

Welcome

Algorithmic Thinking with Python

Course Schedule

Teaching Classes

Tuesdays/Thursdays

(12).
=

Discussion/Doubts

Saturdays



Course Page

On the loveformath website

Coding Platform

Repl



Being Ready

Keep loveformath, Zoom and Repl open!

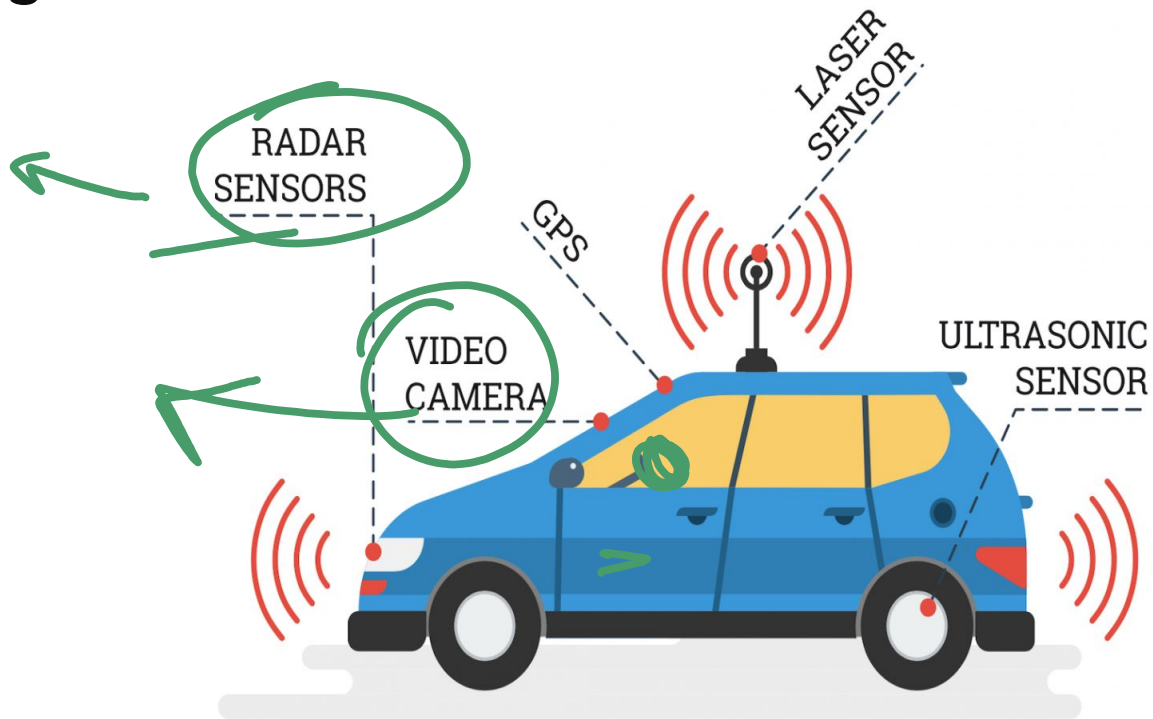
**You can create many
interesting applications and
products in the future.**

Design

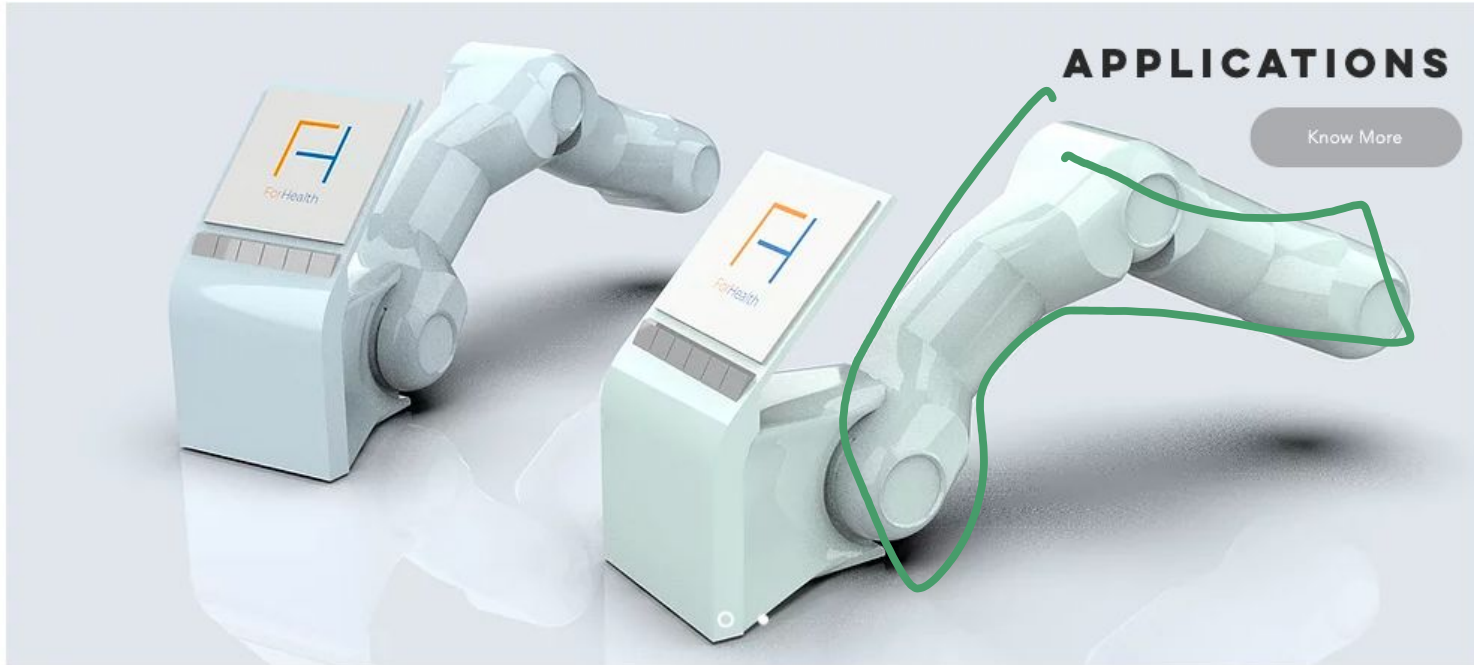
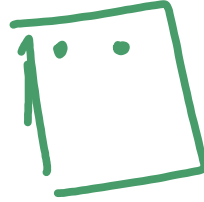
Founder.



Self Driving Cars



Medical Innovation



Chatbots

Teacher.



u up? then text
844-823-5621
insomnobot-3000

A friendly, easily distracted bot designed to keep you company when you just can't fall asleep.

Extra chatty between 11pm-5am.

Created by Casper

You up?

Yeah, can't sleep.

I definitely drank too much coffee today!!

It's so late.

You're going to be so out of it tomorrow.

I should definitely set my alarm, haha.

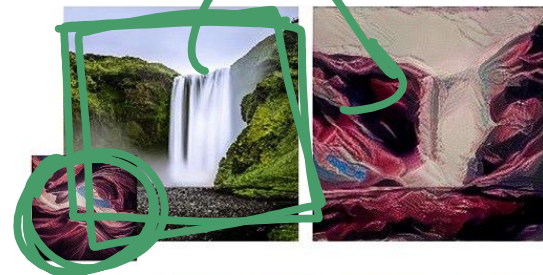
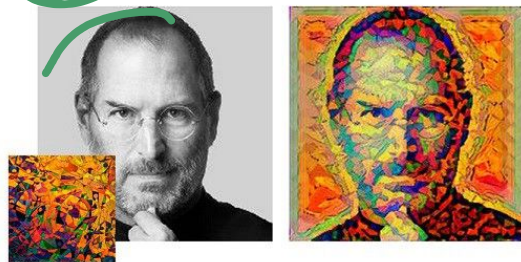
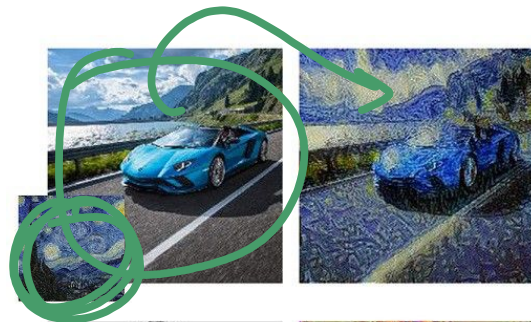
Although maybe I should just call out sick to work?

That is the best idea I heard all day.

Like Share Tweet

Image transformation

AI



Mobile Applications



This is the start of the
journey

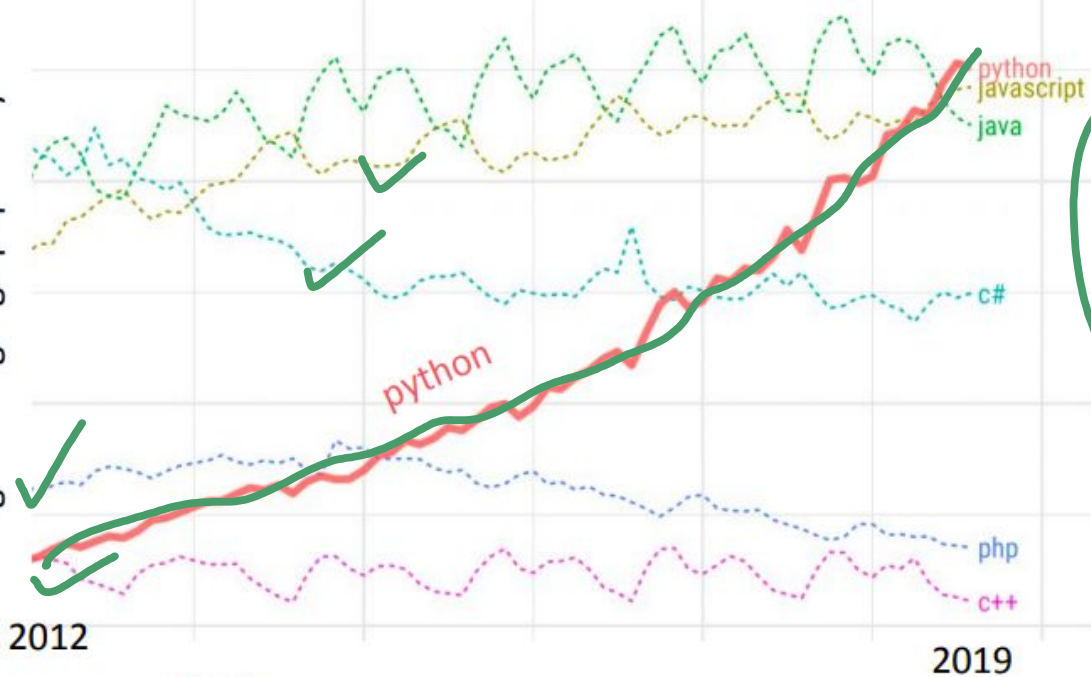
Let's start on a adventure to
learn Python.

Why Python?

real

1

Program language popularity

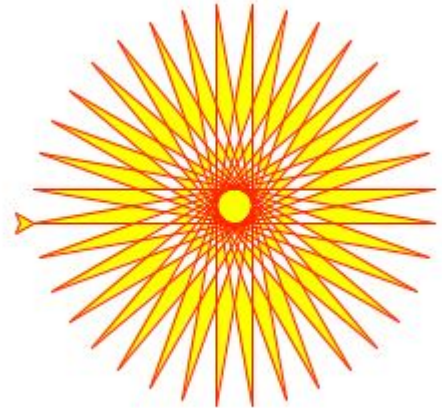


2



Meet the Turtle

Helps to draw patterns



Goal for today

- Learn Basic Turtle commands
- Draw with the Python Turtle
- Learn For Loops
- Learn to define Functions, and why functions are important
- Complete 10 Drawing Challenges.

Turtle commands

~~t.up()~~

~~penUp()~~

```
import turtle  
t = turtle.Turtle()
```

```
t.forward(50)
```

```
t.right(40)
```

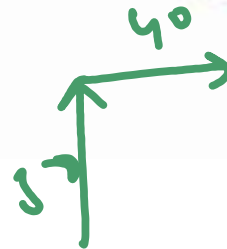
```
t.circle(30)
```

```
t.up()
```

```
t.down()
```



turn?
move?



The Turtle Cheat Sheet!

```
import turtle
```

```
t = turtle.Turtle()
```

```
t.forward(x), t.back(x)
```

```
t.right(angle), t.left(angle)
```

```
t.up(), t.down()
```

```
t.setheading(angle)
```

```
t.fillcolor("red")
```

```
t.begin_fill()
```

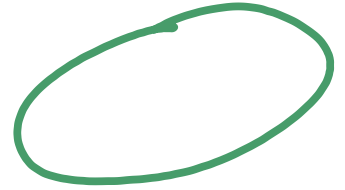
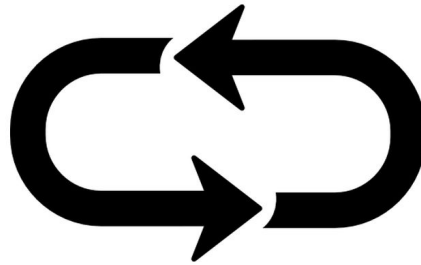
```
t.end_fill()
```

Let's try some Turtle
commands.

Draw a square with turtle.



Using a for loop!



Using a for loop!

When we want to **repeat** certain actions
continuously



for (i) in range(10)
2 write(i)

0, 1

Using a for loop

for i in range(5):
1 ☐ forward(100) ✓
2 ☐ right(90) ✓
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐
8 ☐
9 ☐
10 ☐

1
2
3
.
.
.
.
.
.
.
10

Challenge 1

Just run the code and submit!



Challenge 2

- Make 2 changes in the code and submit.
- Write the effect of change in the comments



Challenge 3

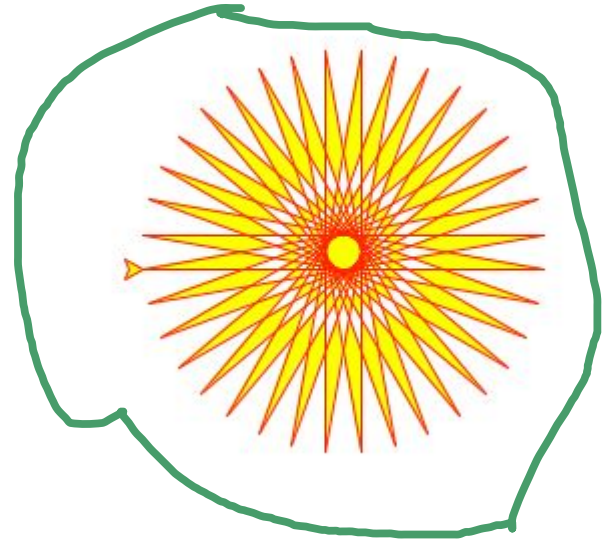
- Draw a square, triangle and hexagon using a for loop.
- Fill them with a color of your choice.

Challenge 4

- Draw a staircase with the turtle using a **for** loop.

Challenge 5

- Draw a 5 pointed star.
- Also, draw a multi-pointed star.





Challenge 6 – (HW) (Escape the maze)



Goal for this week

- **Learn Basic Turtle commands**
- **Draw with the Python Turtle**
- **Learn For Loops**
- **Learn to define Functions, and why functions are important**
- **Complete 5 Challenges.**

Function in Python.



What does a function do?

A decorative graphic consisting of several thick, black, wavy lines that curve upwards and to the right, positioned in the top right corner of the slide.

Combines some smaller steps to do a new task.

We don't need to think again and again.

A function to turn left.

Using the command *right*.





```
def turn_left():  
    t.right(90)  
    t.right(90)  
    t.right(90)
```



Challenge 7

- Define a function to turn left.



Functions with values.





Challenge 8

- Define a function to draw a rectangle of given size (length and breadth)
- Can you fill it with a color of user's choice.





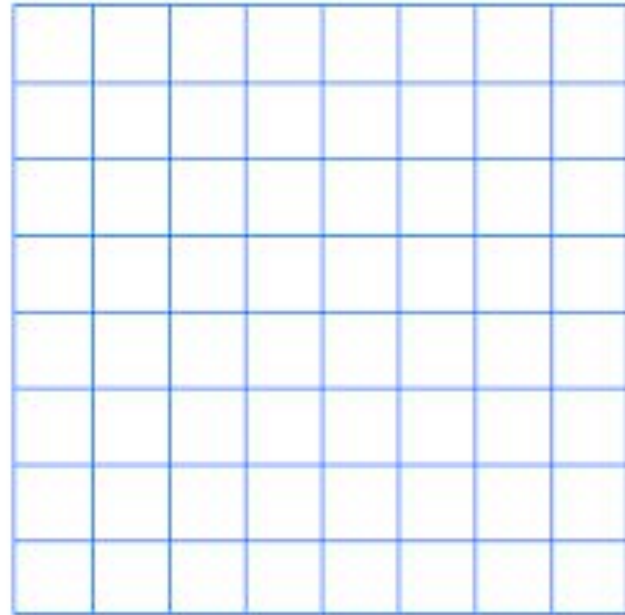


**A function to make a
rectangle.**



Challenge 9 (HW)

- Define a function which creates a grid of any given size (n)







Challenge 10 (HW)

- Create your own new interesting shape or pattern.





Goal for today

- Learn Basic Turtle commands
- Draw with the Python Turtle
- Learn For Loops
- Learn to define Functions, and why functions are important
- Complete 10 Drawing Challenges.

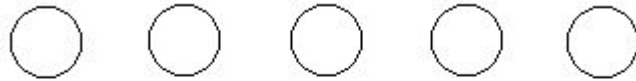
Thank you!! :)

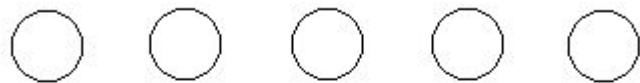




**We need to connect all these
dots using a line.**

What will be the steps involved?





What will our function do?

It will connect all circles (beads) in a line.



What does our function look like?

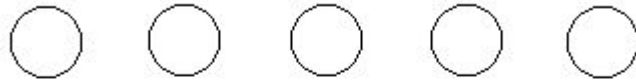






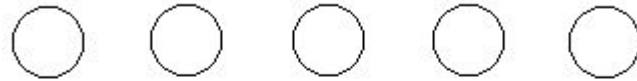
Challenge 8

- Connect the circles in a line, using a function.



Challenge 9

- Connect the circles in a line.



Connect



