Overview

In this lesson, you will learn how to access the underlying **Tk canvas** that the turtle library uses. Instead of drawing only with turtle movement commands, you will store the canvas in a variable and use it directly. This sets the foundation for future lessons where you will draw lines, shapes, and graphics without moving the turtle.

Important Information

The turtle library is built on top of **Tkinter**, Python's standard GUI toolkit. When you use turtle, a **Tk canvas** is created behind the scenes. This canvas is the surface that everything is drawn on.

Turtle Screen vs Canvas

There are two important layers to understand:

- **Screen** → the turtle window
- **Canvas** → the drawable area inside the window

The turtle moves and draws on the canvas, but you can also access that canvas directly.

Accessing the Screen

First, you create a screen object:

```
screen = turtle.Screen()
```

This represents the turtle window.

Accessing the Canvas

Once you have the screen, you can get the canvas:

```
canvas = screen.getcanvas()
```

Now:

- `canvas` is a Tk canvas object
- You can draw directly on it without using turtle movement commands
- This allows for more precise and flexible drawing later on

Why Store the Canvas in a Variable

Storing the canvas in a variable allows you to:

- Reuse the canvas throughout your program
- Draw shapes that are not tied to the turtle's position
- Mix turtle-based drawing with canvas-based drawing

Future lessons will build on this by using the canvas to draw lines, rectangles, circles, and more.

Set Up

Create a new Python file called `turtle_canvas.py`.

Copy, Change, Challenge

Copy

Copy and run the following code.

```
import turtle

screen = turtle.Screen()
canvas = screen.getcanvas()

turtle.done()
```

When you run this program:

- A turtle window opens
- No turtle movement happens
- The canvas is created and stored in the `canvas` variable

Nothing visible is drawn yet, and that is expected.

Change

Modify the program so that:

- A turtle object is created and stored in a variable
- The turtle appears on the canvas
- The turtle moves forward and turns at least once

Do **not** draw anything directly on the canvas yet. Use only turtle movement commands.

Run the program and confirm that:

- The turtle is visible
- The canvas stays open
- The turtle movement happens on the screen

Challenge

Extend the program so that:

- The turtle is moved to a new position on the canvas
- The turtle changes direction at least twice
- The turtle ends in a different location than where it started

The canvas variable should still exist in your program, even if you are not using it yet.