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Python

Day 1

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Learning path

1. Introduction to Python
2. Python Basics
   - Variables & Data Types
   - Input/Output
   - Basic Operators
3. Control Flow
   - If-Else Statements
   - Loops (for, while)
4. Data Structures
   - Lists & Tuples
   - Dictionaries & Sets

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Introduction to Python

- Python is a high-level, interpreted programming language.
- Known for simplicity, readability, and versatility.
- Widely used in Web Development, Data Science, AI/ML, Automation, Cybersecurity, IoT.
- Why Python? → Easy syntax, large community, rich libraries.

Simple Syntax

Python "Hello, World!"

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

Java "Hello, World!"

```
public class Main {
    public static void main(String[] args) {
        System.out.println("Hello, World!");
    }
}
```

C "Hello, World!"

```
#include <stdio.h>
int main() {
    printf("Hello, World!\n");
    return 0;
}
```

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Tokens

Tokens are the smallest individual units or elements in a program that are meaningful to the interpreter.

1.Keywords

Reserved words with special meaning.

Example: if, else, while, for, import, def, class, True, False, None.

Cannot be used as variable names.

2. Identifiers

- Names given to variables, functions, classes, etc.
- Example: age, student_name, calculate_sum().
- Rules: Cannot start with a number, case-sensitive, no special characters except _.

Tokens

3. Literals

- Fixed values used in code.
- Types:
  - Numeric (10, 3.14)
  - String ("Hello", 'Python')
  - Boolean (True, False)
  - None (None)
  - Collections ([1,2,3], (1,2), {1,2,3}, {"a":1})

4. Operators

- Symbols that perform operations.
- Types: Arithmetic (+ - * / %), Comparison (== != < >), Logical (and, or, not), Assignment (= += -=), Bitwise (& | ^ << >>).

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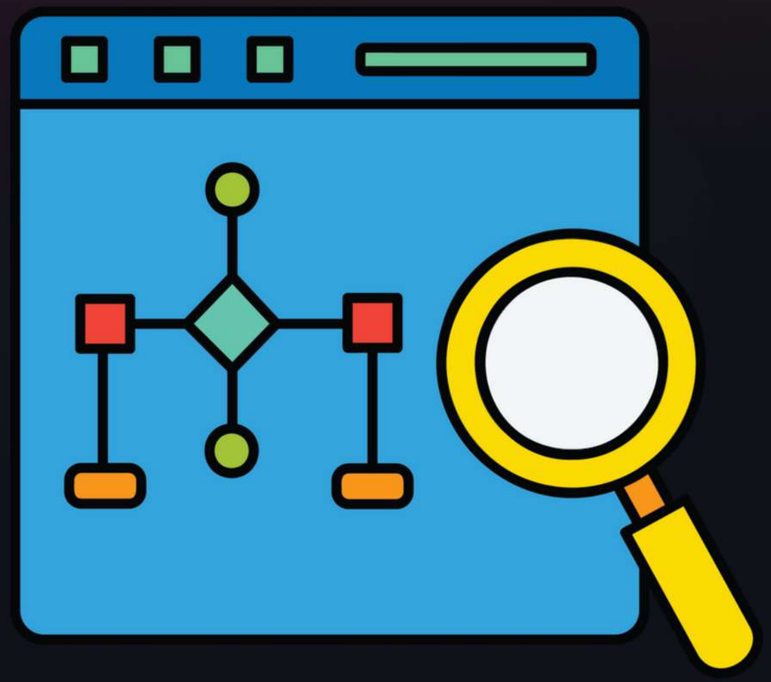
Tokens

5. Punctuators / Separators

- Characters that structure code.
- Example: (), {}, [], ,, :, ., @, =, ->.



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Conditional Statements

1. If
2. If-else
3. If-elif-else

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Loops

For Loop

While Loop

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Challenge

Buid a Calculator Using Loops

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Challenge

Odd Even Checker