INTRODUCTION TO PYTHON PROGRAMMING

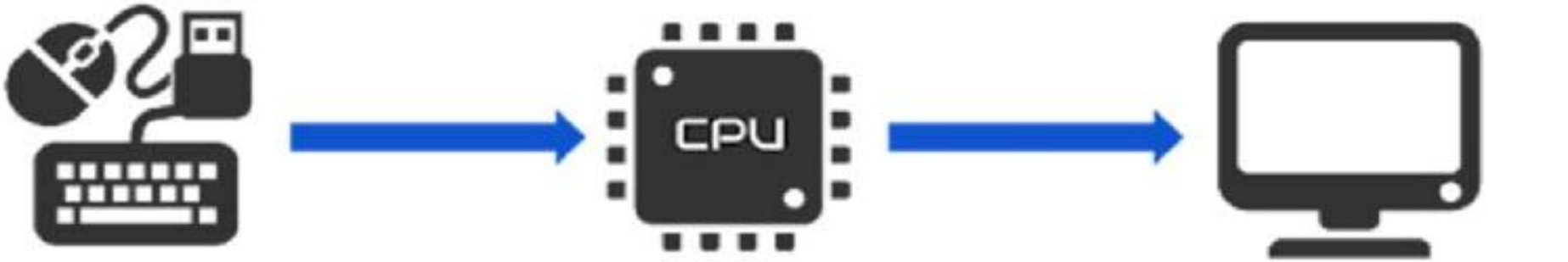
A GAME - CHANGER

INSTRUCTOR CONTACT

Sajid Majeed
sajidmajeed.ist@gmail.com

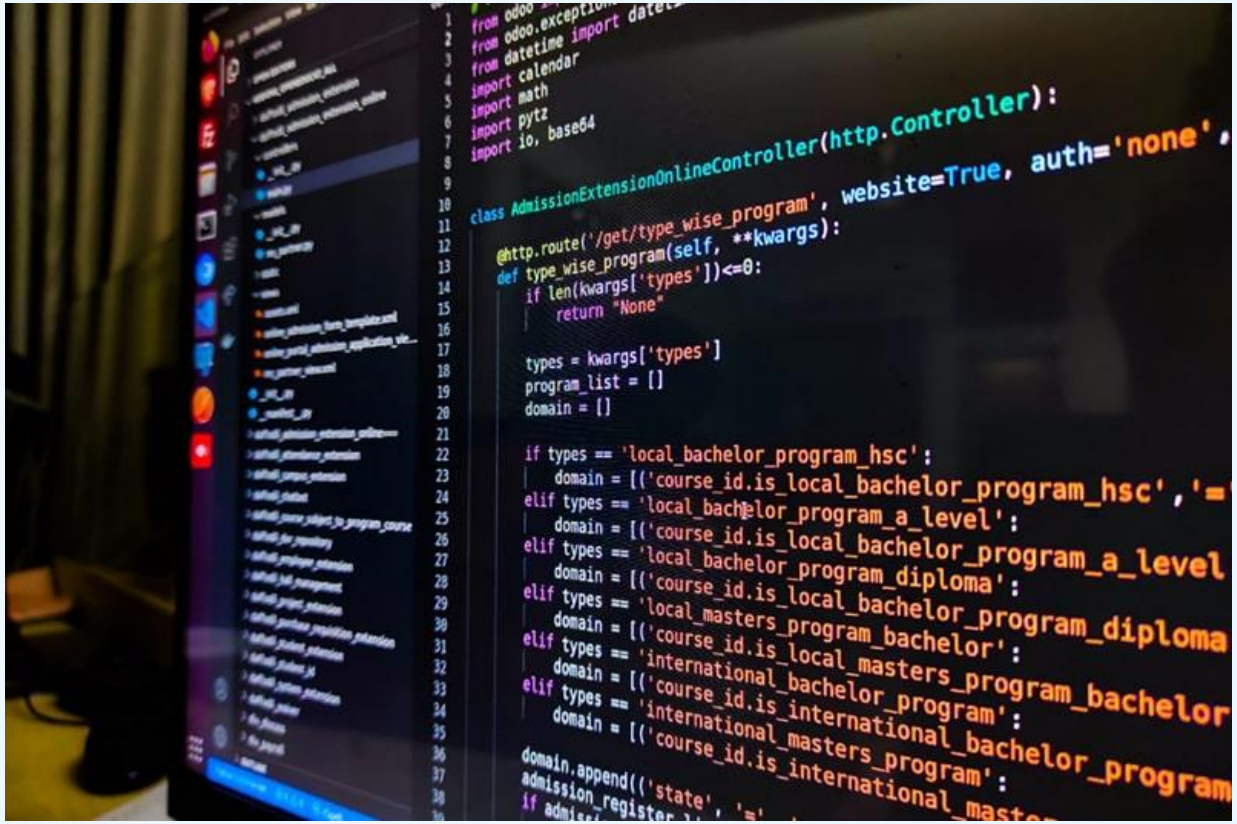
We will try to cater to all queries within class timings, but if you feel there is something you need help with later, or were not able to ask during the session, please feel free to drop me an email, and I will get back to you as soon as I can.

Information Processing Theory - Computer Analogy



Program

Program is a set of instructions that process input, manipulate data, and output a result



Compiler Vs Interpreter

Compiler	Interpreter
• A compiler takes the entire program in one go.	• An interpreter takes a single line of code at a time.
• The compiler generates an intermediate machine code.	• The interpreter never produces any intermediate machine code.
• The compiler is best suited for the production environment.	• An interpreter is best suited for a software development environment.
• The compiler is used by programming languages such as C, C ++, C #, Scala, Java, etc.	• An interpreter is used by programming languages such as Python, PHP, Perl, Ruby, etc.

What is Python?

- ✓**Python** is one of the most popular programming languages in the world.
- ✓**Versatile:** It’s used in web development, **data science, artificial intelligence**, scientific computing, automation, Bio Informatics and more.
- ✓**High Demand:** Many top tech companies like Google, Facebook, and Netflix use Python in their technology stacks.
- ✓Python is **equipped with a rich ecosystem of libraries and frameworks**, such as TensorFlow, PyTorch, and Hugging Face's Transformers, which are essential for developing generative models like GPT-4, BERT, and StyleGAN.
- ✓**Its simple and readable syntax** allows researchers and developers to easily implement and experiment with complex AI models.

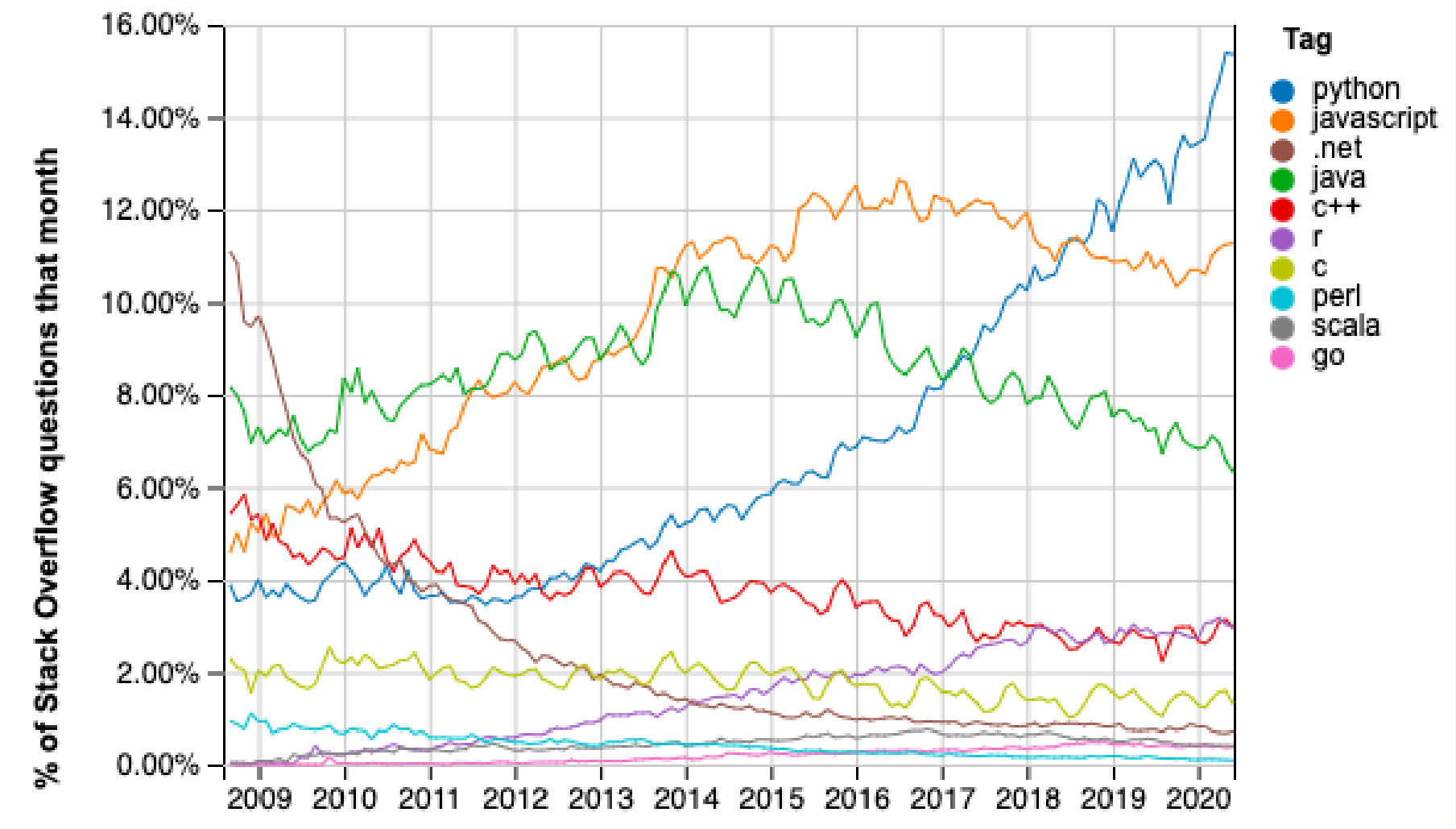
Brief History of Python

- ✓ Invented in the Netherlands, early 90s by Guido van Rossum
- ✓ Named after Monty Python
- ✓ Open sourced from the beginning
- ✓ Considered a scripting language, but is much more
- ✓ Scalable, object oriented and functional from the beginning
- ✓ Used by Google from the beginning
- ✓ Increasingly popular

CODING IS A 21ST CENTURY SKILL !

- Coding is the method of giving a computer instructions to perform a specific task.
- These instructions are communicated using a language that computers can understand.
- Learning to code at a young age is a great opportunity for teens and young adults to develop their problem-solving and critical thinking skills.
- It also instills the necessary focus and organization to see projects through to completion.
- It motivates youngsters to become makers of technology while preparing them for countless job opportunities.

RISE TO POPULARITY



SOME TOP COMPANIES USING PYTHON

Python For Beginners

- ✓ What is Python? Why should we use it?
- ✓ Master variables, data types & operators in Python
- ✓ Make decisions with if-else statements in Python
- ✓ Automate tasks with loops (for & while) in Python
- ✓ Conquer lists, tuples, sets & dictionaries in Python
- ✓ Questions ?

Why learn python ?

- ✓ Reduce development time
- ✓ Reduce code length
- ✓ Easy to learn and use as developers
- ✓ Easy to understand codes
- ✓ Easy to do team projects
- ✓ Easy to extend to other languages

Hello Word Code

```
print("Hello World")
```

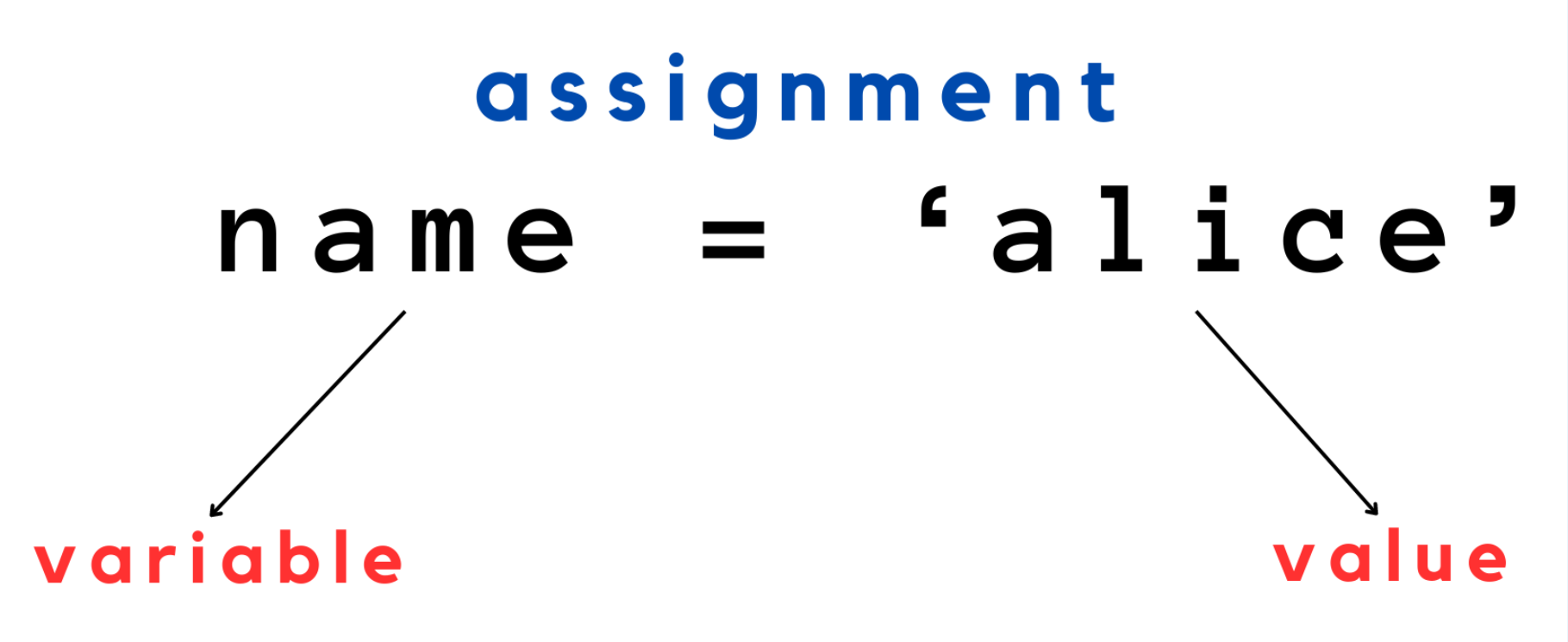
```
console.log("Hello World");
```

```
public class HelloWorld {

    public static void main(String[] args) {

        System.out.println("Hello World");

    }
}
```

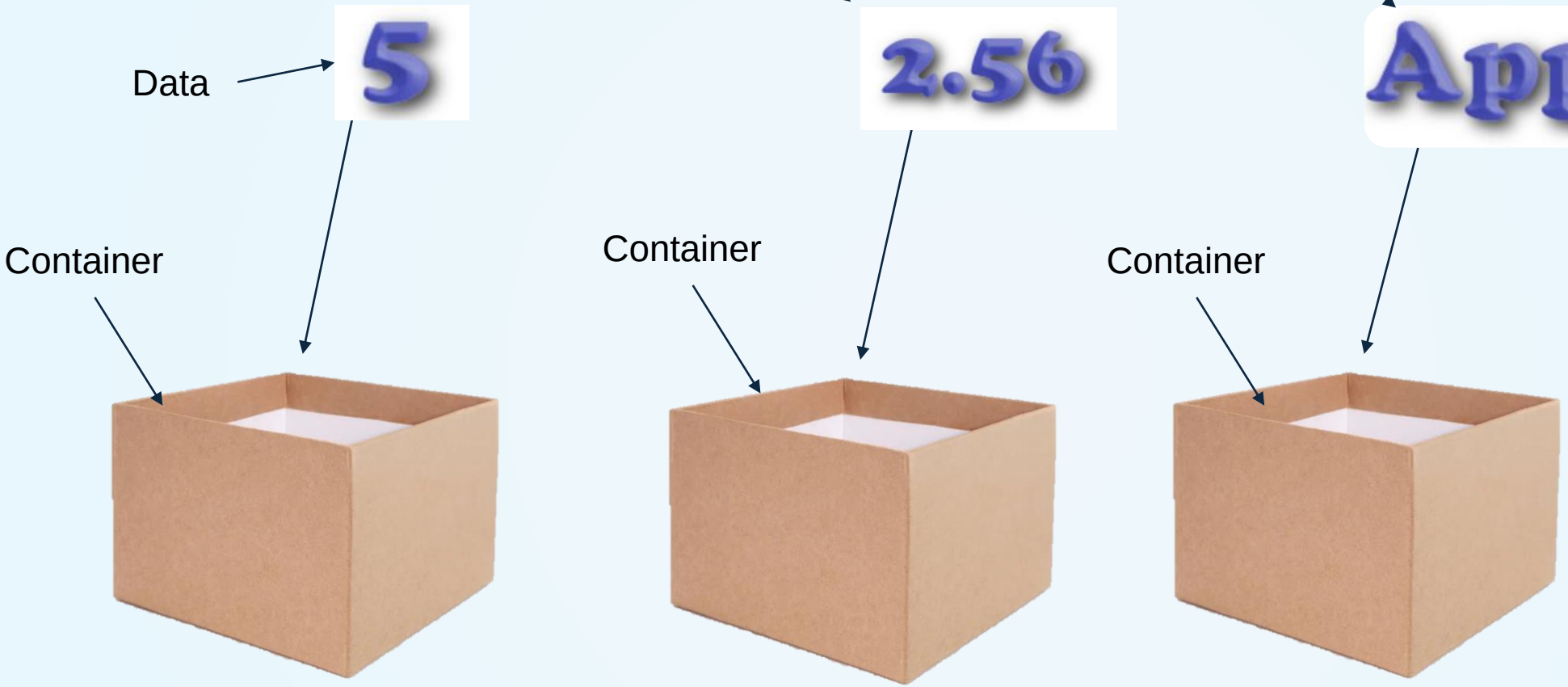
```
#include <iostream>

int main() {
    std::cout << "Hello World" <<
std::endl;
    return 0;
}
```

Variables

In Python, a variable is like a container or a label that can store information or data.



Variables

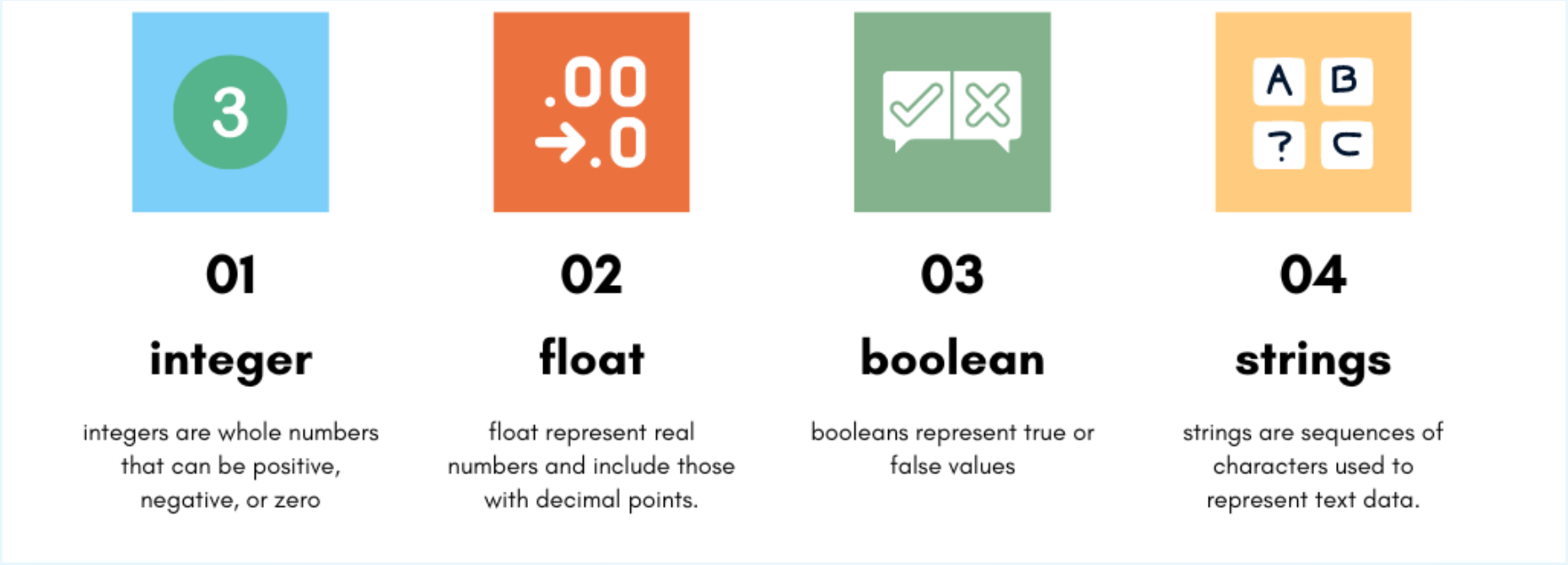


Rules For Naming Variable

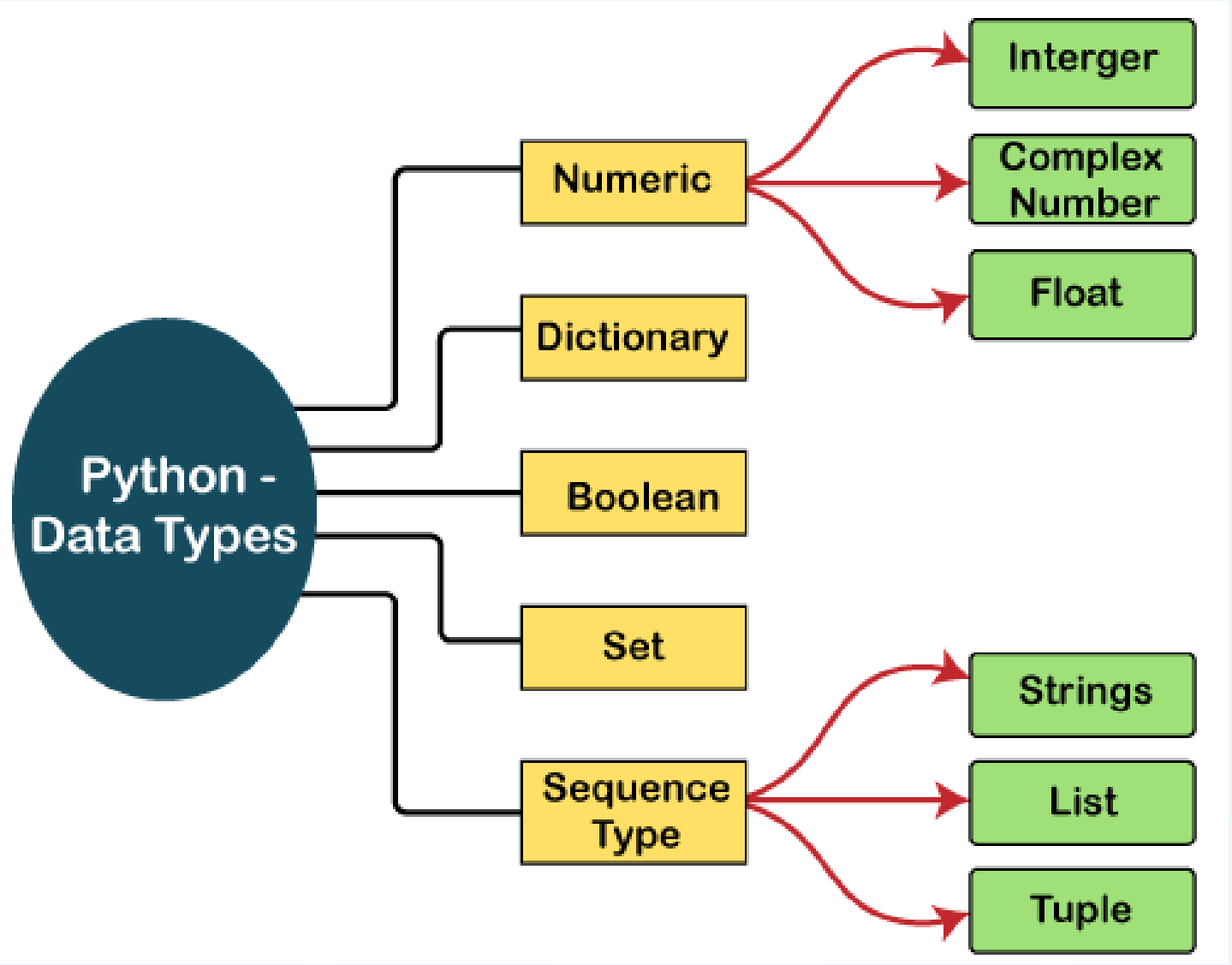
- ✓ A variable name **must start with a letter or the underscore character _**
- ✓ There must be **no white space** in a variable name
- ✓ A variable name **cannot start with a number**
- ✓ A variable name can only contain **characters (A-Z, a-z, 0-9, and _)**. No special characters are allowed i.e. @icode , Python$ are the invalid variables.
- ✓ Variable names are **case-sensitive** (age, Age and AGE are three different variables)
- ✓ **Keywords** cannot be used as variable names.

Data Types in Python

Variables actually have a type, which defines the way it is stored.



Data Types in Python



Thank You!

Any
Question