

CMSC 143: Object-Oriented Programming with Robots

Lab 9: Turtle Power

Due November 19, 2015

Add the following methods to the `Turtle` class we designed and implemented in class. You will have to add new attributes as well.

1. `penUp()`: turn trail drawing off.
2. `penDown()`: turn trail drawing on.
3. `moveBy(t, r)`: turn the turtle left by `r` degrees, move forward by `t` units, similar to `Myro.move(t,r)`. Then you can drive the turtle with the gamepad like so:

```
from Myro import *
from Graphics import *

win = Window(500, 500)
turtle = Turtle(win)
for time in timer(60):
    r, t = getGamepadNow("axis")
    turtle.moveBy(5*t, 2*r)
    wait(.1)
```

4. `moveTo(x, y)`: move the turtle to the location `x, y` in the window (drawing a trail if the pen is down).
5. `dropCircle(radius)`: draw a circle at the turtle's current position.
6. `dropRectangle(width, height)`: draw a rectangle at the turtle's current position.
7. `setPenColor(c)`: change the trail color to color object `c`.
8. `setLineWidth(width)`: change the trail line width (using the `setWidth()` method for shapes).

Create a test function `turtleTest()` that uses all the methods you create.

Learning Objectives

- Work with Classes
- Create Methods
- Create Attributes

Deliverables

Submit an electronic copy of your lab using moodle. Your program should have your name, email, assignment description, the date, and collaboration statement at the top of the file as a comment. Your submission should be a zip file that expands to a folder with a single file.

```
cmsc143-lab9-LASTNAME-FIRSTNAME/
lab9.py
```