

Discussion 3: Turtles

SI 206: Data-Oriented Programming

Instructor: Dr. Barbara (Barb) Ericson

GSI: Kexuan (Michael) Huang

IA: Cristina & Jade

School of Information
University of Michigan

Fall 2023

Reminders

Before We Begin

Some Useful
References

- Submit your work to [Canvas Assignment / Discussion 3](#)
- **Due by the end of the discussion**, counted as attendance
- Homework 2 due this Friday

Why Turtle?

Before We Begin

Some Useful
References

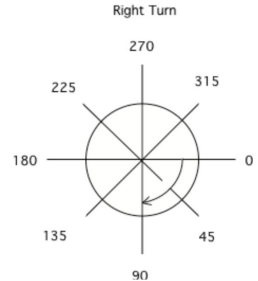
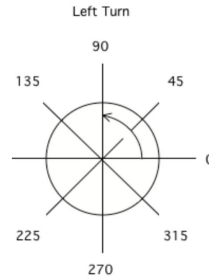
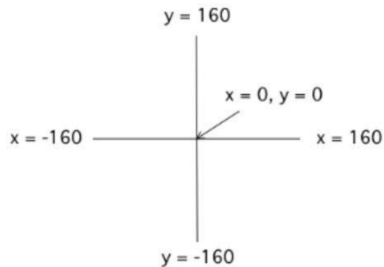
- As an intro to **Object-Oriented Programming** (or OOP)
- Your turtles (and screen) are **objects** that you can manipulate by calling their **methods**, for example:
 - `t.forward(500)`
 - `screen.bgcolor('#3A3B3C')`
- We will cover more about OOP in next lectures

Coordinate and Direction

Before We Begin

Some Useful
References

- We have coordinates and directions for drawing
- The space that the turtle draw is 320 by 320 pixels.
- The center of space is at $x=0$, $y=0$



Turtle Methods

[Before We Begin](#)[Some Useful
References](#)

- `forward(amount)` and `backward(amount)`: move the turtle by specified amount
- `color('colorname')`: set the pen color
- `goto(x, y)`: move the turtle to position (x, y)
- `pendown()`: puts down the turtle's tail (pen) so that it draws
- `penup()`: picks up the turtle's tail (pen) so that it doesn't draw
- `pensize(width)`: set the width of the pen
- `left(degree)` and `right(degree)`: turn the turtle by specified angle
- `setheading(degree)`: turns the turtle to face the given heading (0: east, 90: north, 180: west, 270: south)
- `fillcolor('color')`: sets the fill color of a shape
- `begin_fill()` and `end_fill()`: all instructions in between are filled with color
- `circle(radius)`: draws a circle with the specified radius

Screen Methods

Before We Begin

Some Useful
References

- `screenSize(width, height)`: changes the screen size
- `bgcolor(color)`: changes the background color
- `exitonclick()` : stops the program from exiting until you click it

Draw an Emoji!

Before We Begin

Some Useful
References

- Write functions to draw different shapes and use them to draw Emoji.
- **Starter code:** go to Canvas / Files / Discussions / Discussion 3
- Upload a screenshot of your Emoji to:
<https://padlet.com/barbarer/emojis-from-discussion-qb5yi4q3solc1q6k>
- **Submit your code to Canvas Assignment by the end of this discussion**

