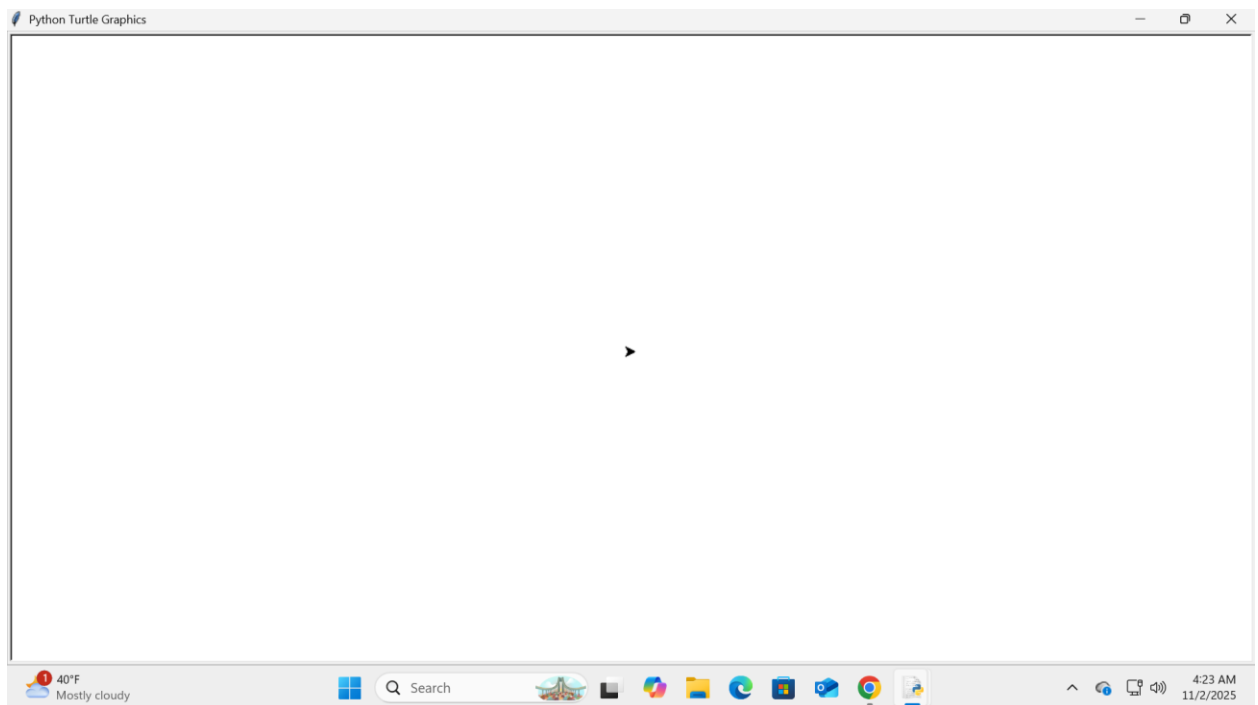
2. For the screen shot, work with the code example block that does the random walk and grab the screen shot of the resulting walk.

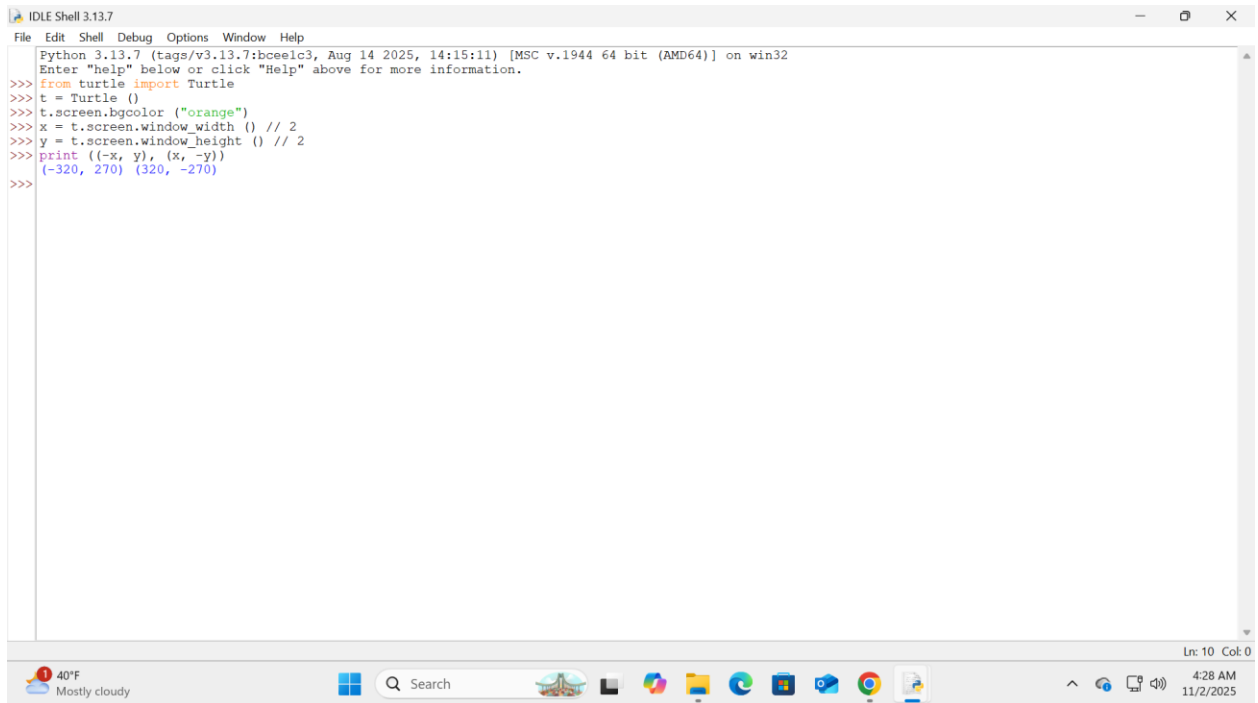


```
IDLE Shell 3.13.7
File Edit Shell Debug Options Window Help
Python 3.13.7 (tags/v3.13.7:bceelc3, Aug 14 2025, 14:15:11) [MSC v.1944 64 bit (AMD64)] on win32
Enter "help" below or click "Help" above for more information.
>>> from turtle import Turtle
>>> t = Turtle ()
>>> t.position ()
(0.00,0.00)
>>> t.heading ()
0.0
>>> t.isdown ()
True
>>>
```

Ln: 11 Col: 0

40°F Mostly cloudy 4:22 AM 11/2/2025

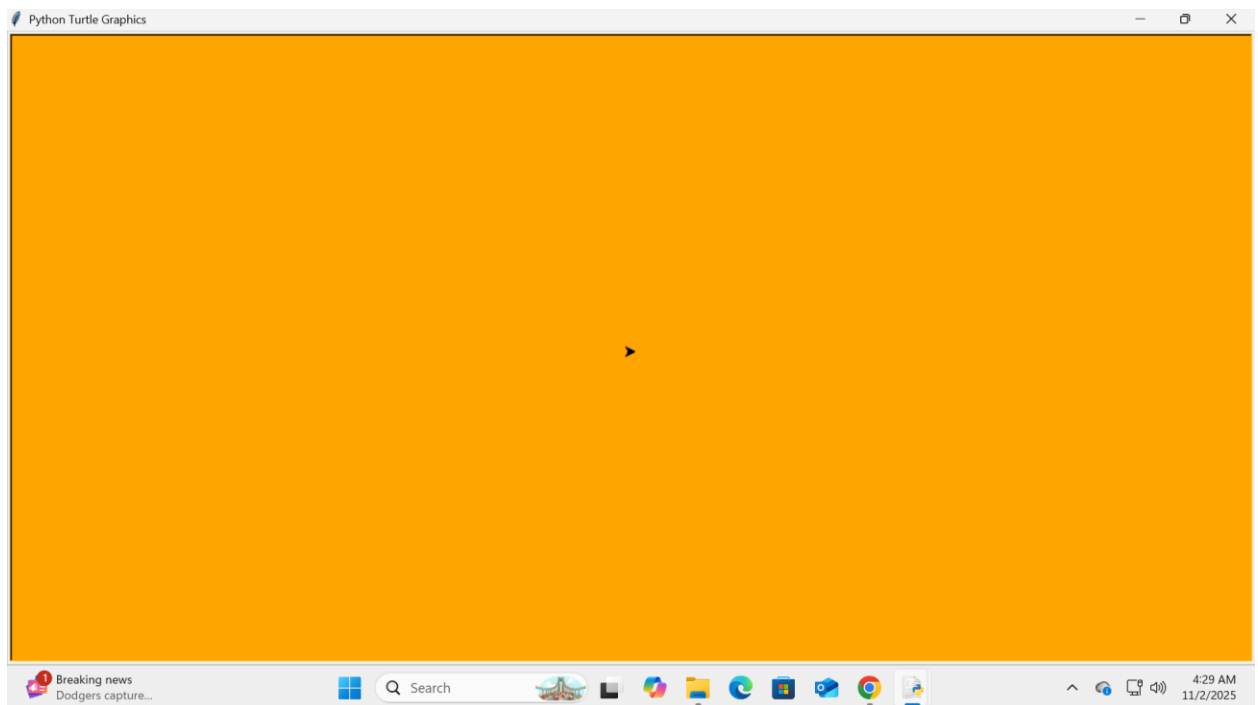




The screenshot shows the IDLE Shell 3.13.7 window. The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The shell displays the following Python code:

```
Python 3.13.7 (tags/v3.13.7:bceelc3, Aug 14 2025, 14:15:11) [MSC v.1944 64 bit (AMD64)] on win32
Enter "help" below or click "Help" above for more information.
>>> from turtle import Turtle
>>> t = Turtle ()
>>> t.screen.bgcolor ("orange")
>>> x = t.screen.window_width () // 2
>>> y = t.screen.window_height () // 2
>>> print ((-x, y), (x, -y))
(-320, 270) (320, -270)
>>>
```

The status bar at the bottom shows the temperature as 40°F, mostly cloudy, and the system clock as 4:28 AM on 11/2/2025.



It would benefit you experiment with the code example bloc

k on pages 198 - 199. It should be part of the download for this chapter. Experiment it and make some changes and observe the results, but you do not need to take any screen shots of the results.

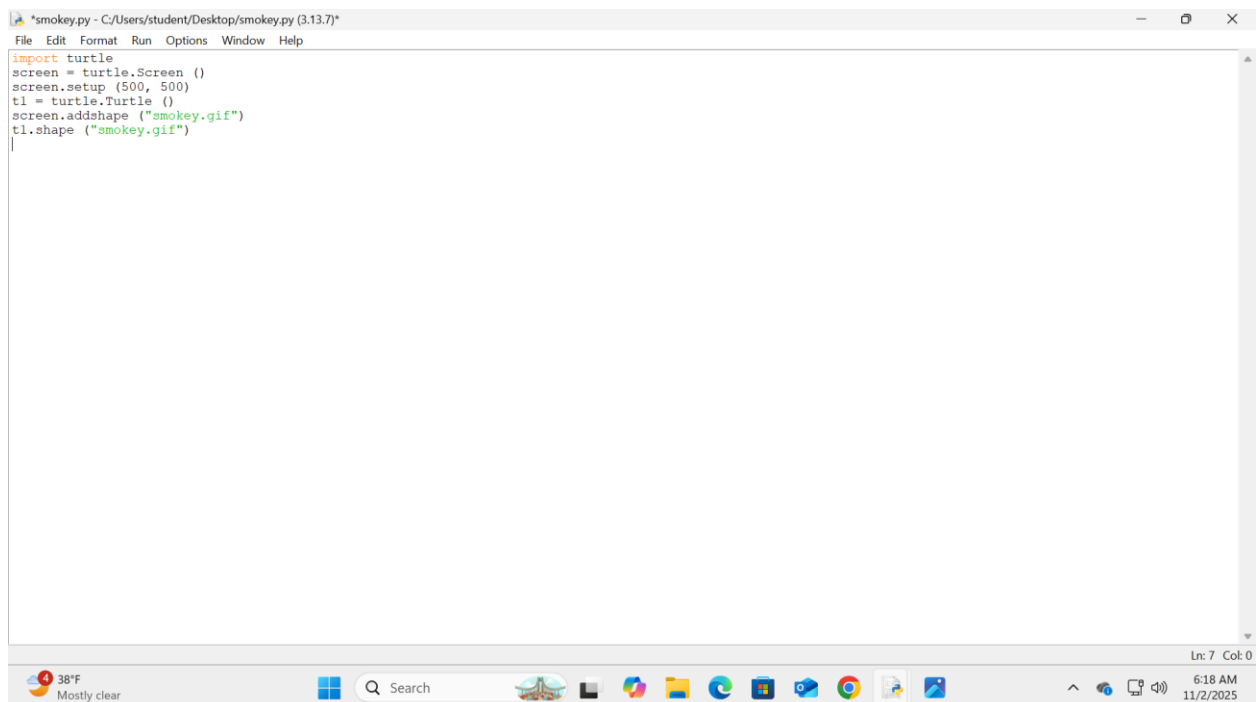
The case study will not be captured as part of this assignment either but would benefit you to review the case study.

Image Processing

The *images* module

Pages 206

1. On the very bottom of the page is the Smokey image display code example block

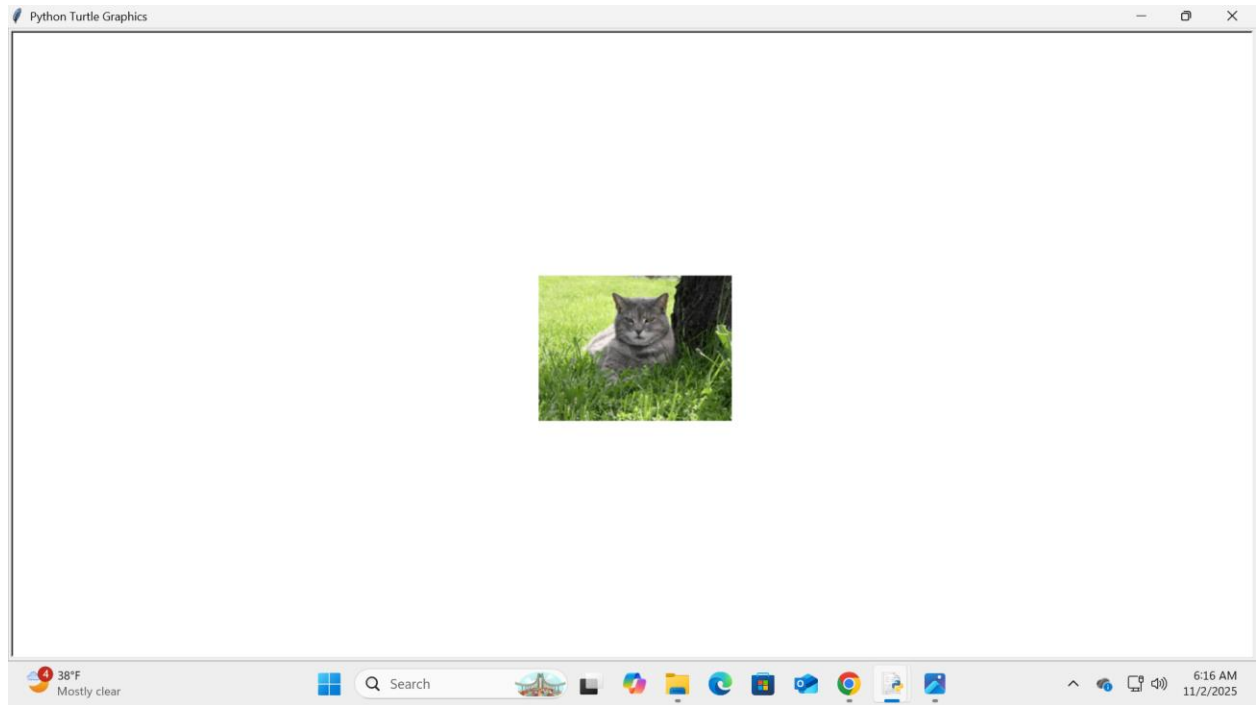


```
*smokey.py - C:/Users/student/Desktop/smokey.py (3.13.7)*
File Edit Format Run Options Window Help
import turtle
screen = turtle.Screen ()
screen.setup (500, 500)
t1 = turtle.Turtle ()
screen.addshape ("smokey.gif")
t1.shape ("smokey.gif")
|
```

The screenshot shows a Python IDE window titled "*smokey.py - C:/Users/student/Desktop/smokey.py (3.13.7)*". The window contains a menu bar with "File", "Edit", "Format", "Run", "Options", "Window", and "Help". The code editor displays the following Python code:

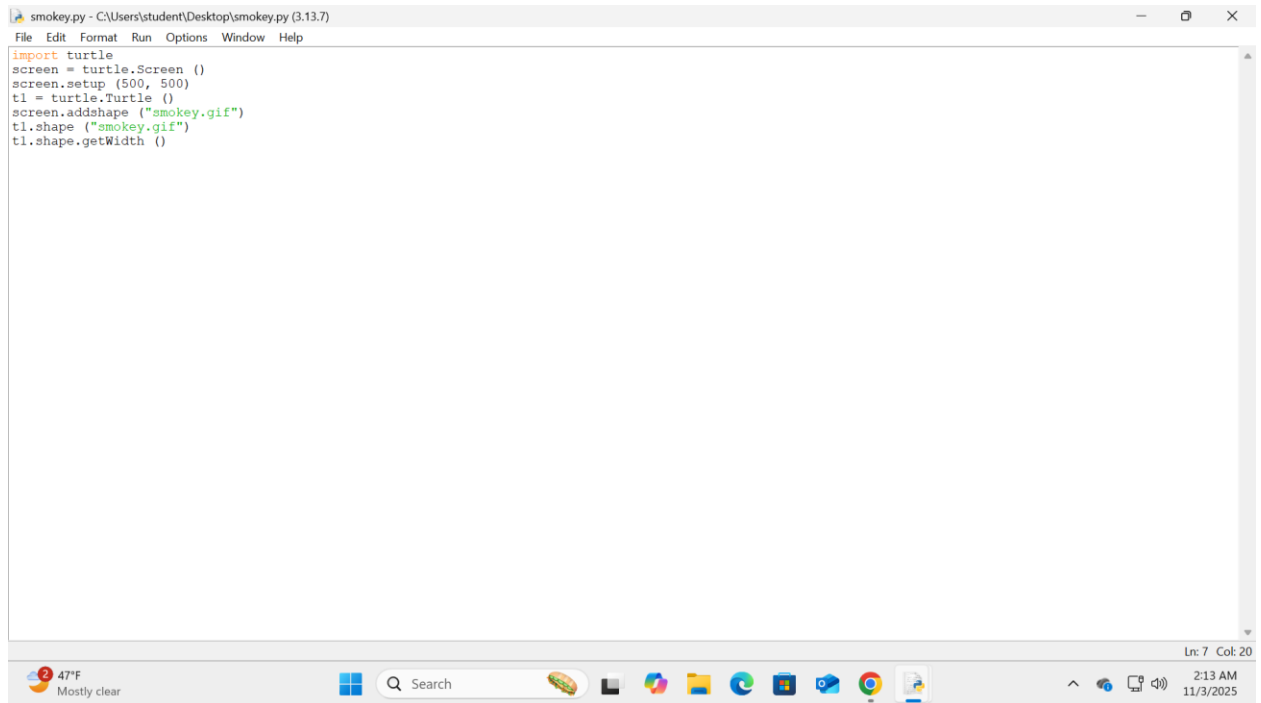
```
import turtle
screen = turtle.Screen ()
screen.setup (500, 500)
t1 = turtle.Turtle ()
screen.addshape ("smokey.gif")
t1.shape ("smokey.gif")
```

The code is currently at line 7, column 0. The Windows taskbar at the bottom shows the date and time as 6:18 AM on 11/2/2025, along with various system icons and a search bar.



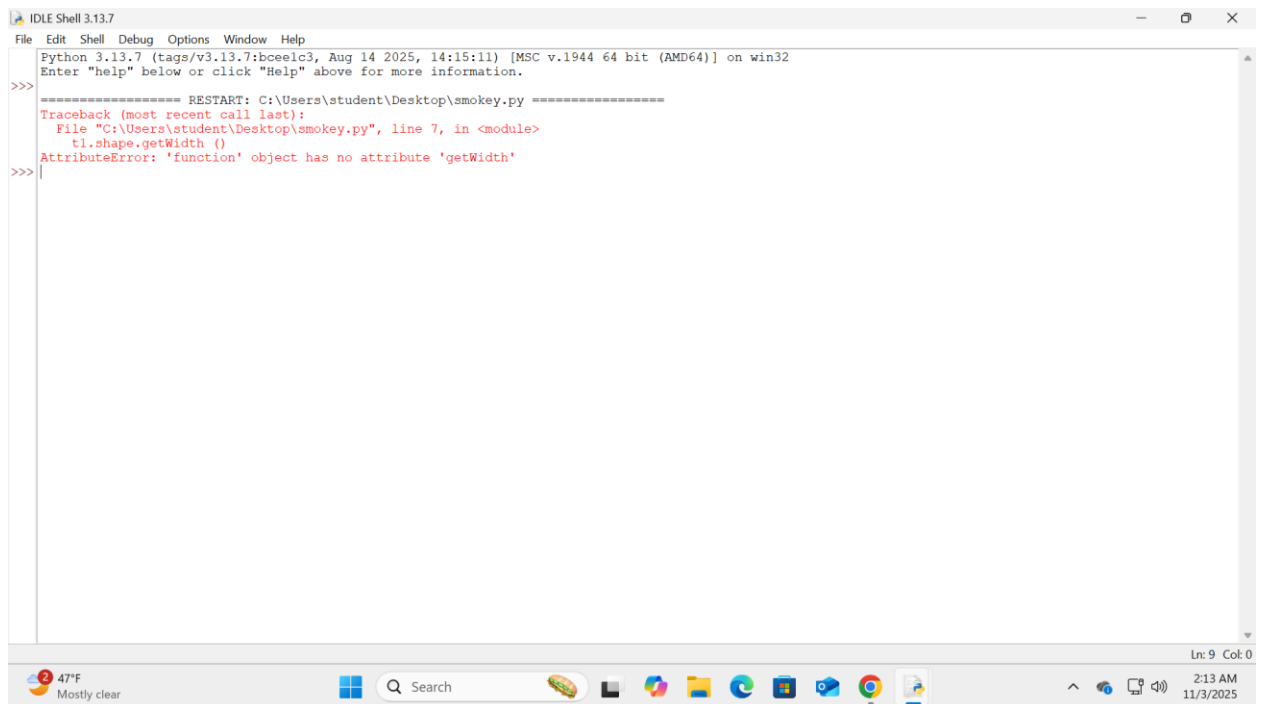
Page 207

1. The first code example blocks at the top of the page and is obtaining width and height info for an image



```
smokey.py - C:\Users\student\Desktop\smokey.py (3.13.7)
File Edit Format Run Options Window Help
import turtle
screen = turtle.Screen ()
screen.setup (500, 500)
t1 = turtle.Turtle ()
screen.addshape ("smokey.gif")
t1.shape ("smokey.gif")
t1.shape.getWidth ()
```

Ln: 7 Col: 20
2:13 AM
11/3/2025



```
IDLE Shell 3.13.7
File Edit Shell Debug Options Window Help
Python 3.13.7 (tags/v3.13.7:bee51c3, Aug 14 2025, 14:15:11) [MSC v.1944 64 bit (AMD64)] on win32
Enter "help" below or click "Help" above for more information.
>>>
===== RESTART: C:\Users\student\Desktop\smokey.py =====
Traceback (most recent call last):
  File "C:\Users\student\Desktop\smokey.py", line 7, in <module>
    t1.shape.getWidth ()
AttributeError: 'function' object has no attribute 'getWidth'
>>>
```

Ln: 9 Col: 0
2:13 AM
11/3/2025

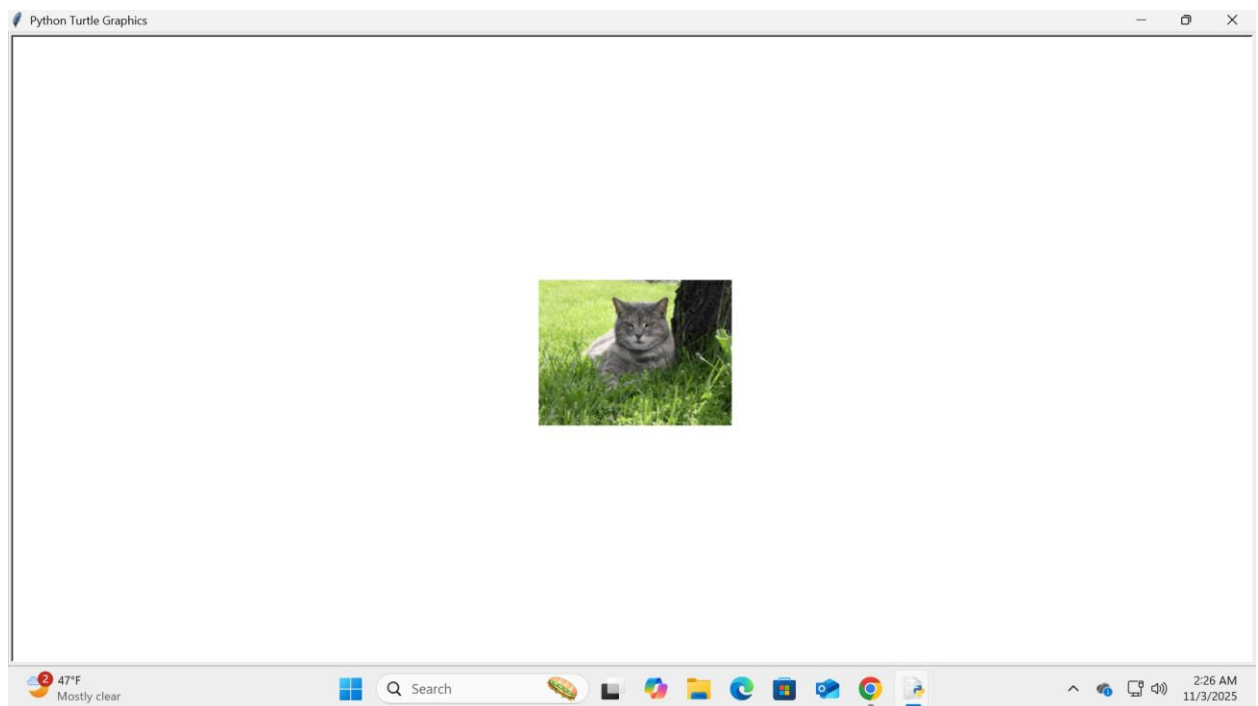
2. Just under that is another code example block that prints some of the attribute information


```
smokey.py - C:\Users\student\Desktop\smokey.py (3.13.7)
File Edit Format Run Options Window Help

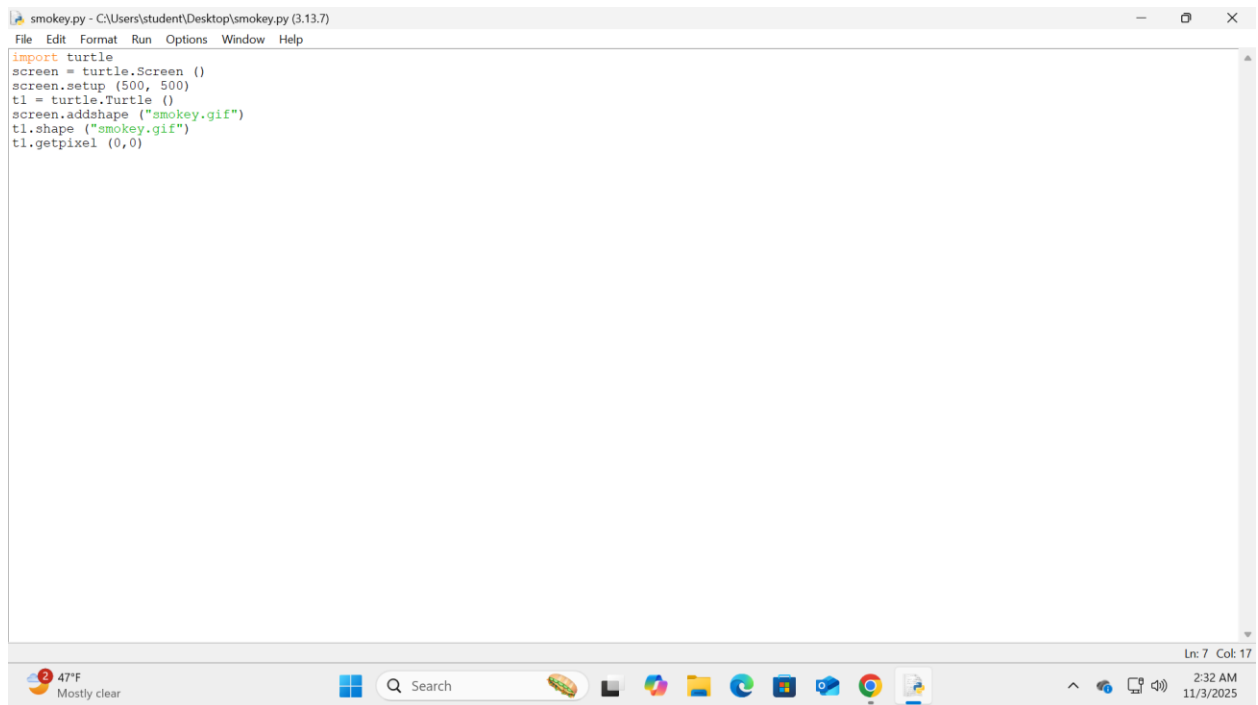
import turtle
screen = turtle.Screen ()
screen.setup (500, 500)
tl = turtle.Turtle ()
screen.addshape ("smokey.gif")
tl.shape ("smokey.gif")
print (tl.shape)
filename: smokey.gif
Width: 198
Height: 148
```

Ln: 10 Col: 11

47°F Mostly clear 2:27 AM 11/3/2025



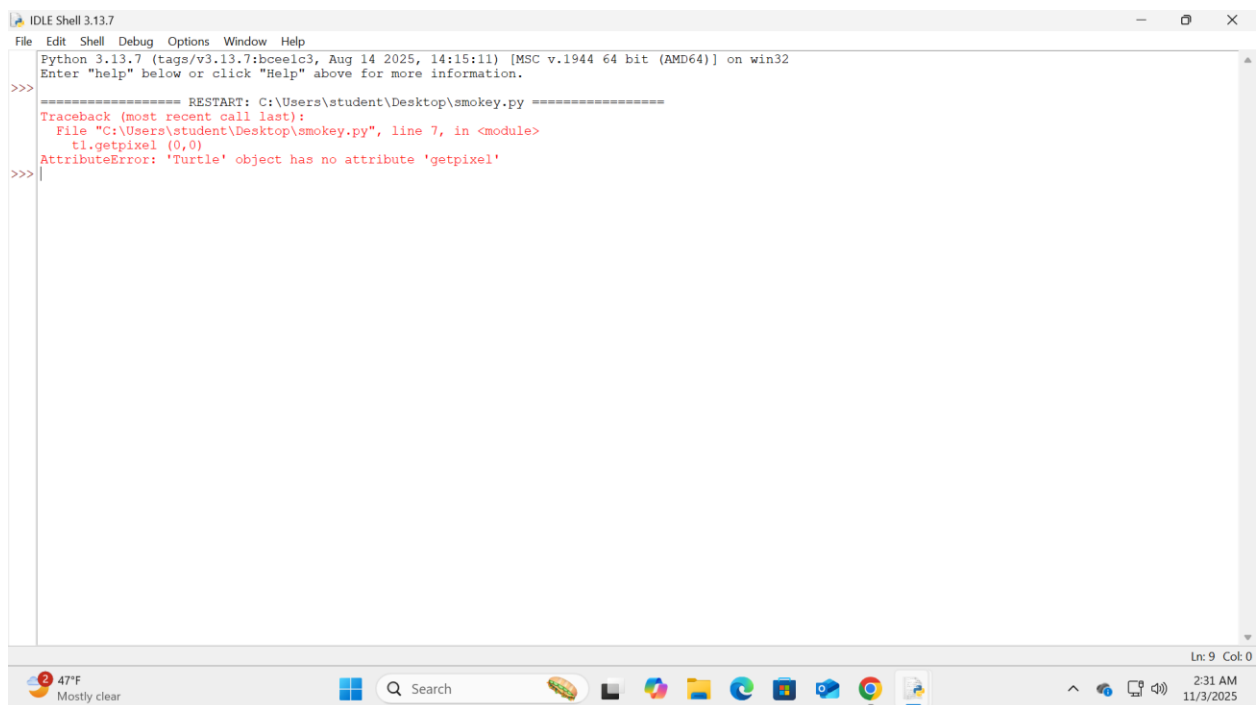
3. The next code example block on this page is about 1/2 down on the page and gets pixel information



The screenshot shows a Python script editor window titled "smokey.py - C:\Users\student\Desktop\smokey.py (3.13.7)". The script contains the following code:

```
import turtle
screen = turtle.Screen ()
screen.setup (500, 500)
tl = turtle.Turtle ()
screen.addshape ("smokey.gif")
tl.shape ("smokey.gif")
tl.getpixel (0,0)
```

The status bar at the bottom right indicates "Ln: 7 Col: 17". The Windows taskbar at the bottom shows the date and time as 2:32 AM on 11/3/2025.



The screenshot shows the IDLE Shell window titled "IDLE Shell 3.13.7". The shell displays the following output:

```
Python 3.13.7 (tags/v3.13.7:bce1c3, Aug 14 2025, 14:15:11) [MSC v.1944 64 bit (AMD64)] on win32
Enter "help" below or click "Help" above for more information.
>>>
===== RESTART: C:\Users\student\Desktop\smokey.py =====
Traceback (most recent call last):
  File "C:\Users\student\Desktop\smokey.py", line 7, in <module>
    tl.getpixel (0,0)
AttributeError: 'Turtle' object has no attribute 'getpixel'
>>>
```

The status bar at the bottom right indicates "Ln: 9 Col: 0". The Windows taskbar at the bottom shows the date and time as 2:31 AM on 11/3/2025.

4. The next code example block on this page is about 3/4 down that does a straight line on an image canvas.

```
*smokey.py - C:\Users\student\Desktop\smokey.py (3.13.7)*
File Edit Format Run Options Window Help

import turtle
screen = turtle.Screen ()
screen.setup (500, 500)
t1 = turtle.Turtle ()
screen.addshape ("smokey.gif")
t1.shape ("smokey.gif")
t1.shape = t1.shape (150, 150)
t1.shape.draw ()
blue = (0, 0, 255)
y = t1.shape.getHeight () // 2
for x in range (t1.shape.getWidth ()):
    t1.shape.setPixel (x, y - 1, blue)
    t1.shape.setPixel (x, y, blue)
    t1.shape.setPixel (x, y + 1, blue)
t1.shape.draw ()
```

Ln: 15 Col: 12

47°F Mostly clear 2:41 AM 11/3/2025

```
IDLE Shell 3.13.7
File Edit Shell Debug Options Window Help

Python 3.13.7 (tags/v3.13.7:bceelc3, Aug 14 2025, 14:15:11) [MSC v.1944 64 bit (AMD64)] on win32
Enter "help" below or click "Help" above for more information.
>>>
===== RESTART: C:\Users\student\Desktop\smokey.py =====
Traceback (most recent call last):
  File "C:\Users\student\Desktop\smokey.py", line 7, in <module>
    t1.shape = t1.shape (150, 150)
TypeError: RawTurtle.shape() takes from 1 to 2 positional arguments but 3 were given
>>>
```

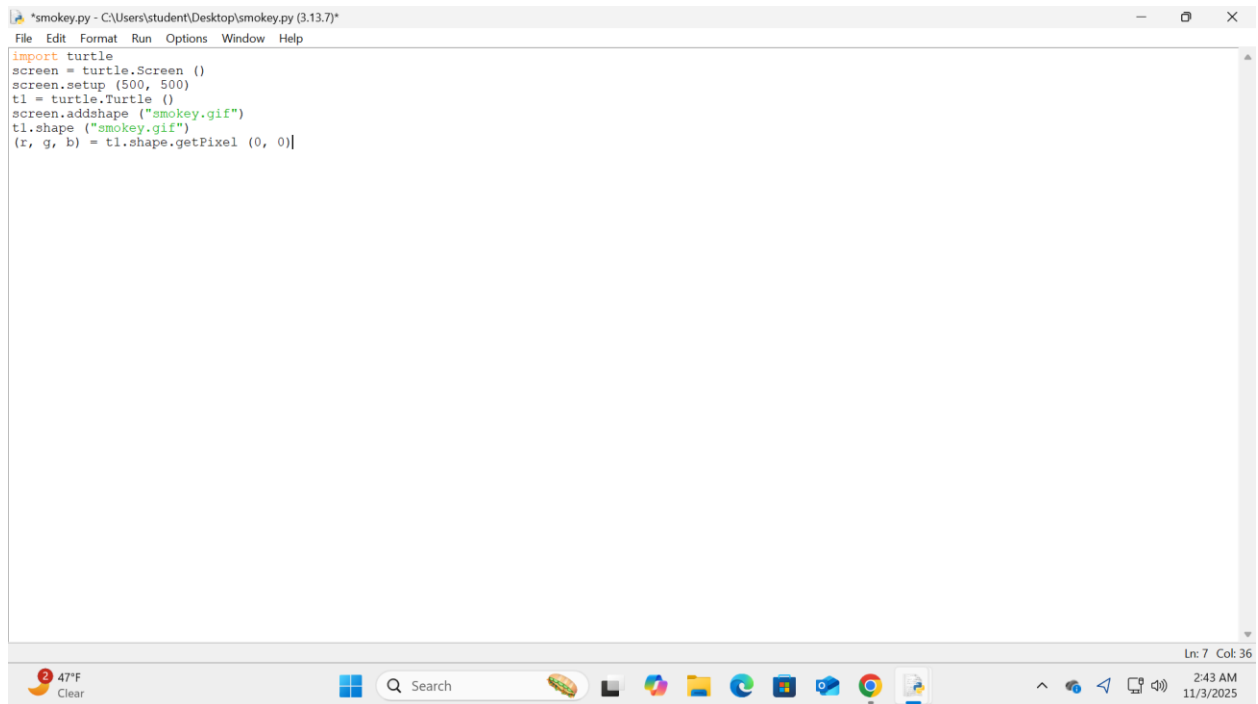
Ln: 9 Col: 0

47°F Mostly clear 2:38 AM 11/3/2025

A word on tuples

Page 209

1. The first code example block on this page gets some r,g,b information from the Smokey image followed by displaying that information.

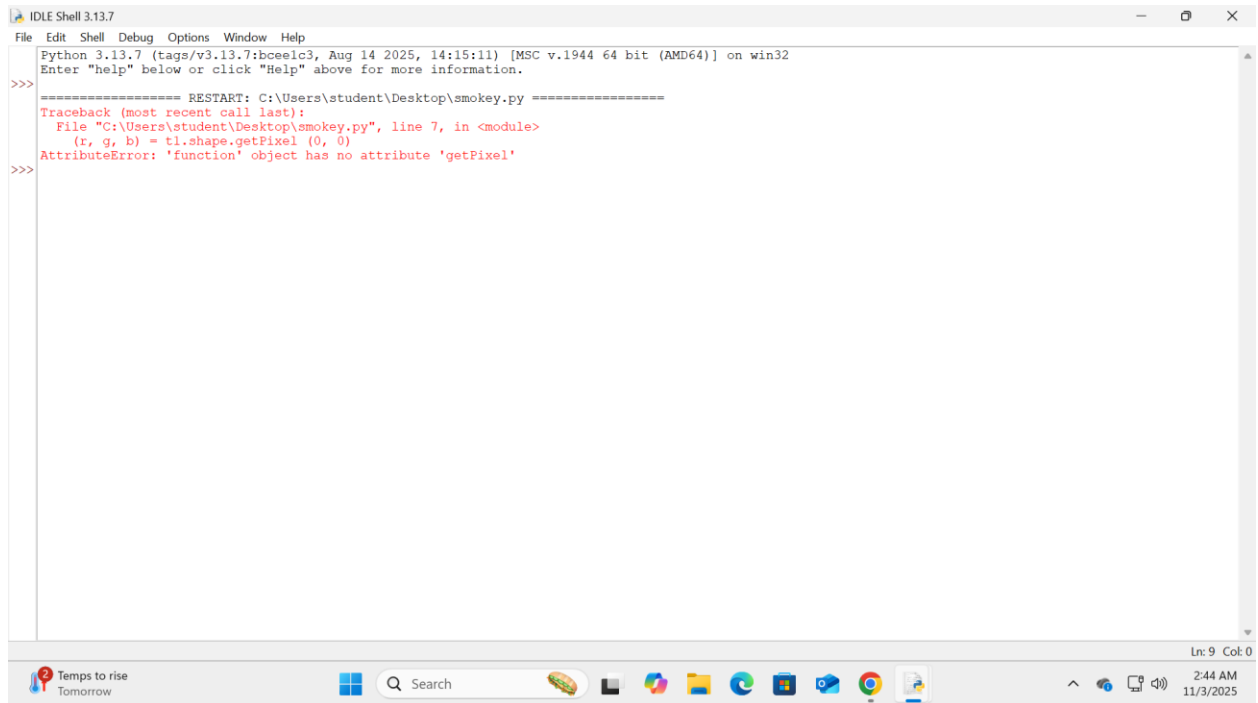


```
*smokey.py - C:\Users\student\Desktop\smokey.py (3.13.7)*
File Edit Format Run Options Window Help
import turtle
screen = turtle.Screen()
screen.setup(500, 500)
t1 = turtle.Turtle()
screen.addshape("smokey.gif")
t1.shape("smokey.gif")
(r, g, b) = t1.shape.getPixel(0, 0)
```

The screenshot shows a Python IDE window titled "*smokey.py - C:\Users\student\Desktop\smokey.py (3.13.7)*". The window contains a Python script that imports the turtle module, sets up a screen and a turtle, loads a "smokey.gif" image, and then retrieves the RGB pixel data at the top-left corner (0, 0) of the image. The script is as follows:

```
import turtle
screen = turtle.Screen()
screen.setup(500, 500)
t1 = turtle.Turtle()
screen.addshape("smokey.gif")
t1.shape("smokey.gif")
(r, g, b) = t1.shape.getPixel(0, 0)
```

The IDE window has a menu bar with File, Edit, Format, Run, Options, Window, and Help. The status bar at the bottom right indicates "Ln: 7 Col: 36". The Windows taskbar is visible at the bottom, showing the time as 2:43 AM on 11/3/2025.

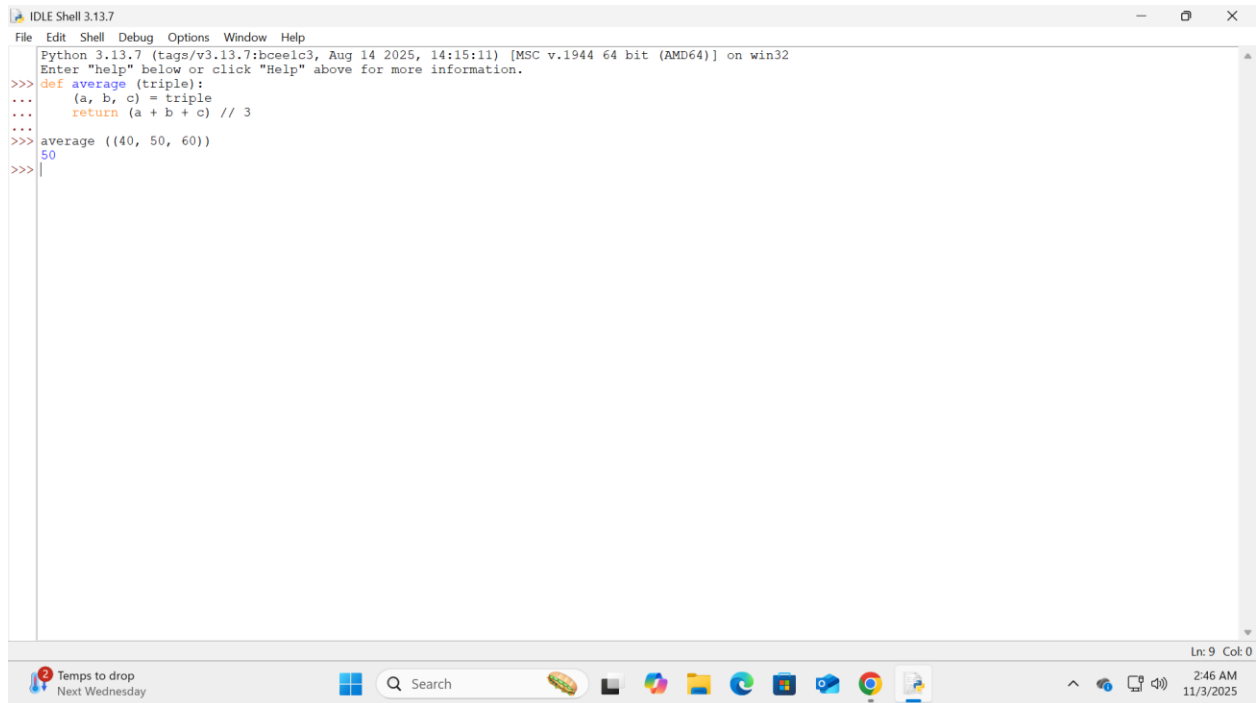


The screenshot shows the IDLE Shell 3.13.7 interface. The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The main text area displays the following content:

```
Python 3.13.7 (tags/v3.13.7:bceelc3, Aug 14 2025, 14:15:11) [MSC v.1944 64 bit (AMD64)] on win32
Enter "help" below or click "Help" above for more information.
>>>
===== RESTART: C:\Users\student\Desktop\smokey.py =====
Traceback (most recent call last):
  File "C:\Users\student\Desktop\smokey.py", line 7, in <module>
    (r, g, b) = tl.shape.getPixel (0, 0)
AttributeError: 'function' object has no attribute 'getPixel'
>>>
```

The Windows taskbar is visible at the bottom, showing the Start button, a search bar, and several application icons. The system tray on the right indicates the time as 2:44 AM on 11/3/2025.

2. The second code example block is setting a specific pixel to a color.
3. The last code example block on this page is the doing the average over 3 numbers.



The screenshot shows a Windows desktop with the IDLE Shell 3.13.7 application open. The window title is "IDLE Shell 3.13.7". The menu bar includes "File", "Edit", "Shell", "Debug", "Options", "Window", and "Help". The main text area contains the following Python code and its output:

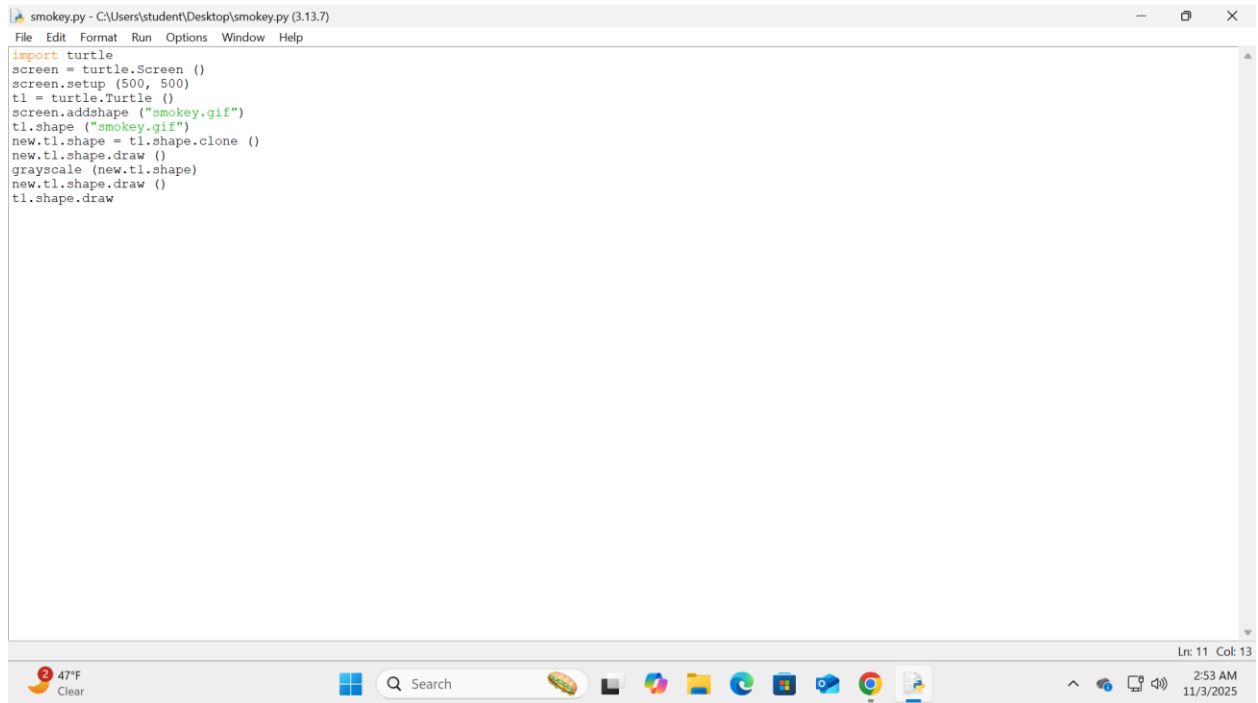
```
Python 3.13.7 (tags/v3.13.7:bceelc3, Aug 14 2025, 14:15:11) [MSC v.1944 64 bit (AMD64)] on win32
Enter "help" below or click "Help" above for more information.
>>> def average(triple):
...     (a, b, c) = triple
...     return (a + b + c) // 3
...
>>> average((40, 50, 60))
50
>>>
```

The Windows taskbar is visible at the bottom, showing the Start button, a search bar, and several pinned application icons. The system tray on the right shows the date and time: "2:46 AM 11/3/2025".

Copying an Image

Page 211

1. Going to make a copy of the Smokey image with that code at the bottom of this page.



```
smokey.py - C:\Users\student\Desktop\smokey.py (3.13.7)
File Edit Format Run Options Window Help
import turtle
screen = turtle.Screen ()
screen.setup (500, 500)
t1 = turtle.Turtle ()
screen.addshape ("smokey.gif")
t1.shape ("smokey.gif")
new.t1.shape = t1.shape.clone ()
new.t1.shape.draw ()
grayscale (new.t1.shape)
new.t1.shape.draw ()
t1.shape.draw ()

Ln: 11 Col: 13
```

There is a lot of image manipulation in this chapter that you should experiment with yourself. This includes the blurring of the image and the resizing of the image.