Python Fundamentals

Variables, Control Flow, and the Art of Readable Code

Readability Counts

Inter Tight The Old Way

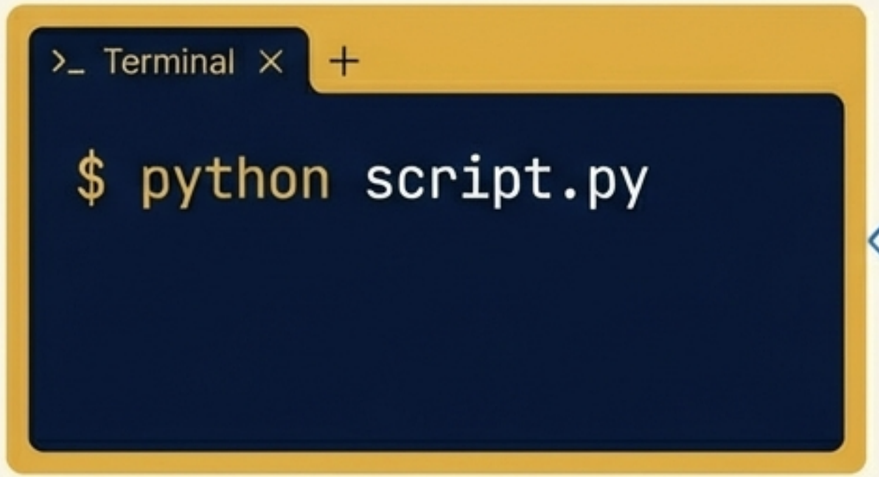
```
public class HelloWorld {
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}
```

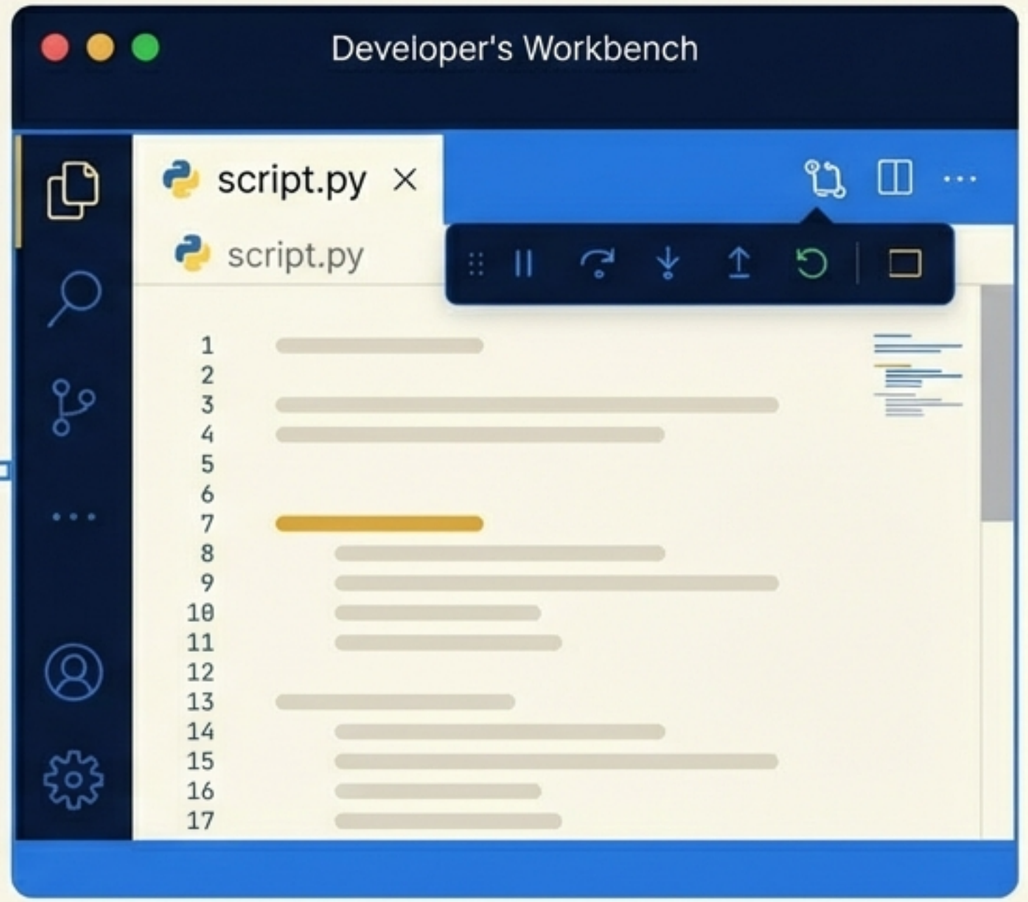
```
print("Hello World")
```

- ✓ Simple Syntax
- ✓ Interpreted Execution
- ✓ Versatile (Web, AI, Data)

The Developer's Toolkit

1. Install Python (python.org)
2. Code in VS Code
3. Run via Terminal





Variables are Labelled Boxes


```
age = 30
name = "Kunal"
```

Pro Tip

PEP 8: Use snake_case for names (e.g., user_name)

The Ingredients of Data

Inspection Tool `type(variable)`

Real Python

Speaking to the Console

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

```
Hello World
```

Doing the Math

+

-

*

/

**

Multiplication first

```
result = 10 + 2 * 3
```

Addition second

```
result = 10 + 2 * 3
```

16 ✓ 36 ✗

Clean Strings with F-Strings

The Old Way (Hard)

```
print("Age: " + str(age))
```

The Modern Way (f-string)

```
name = "Aubrey"
age = 2
print(f"Hello {name}, you are {age}")
```

The Conversation: User Input

Input

```
name = input("Name: ")
age = int(input("Age: "))
```

Caution

Input always returns a **String**!

Real Python

NotebookLM

Boolean Logic

True

False

Comparison Operators

`==` `!=` `>` `<`

`==` checks equality, ‘=` assigns

Logical Operators

`and` both true

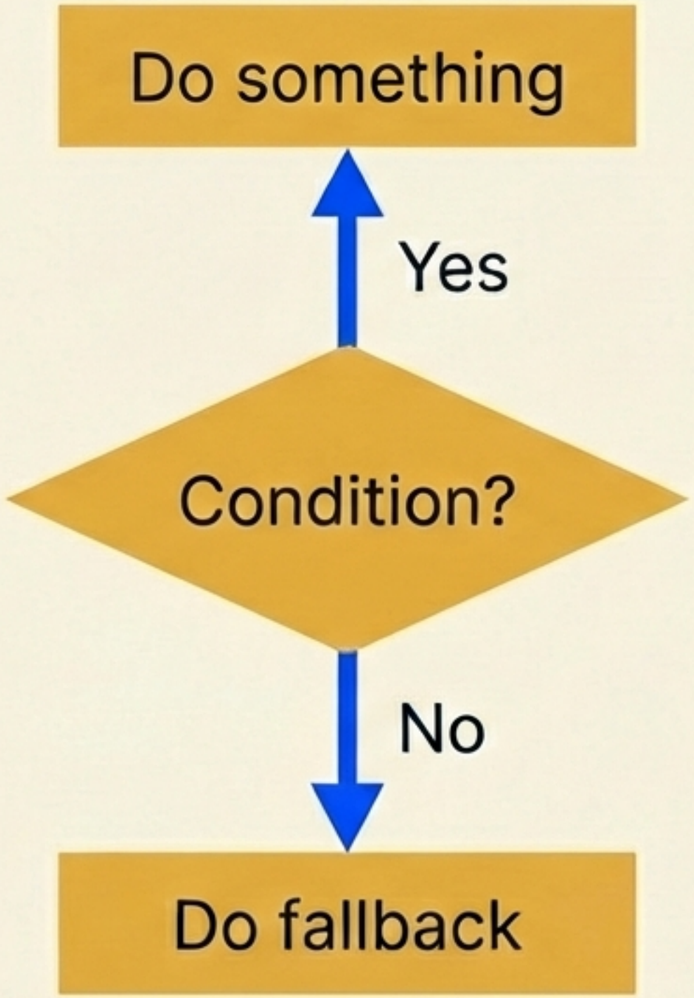
`or` one true

`not` reverse

Result

True / False

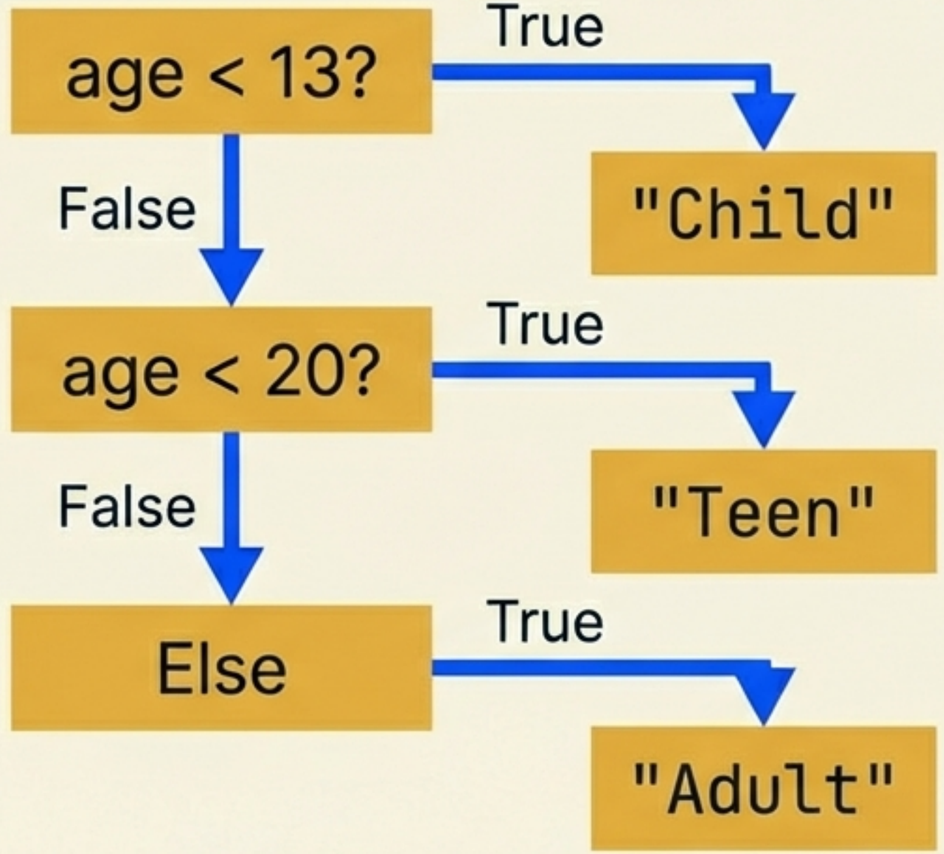
Decision Making: If & Else




```
if condition:
    # do something
else:
    # do fallback
```

Complex Paths: The Elif Ladder

```
if age < 13:
    print("Child")
elif age < 20:
    print("Teen")
else:
    print("Adult")
```



Python stops at the first True condition.

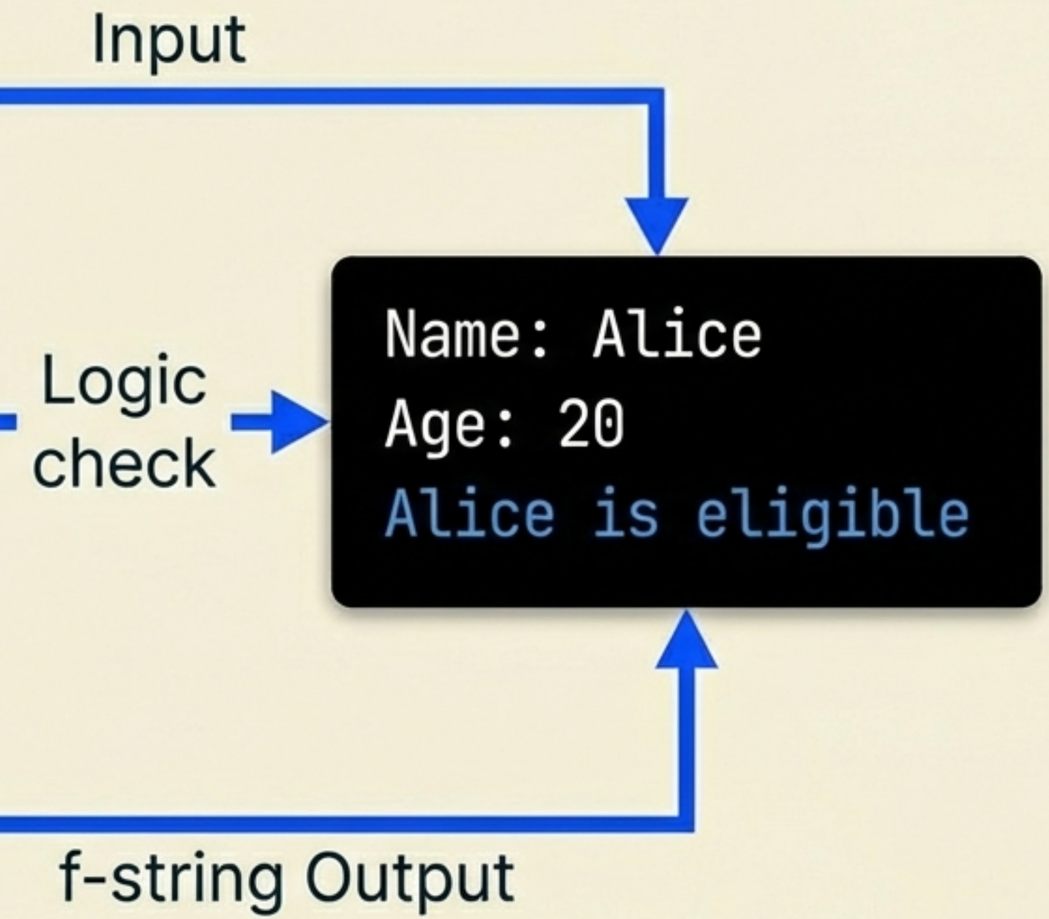
Lists: Organizing Data

```
fruits = ["apple", "banana", "cherry"]
```


```
print(fruits[0])
```

Putting It All Together: The Voter App

```
1  name = input("Name: ")
2  age = int(input("Age: "))
3
4  if age >= 18:
5      status = "eligible"
6  else:
8      status = "not eligible"
9
10 print(f"{name} is {status}")
```



Recap & Next Steps

We Learned

- Variables & Types
- Input / Output
- Boolean Logic
- Control Flow

Coming Next

- → Loops (For/While)
- → Functions

Python is a career accelerator.
Start coding.