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COURSE PRESENTATION

Python: A Language for World Inventors

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TEACHER(S)

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Computers are everywhere!

Computers are programmable!

Electronic circuits can do many (every?) things, if properly configured

But configuring them is HARD for humans!

Programming languages

Electronic circuits can do many (every?) things, if properly configured

But configuring them is HARD for humans!

So ad hoc **languages** were invented, to meet in the middle!

```haskell
type ComplexPoint = Complex Double

mandelbrot :: Int -> ComplexPoint -> Bool
mandelbrot maxIter c = escape maxIter c 0
  where
    escape 0 _ _ = True
    escape n c z
      | magnitude z > 2 = False
      | otherwise       = escape (n-1) c (z*z + c)

iterateSequence :: ComplexPoint -> [ComplexPoint]
iterateSequence c = iterate (\z -> z*z + c) 0

mandelbrotSet :: Int -> Int -> Int -> [String]
mandelbrotSet width height iters =
  [ [ toChar $ mandelbrot iters (mkComplex x y) | x <- xs ]
  | y <- ys ]
  where
    xs = map (\x -> 3.0 * fromIntegral (x - width `div` 2) / fromIntegral width) [0..width-1]
    ys = map (\y -> 2.0 * fromIntegral (y - height `div` 2) / fromIntegral height) [0..height-1]
    mkComplex x y = x :+ y
    toChar True  = ' '
    toChar False = '#'
```

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Coding
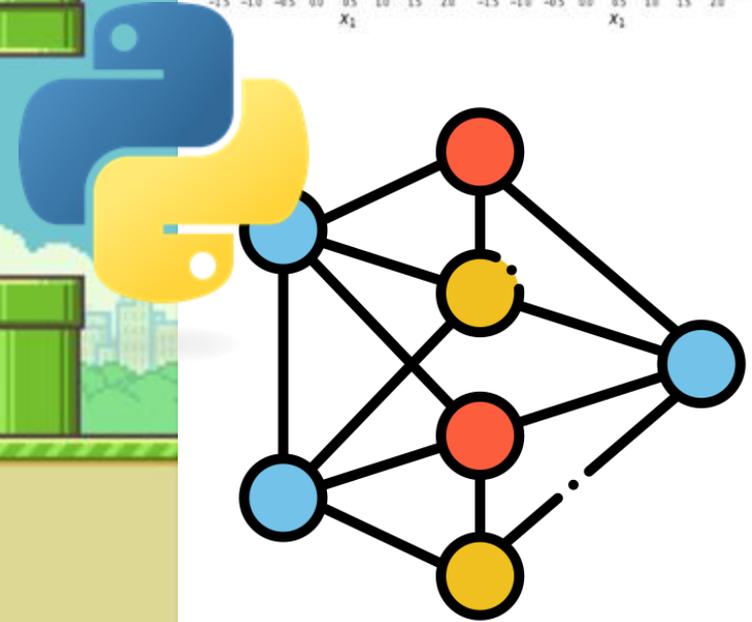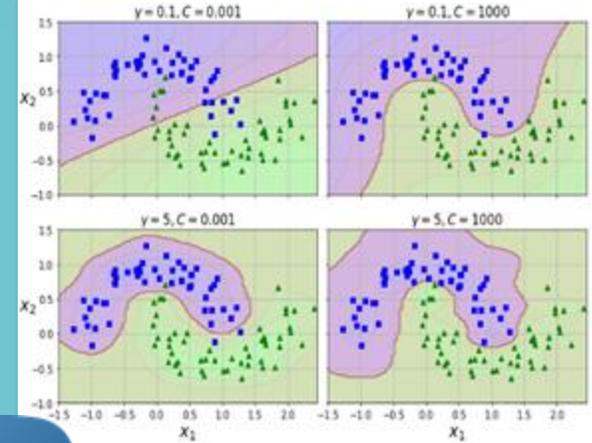
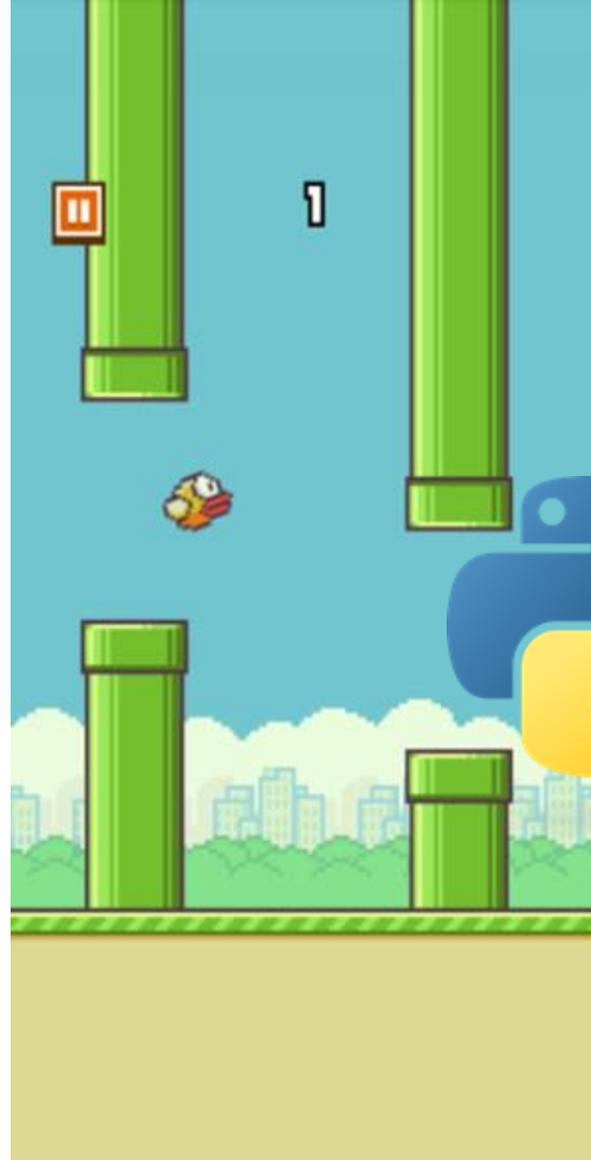"Coding" means speaking those special languages

Not only to talk to computers:
it can also be a tool for thinking!

Python

"Coding" means speaking those special languages

Not only to talk to computers:
it can also be a tool for thinking!

Objections?

"Just tell ChatGPT what you want in plain English, and it'll code for you!»

But will it, really?

- Maybe coding isn't just a way to *program*, but a **thinking tool**

- Want an informed opinion in the debate?

Then learn to code yourself!

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