

A decorative pattern on the left side of the slide, consisting of a grid of circles. Each circle contains a different internal line pattern, such as radial lines, concentric circles, or wavy lines. The pattern is light blue and covers the left third of the slide.

# Summer Coding School 2023

July 29, 2023

**Taehee Jeong, Ph.D.**

# Summer Coding School 2023

- date: 7/29~9/2, every Saturday
- place: KIC/Kotra, 3003 N First St, San Jose, CA 95134
- 1st session: 9:30am to 10:15am
- break: 10:15am to 10:30am
- 2nd session: 10:30am to 12:00pm

# Summer Coding School 2023

- Instructor:

Dr. Taehee Jeong

- Teaching assistants:

Joseph Jeong

Joshua Jeong

Shen Kim

Tom Jung

June Kim

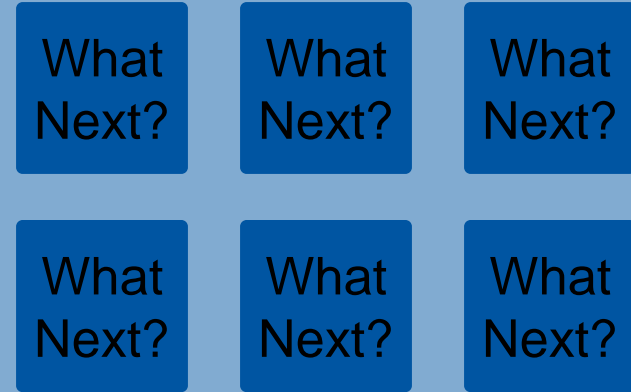
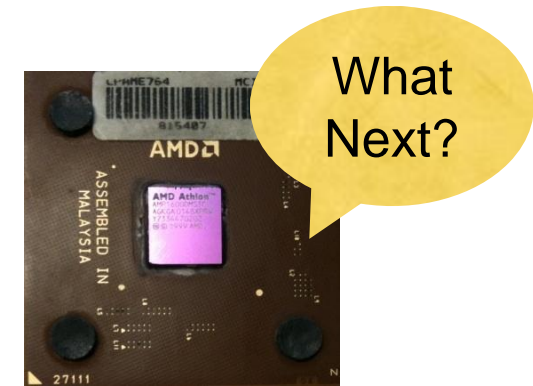
Ben Park

# Computers...

Computers are built for one purpose - to do things for us

But we need to speak their language to describe what we want done

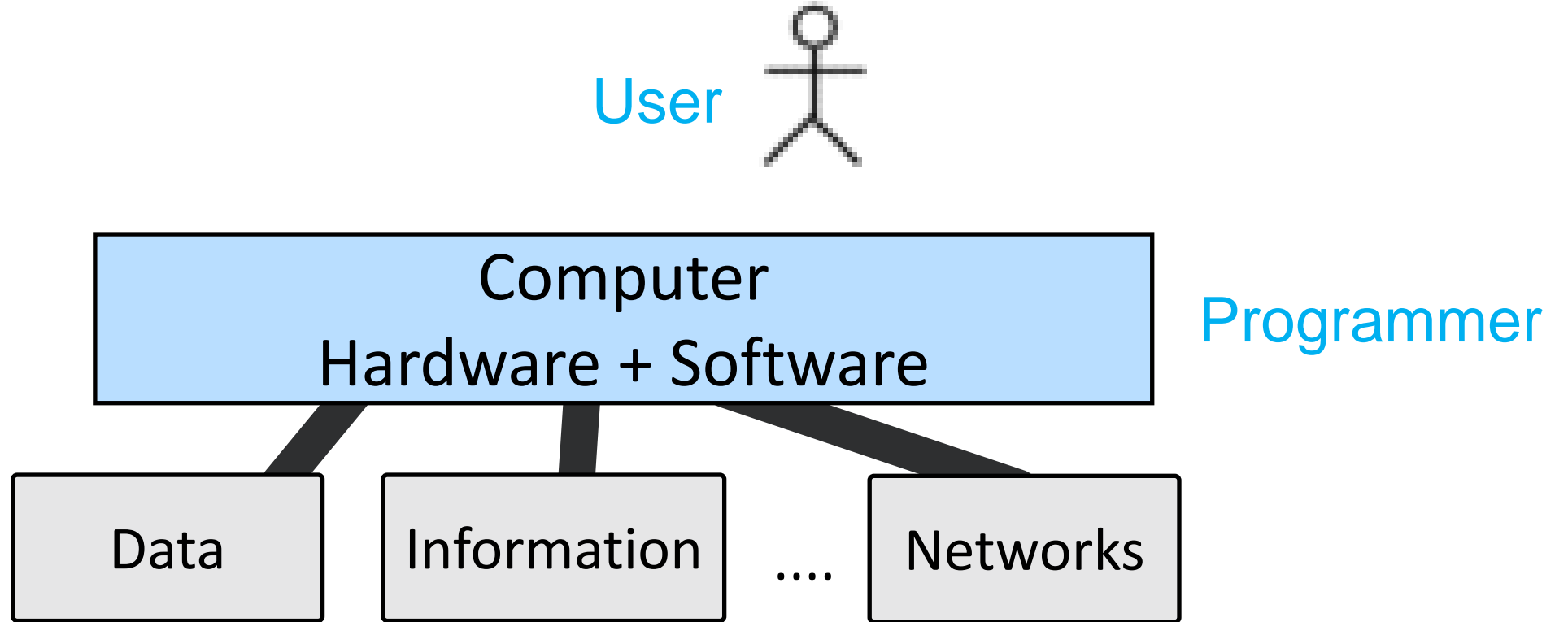
Someone already put many different programs (instructions) into the computer and users just pick the ones they want to use



# Users vs. Programmers

*Users* see computers as a set of tools - word processor, spreadsheet, map, to-do list, etc.

*Programmers* use computer languages to build new tools for lots of users to automate a task



Programmers build the software.

# What is Code? Software? A Program?

- A sequence of stored instructions
  - It is a piece of our intelligence in the computer
- A piece of creative art
  - particularly when we do a good job

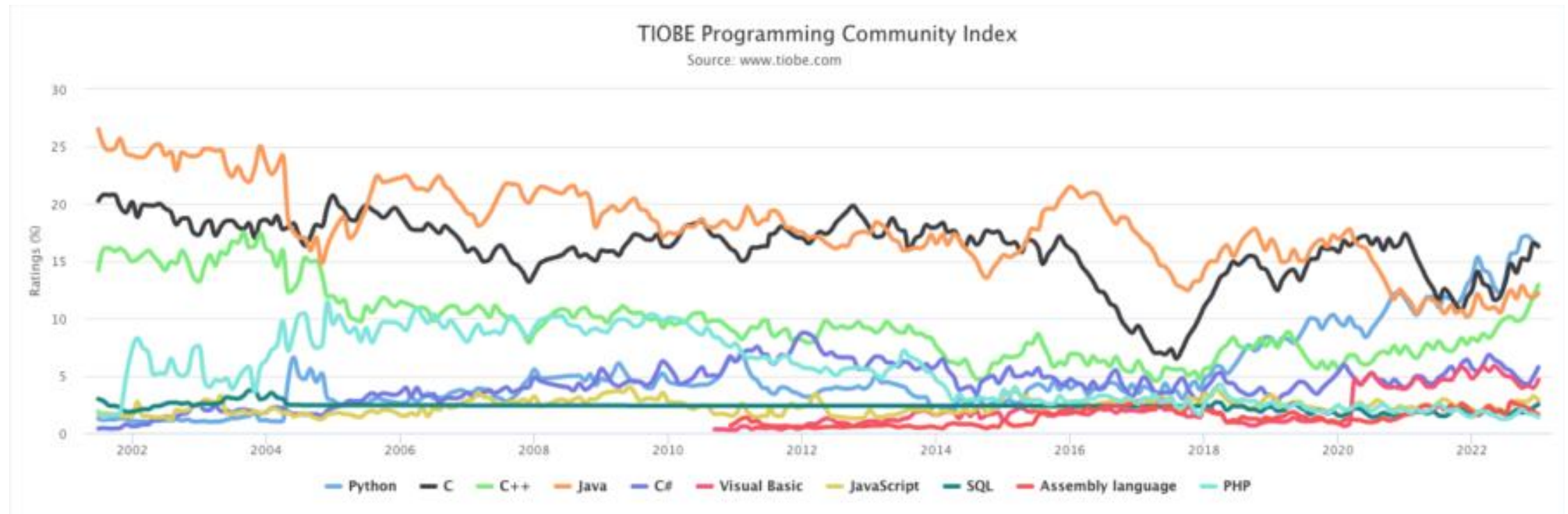
# Python language

- Python was created by Guido Van Rossum, and released on February 20, 1991.
- Van Rossum's vision for Python:
  - To be an **easy** and **intuitive** language that is just as powerful as those of the major competitors
  - The ability for anyone to contribute to its development by being **open source**
  - For the language to be **easily understandable** as plain English
  - That the language be suitable for **everyday tasks** and allow for **short development time**



# Python Popularity Over The Years

Python's rise in popularity because it is an intuitive, accessible, and versatile language.



# Why Is Python So Popular?

- Beginner-Friendly
- Versatility of Use
- Active and Supportive Community
- Libraries and Frameworks
- Python Works with Artificial Intelligence

# Agenda

- wk1. Installing Python, HelloWorld, Operators
- wk2. Data Types
- wk3. Data Structures
- wk4. Control flows, Conditional, Loops
- wk5. Function, Class
- wk6. Working with Files, Numpy, Image

# Interactive versus Script

- Interactive

- You type directly to Python one line at a time and it responds
- Jupyter Notebook, Spyder

- Script

- You enter a sequence of statements (lines) into a file using a text editor and tell Python to execute the statements in the file
- As a convention, we add “.py” as the suffix on the end of these files to indicate they contain Python.

# Installing Python

- Method1. Installing Anaconda
- Method2. Installing Miniconda
- Method3. Installing Python
- Method4. Google Colab

# Installing Anaconda

- Installing on Windows
  - <https://docs.anaconda.com/free/anaconda/install/windows/>
- Installing on MacOS
  - <https://docs.anaconda.com/free/anaconda/install/mac-os/>
- Installing on Linux
  - <https://docs.anaconda.com/free/anaconda/install/linux/>

# Installing Miniconda

- Installing on Windows

- <https://docs.conda.io/projects/conda/en/latest/user-guide/install/windows.html#>

- Installing on MacOS

- <https://docs.conda.io/projects/conda/en/latest/user-guide/install/macos.html>

- Installing on Linux

- <https://docs.conda.io/projects/conda/en/latest/user-guide/install/linux.html>

# Installing Python

- <https://www.python.org/downloads/>
- Need a text editor: notepad++
  - <https://notepad-plus-plus.org/downloads/>
- Jupyter notebook
  - > pip install notebook
  - > jupyter notebook



# Text editors and Tabs

[Atom](#) automatically uses spaces for files with ".py" extension

Most text editors can turn tabs into spaces - make sure to enable this feature

- [NotePad++](#): Settings -> Preferences -> Language Menu/Tab Settings
- [TextWrangler](#): TextWrangler -> Preferences -> Editor Defaults

Python cares a *lot* about how far a line is indented. If you mix tabs and spaces, you may get “indentation errors” even if everything looks fine

# Google Colab

- <https://colab.research.google.com/>
- Colab notebook

# Break

# “Hello, World!”

# Task:

Print "Hello, World!"

# In Jupyter notebook

```
print('Hello, World!')
```

# Using a text editor, make a file “hello.py”

In the terminal, `python hello.py`

# Python Practice

- Constant
- Variable assignment
- Arithmetic operators
- Quiz

