WELCOME TO TECHNOVATION Week 2 - October 1



Agenda

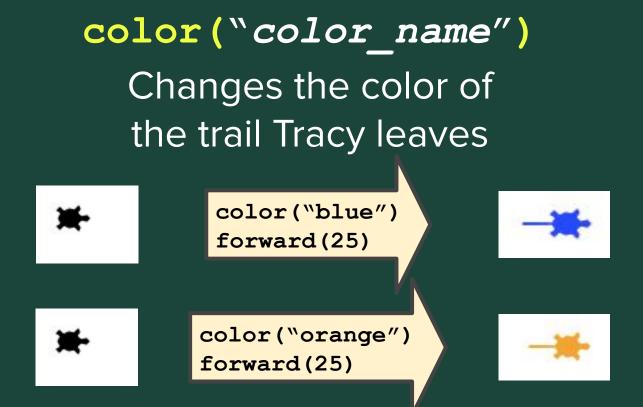
- Club contract & Icebreaker
- Lesson 2: Colors and Variables
 - Colors
 - Variables
 - User Inputs
- Coding challenges
- Standup

Club Contract

We've written down all of your responses from the club contract last week and now it's time to sign it!

Ice Breaker! - Name Train

Tracy Command: color



Some Color Names You Can Use

"black"	"orange"	"gold"	"white"
"blue"	"pink"	"gray"	"violet"
"brown"	"purple"	"green"	"indigo"
"cyan"	"red"	"tangerine"	"mauve"

Default color: "black"

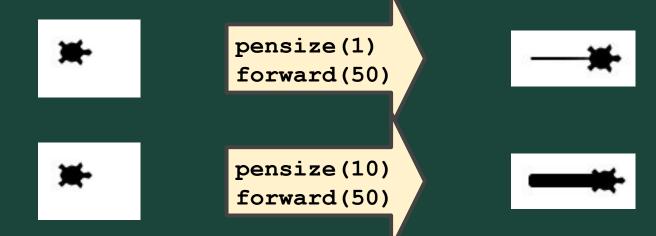
More color names at:

https://www.webucator.com/article/python-color-constants-module/

Tracy Command: pensize

pensize(number)

Changes the thickness of the trail Tracy leaves



Tracy Command: begin_fill(), end_fill()

begin fill()

Start keeping track of closed shapes that are drawn

end fill()

Stop keeping track of closed shapes and fill them



```
begin_fill()
circle(50)
end_fill()
```



Tracy command: setposition

setposition (x, y)

Moves Tracy to the given coordinate



Tracy command: speed

speed (number)

Sets how quickly Tracy will move through commands

speed(1)

speed(5)

speed(10)

speed(0)

Slowest

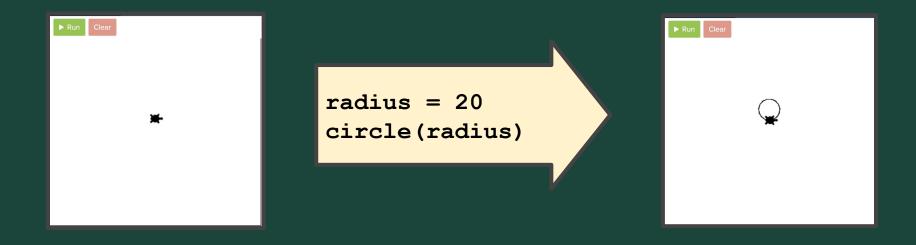
Medium

Very Fast

Fastest!

Tracy command: Assignment

name = value

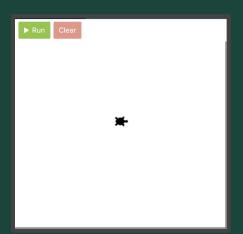


More About Variables

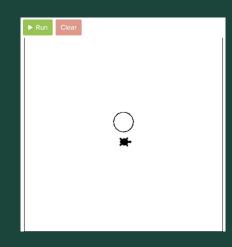
A variable is like a "box" for a "value" (number or text)



What's the Deal With Variables?



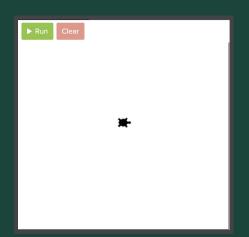
```
radius = 20
circle(radius)
penup()
setposition(0,-radius)
pendown()
```



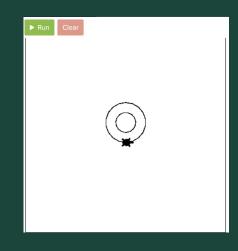
Variables let us set a value *once*, and then use that same value over and over!

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What's the Deal With Variables?



```
radius = 20
circle(radius)
penup()
setposition(0,-radius)
pendown()
radius = 2*radius
circle(radius)
```

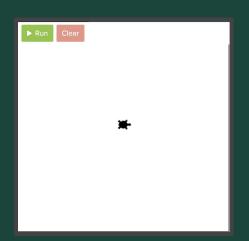


Variables let us set a value *once*, and then use that same value over and over!

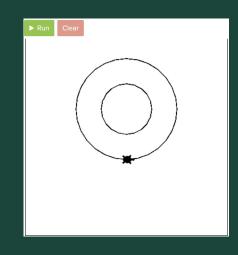
Variables can be modified to store different values over time!

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What's the Deal With Variables?



```
radius = 50
circle(radius)
penup()
setposition(0,-radius)
pendown()
radius = 2*radius
circle(radius)
```



Variables let us set a value *once*, and then use that same value over and over!

Variables can be modified to store different values over time!

Variables make it easier to read and modify code!

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Rules for Naming Variables

A Variable Name:

- Should start with a letter
- Consists of letters, numbers, and underscores ('_')
- Cannot be a Python "reserved word"
 (e.g., int, float, input, print, ...)
- Should be meaningful for example:

radius speed hair_color

User Input (Text)

Variables can also be used to save *user input*, letting the user indicate values on-the-fly while running programs!

Use assignment with the input("prompt") function!

```
clr = input("Enter a color: ")
# if the user types "green"
color(clr)

clr = input("Enter a color: ")
# if the user types "blue"
color(clr)
"blue"
```

User Input (Numbers)

The user inputs a "string", or sequence of characters.

To use a user input as a number, you have to tell Python to convert it to an "int" or a "float" – use int(...) or float(...)

```
length

length = int(input("Enter an int: "))
# if the user types "200"
forward(length)
```

Command	What does it do?	
<pre>color("color name")</pre>	Changes Tracy's trail color	
pensize (number)	Changes Tracy's trail thickness	
begin_fill()	Starts tracking closed shapes	
end_fill()	Fills & stops tracking closed shapes	
setposition(x, y)	Moves Tracy to the input coordinates	
speed (number)	Sets how fast Tracy executes commands	
name = value	Saves the value in the variable	
<pre>input("prompt")</pre>	Prints prompt and waits for user input	
int(), float()	Converts a value to a number (int or float)	

Standup

- What is a challenge you faced today?
- What is something you were successful with?
- What do you want to improve on for next week?
- What are you most excited to learn?

Temperature Check

https://forms.gle/2RFvixVSe7C5vzzz5