Dr Gabriele Salciute Civiliene

gabriele.salciute-civiliene@kcl.ac.uk

Coding & the Humanities

Week 1 | Part 2_What is Coding?

21/09/2020

Coding = art, poetry, lifestyle?

"While I was researching my book, CODERS," says author Clive Thompson, "I talked to a lot of developers who absolutely love Python. Nearly all said something like 'Python is beautiful.' They loved its readability—they found that it was far easier to glance at Python code and see its intent. Shorn of curly brackets, indented in elegant visual shelves, anything written in Python really looks like modern poetry."

Interview with Guido van Rossum, *The Mind at Work*

https://blog.dropbox.com/topics/work-culture/-the-mind-at-work--guido-van-rossum-on-how-python-makes-thinking

Code vs Program

- Coding = convert natural language into binary code
- Programming = find solutions to a problem by using code, computers, and more

Computing

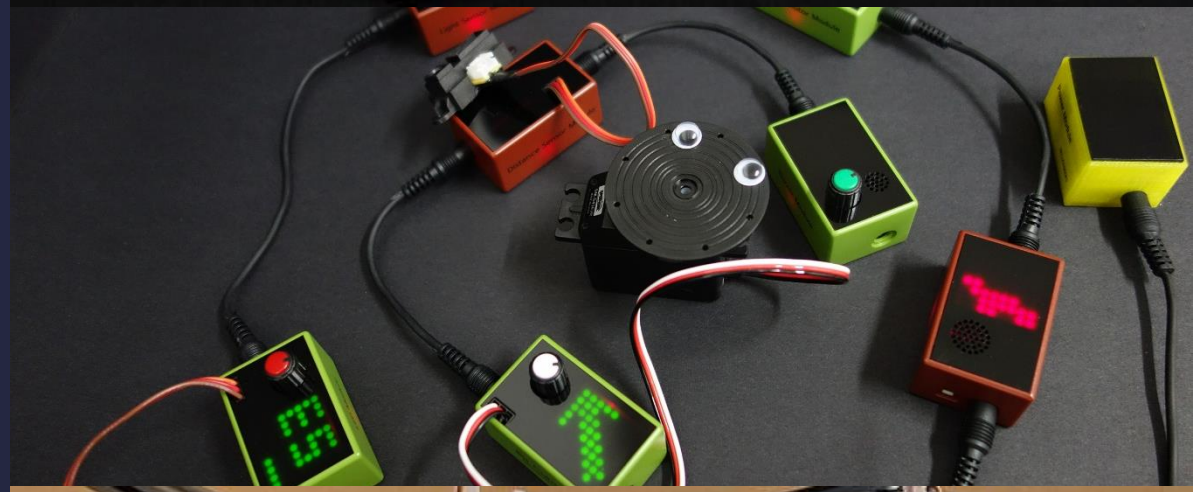
- Use of computers to complete a task
- Studying computable processes and structures
- Designing and building software and hardware
- Designing solutions before operationalizing them

Types of Coding/Programming

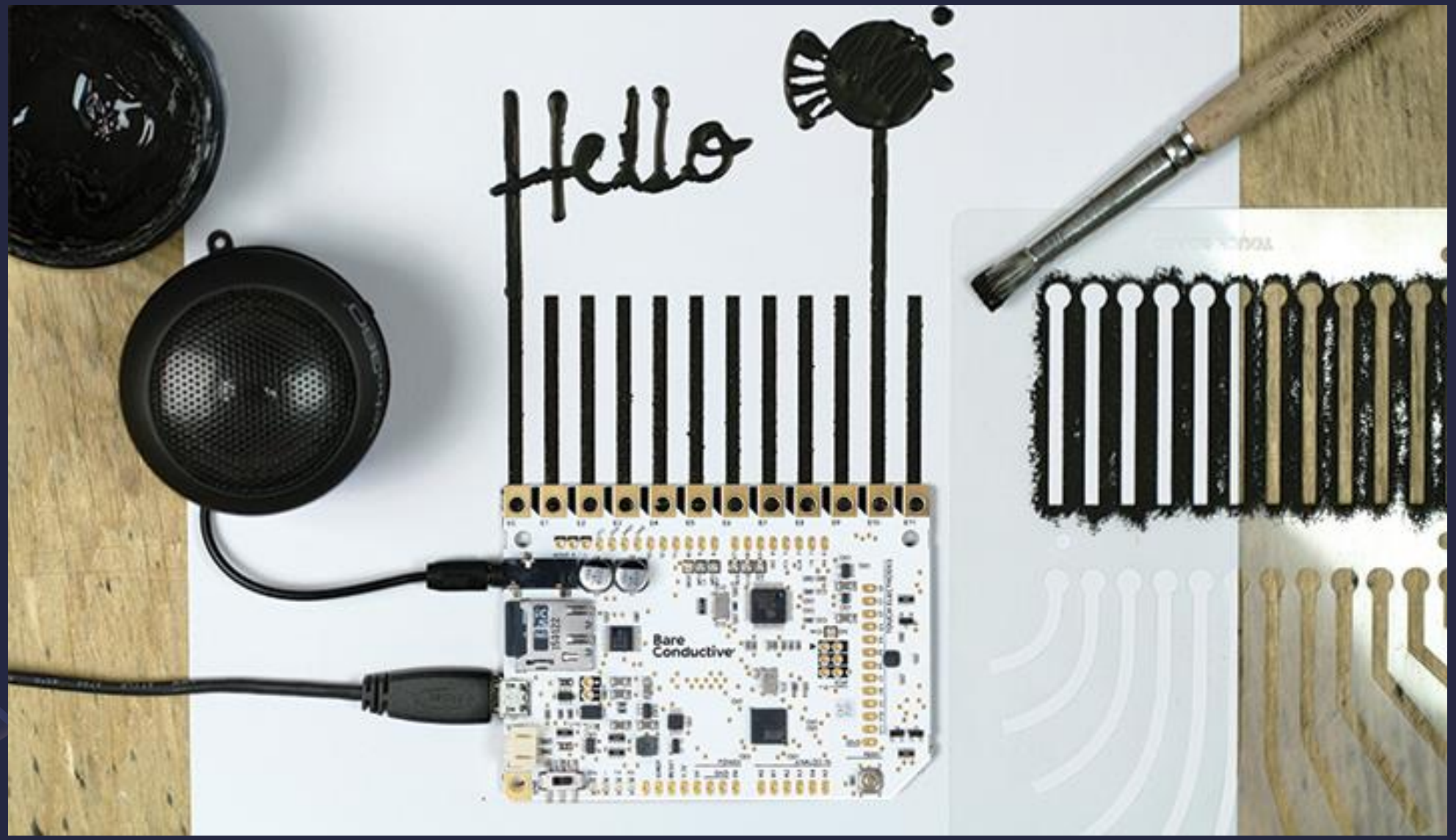
- Physical
- Visual
- Textual

Physical Coding & Programming

- It develops interactive physical systems by the use of software and hardware
- Creates programmes by physically manipulating computationally augmented or aware objects & systems
- Objects/Systems are designed to take input from a variety of sensors and
- Control & produce a variety of physical outputs such as lights and sounds



Bare Conductive



Education: Project Torino

Art: Fabio Lattanzi Antinori

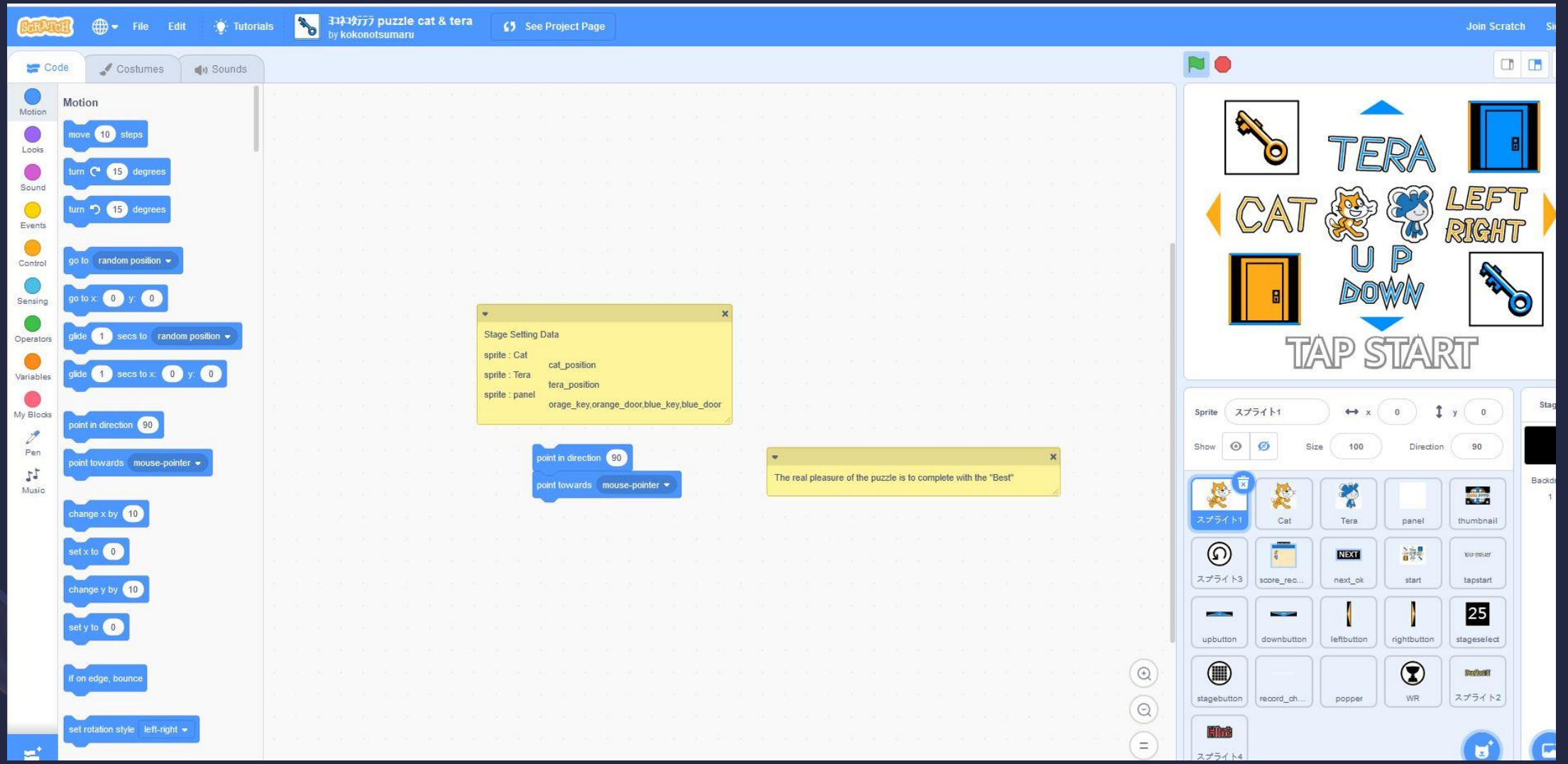
Visual Coding/ Programming

Uses illustration & Drag-and-Drop UI to describe and build a program

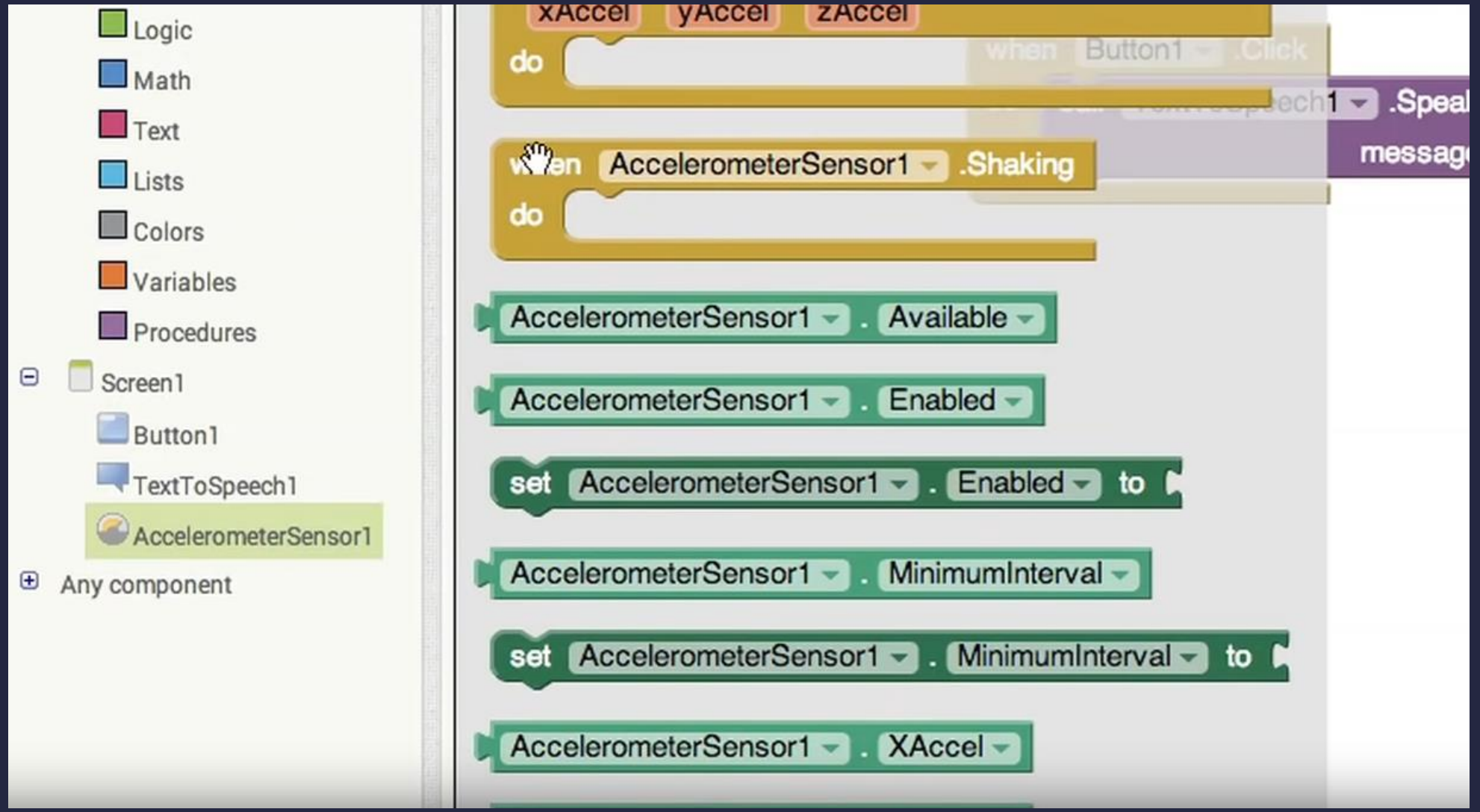
3 strands of application:

- Games and education
- Multimedia visual programming
- Business visual programming

Games & Edu: MIT's Scratch

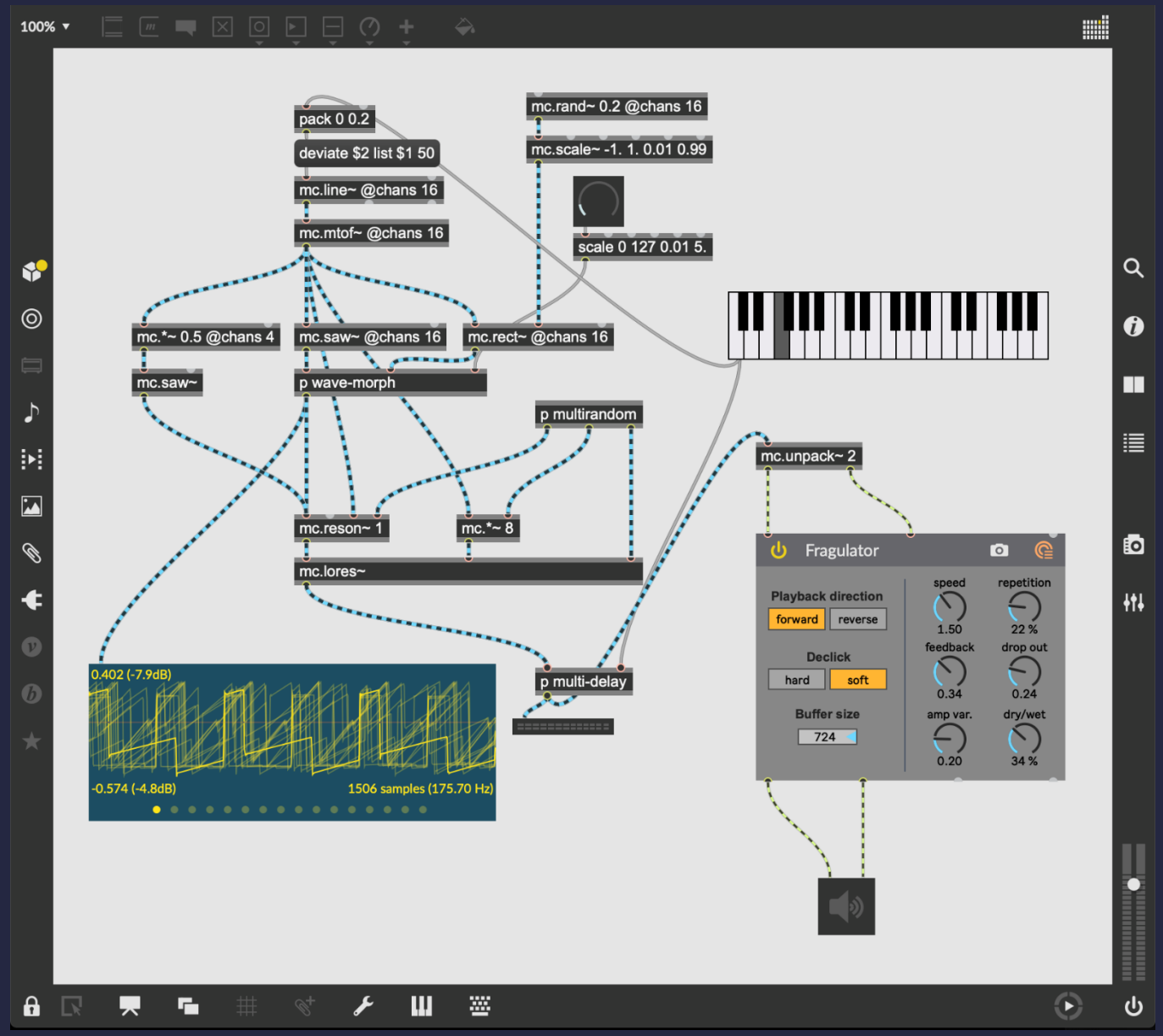


Games & Edu: MIT's App Inventor



Multimedia & Art:

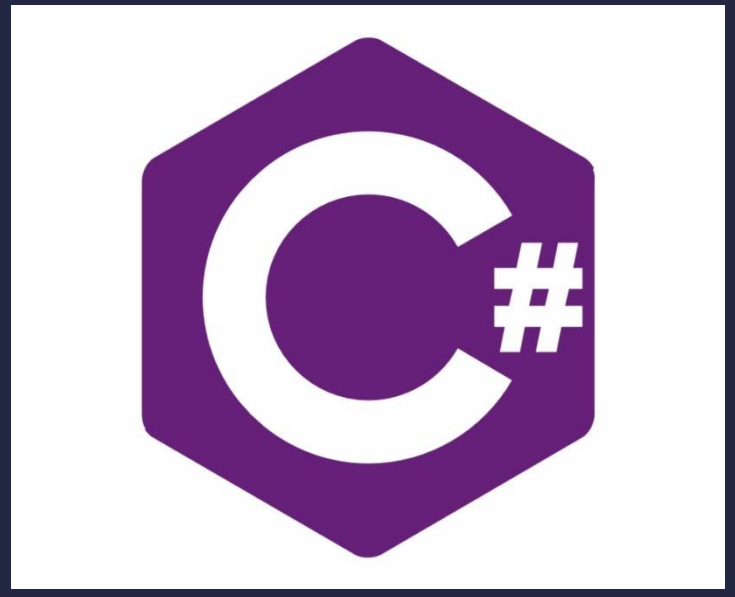
Max



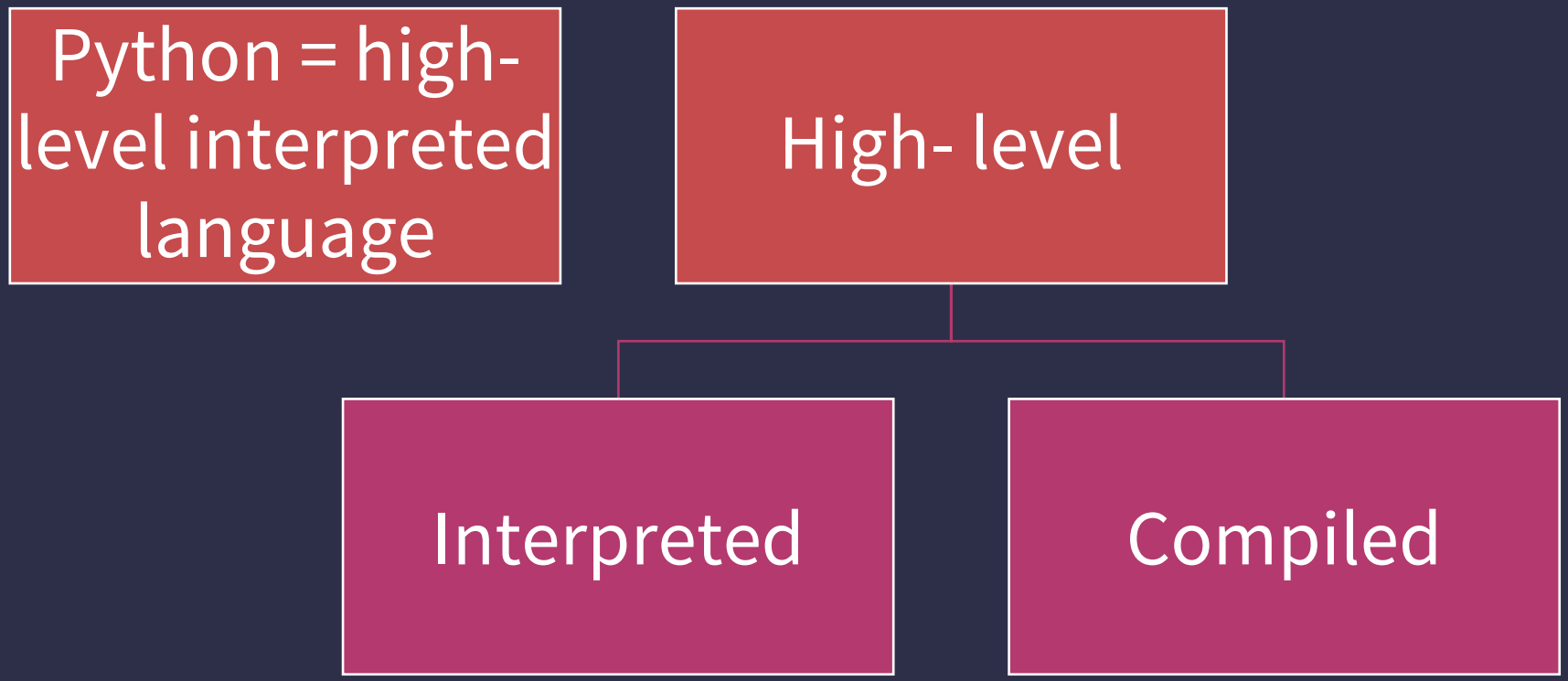
Business: OutSystems

Textual Coding/Programming

Representation of **programming** processes is based on written texts



What Type is Python?



Python's Advantage

- "Certainly the fact that it's an interpreted language as opposed to a compiled language means that the programmer gets immediate feedback about the code they're writing without needing to take the time to recompile it after making each change."

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Machine Code/Language

Assembly Language	Machine Code
SUB AX,BX	001010111000011
MOV CX,AX	100010111001000
MOV DX,0	10111010000000000000000

Here's what a program-fragment looks like:

10100001 10111100 10010011 00000100
00001000 00000011 00000101 11000000
10010011 00000100 00001000 10100011
11000000 10010100 00000100 00001000

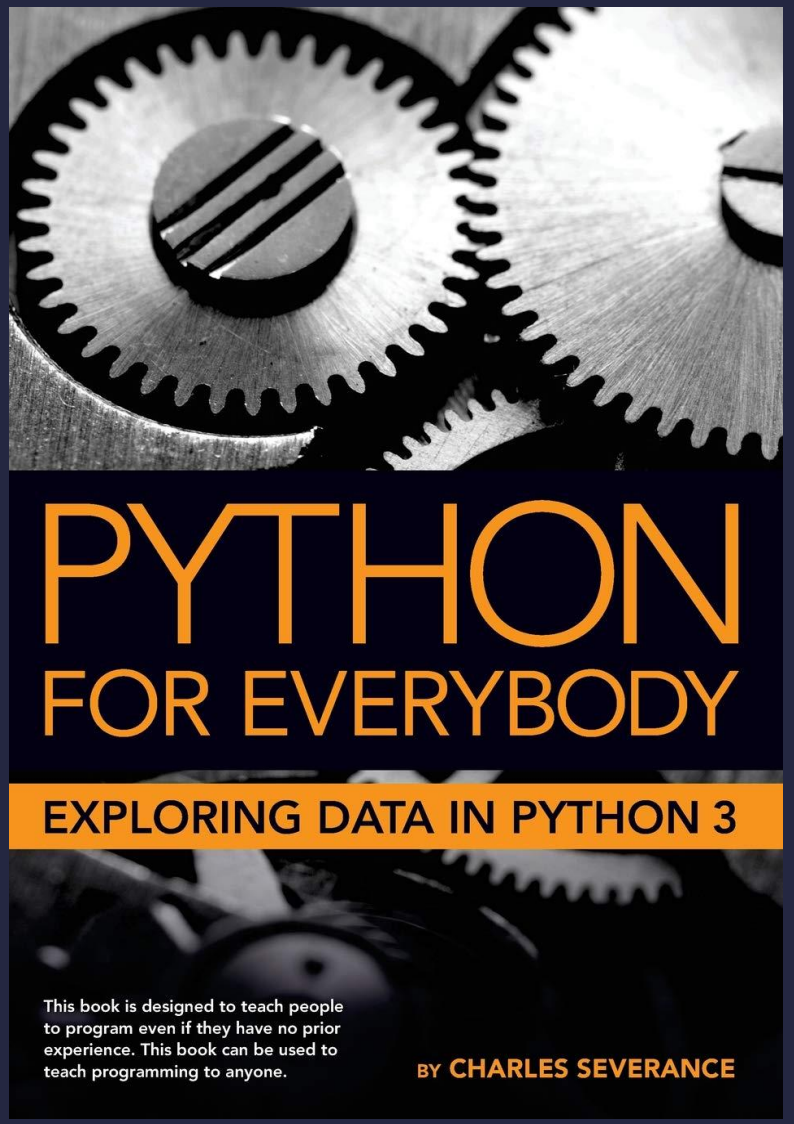
It means: z = x + y;

Python Code

- Python code or programme = a set of statements or lines that we feed into computer to do one task at a time

- A code follows and demonstrates the procedural thinking of a machine

Core Reading: Week 1



Severance, Charles R. (2016) Chapter 1: Why Should You Learn to Write Programs? In *Python for Everybody*. Createspace Independent Publishing Platform, *pp. 1-18*.

Wing Kosner, Anthony (2019) The Mind at Work: Guido van Rossum on how Python makes thinking in code easier. Available at: https://blog.dropbox.com/topics/work-culture/-the-mind-at-work--guido-van-rossum-on-how-python-makes-thinking.