Python Turtle Graphics

Introduction

Python is one of the biggest and most used program languages in computing history. But today we will be looking at one of the main aspects of Python, that makes it so powerful, and user-friendly. I am talking about the Turtle Graphics.
Python is rich with multiple libraries and is mostly supported by them. This also includes the Turtle graphics library. The Turtle Graphics library is one of the most used library, partly because it's really straightforward, and partly because it's inbuilt in Python.

The Turtle Module

The Turtle module provides a library of features that allows something called **'Vector Graphics'** to be created. Vector Graphics refers to the lines or vectors that are drawn on the screen. This **'drawing area'** is referred to as a **'drawing board'** or the **'drawing plane'**, and is related to the idea of x and y coordinates.
However, the Turtle library is intended as a basic drawing tool for 2D; and other libraries can be used for drawing two or three dimensional objects or shapes focusing on selected types of graphical displays.

The creation for the Turtle Module and its name came from the Logo Programming language from the 60s and 70s which was designed to introduce programming to children back then. It had an on-screen turtle that was controlled by commands like **'forward'**(which moved the pen or turtle forward by a certain step), **backward**(which moved the pen or turtle backward), **left** (turned the turtle left by a certain number of degrees), etc.
This idea is continued, and the current Python uses these simple yet effective commands along with other commands, to create the Turtle Module Library.

Basic Turtle Commands

Although this Turtle Module is inbuilt in Python, it is necessary to import it, using:

```
import turtle
```

So, in order to start or create any turtle project in Python, we must first import Turtle. But there are some more important steps in order to completely use the turtle module. Here are some of the most prominent and most used Turtle commands in Python:

`turtle.forward(distance)`

Moves the pen or turtle forward by a specified amount of pixels.

`turtle.right(angle)`

Moves the turtle or pen right by a specified angle.

`turtle.left(angle)`

Moves the turtle or pen left by a specified angle.

`turtle.penup()`

Lifts the pen up so that it moves without drawing anything.

`turtle.pendown()`

Puts the pen down so that it moves while drawing it's path.

`change_color(color)`

Changes the color of the pen (note that we are using american English here)

`set_position(x, y)`

Sets the Turtle or the pen to the specified coordinates