Turtle Graphics

The turtle module implements a simple drawing tool based on the LOGO programming language, which was invented in the 1960's as a teaching tool for children. A “turtle” is like a pen that can be controlled to move on a two-dimensional “screen” (window). Positions on a screen are indicated using Cartesian coordinates with the origin (0, 0) indicating the center and distances measured in pixels. Like a pen, the turtle is either up or down. When down, it draws as it moves; when up, it does not draw anything. Some common commands:

- `turtle.penup()` / `turtle.pendown()`: set the state to be up (not drawing)/down (drawing).
- `turtle.setheading(angle)`: set the direction the turtle is facing to `angle` degrees (e.g., 0 for east, 90 for north, etc.).
- `turtle.showturtle()` / `turtle.hideturtle()`: show/do not show the turtle (a cursor).
- `turtle.pensize(width)`: set the line thickness to `width` (a positive int).
- `turtle.color(s)` / `turtle.color(r,g,b)`: Set the color for drawing. The argument is a Tcl color string (‘red’, ‘green’, ‘blue’, etc.)/the arguments are three floating point numbers between 0.0 and 1.0 indicating the amounts of red, green, and blue, respectively. The default pen color is ‘black’.
- `turtle.forward(distance)` / `turtle.backward(distance)`: move the turtle `distance` pixels forward (in the direction the turtle is facing)/backward (in the opposite direction).
- `turtle.left(angle)` / `turtle.right(angle)`: rotate the turtle left/right (counter clockwise/clockwise) by `angle` degrees.
- `Turtle.goto(x,y)`: move along a straight line to the coordinates `(x,y)`.
- `turtle.circle(radius)`: draw a circle of the indicated radius (in pixels), counter-clockwise and tangent to the direction the turtle is facing.
- `turtle.clear()`: clear the screen.
- `turtle.begin_fill()`, `turtle.end_fill()`: To fill a shape, use `turtle.begin_fill()` just before drawing the shape, draw the shape, and use `turtle.end_fill()` right after drawing the shape. The shape drawn between the two fill commands will be filled with the present color.
- `turtle.bye()`: close the drawing screen window.