Python - Day 2 (Beginner)

Topic - Data types, Type Conversion, Mathematical Operators, f-strings

(1) Understanding Data Types

In python, every value belongs to a data type. Day 2 focuses on the four most basic ones:

(1) String
(2) Integer
(3) Float
(4) Boolean (Introduced lightly)

(1.1) Strings (str)

A string is anything inside quotes

"Hello" "True"

"123"

Even "123" is a string, not a number

Indexing in Strings

Python treats strings like a list of characters

Eg:-

```
print("Hello"[0])
```

Output

H

Indexes start at 0

(1.2) Integer (int)

whole no without decimal points

Eg:- 10 200

-5

Used for Counting, calculations, loops etc

(1.3) floats (float)
Number with decimals
Eg:- 3.14 0.99
-7.5

(1.4) Boolean (Bool) ⊛ Bin Small B → b (~)
Represents true or false values
Eg:- True
False
(used heavily later in conditions)

(2) Type checking & Type Conversion
Because input() always returns a String many errors happen when you try to add or calculate numbers without converting types

(2.1) checking Data type
Use the type() function:
print (type("Hello")) # str
print (type (5)) # int
print (type (6.9)) # float

(2.2) Converting Data types
(*) String → Integer
num = int ("5")
(*) String → float
value = float ("3.14")
(*) Integer → String
text = str (10)

Important Note

you cannot convert strings like "abc" into integers

(2.3) Example : Adding Digits of a Number

If user enters "39", python receives "39" as a string

To add digits

→
```
two_digit = input("Enter a two-digit number: ")
first = int(two_digit[0])
second = int(two_digit[1])
print(first + second)
```

(3) Mathematical Operations

Python supports basic arithmatic just like a calculator

Operators :-

Operator	Meaning
+	Addition
-	Subtraction
*	Multiplication
/	Division (returns float)
//	FloorDivision (Removes Decimals)
%	Modulus (Remainder)
**	Exponent / Power

Python follows :-

P → Parentheses
E → Exponents
M → Multiplication
D → Division
A → Addition
S → Subtraction

Example

```
print(3*3+3/3-3)
```

Evalute Step by Step

- 3*3 = 9
- 3/3 = 1
- 9+1 = 10
- 10-3 = 7

Output

7

(4) Using Numbers & Operations with input

Example Calculation

```
age = int(input("what is your age?"))
years_left = 90 - age
print(years_left)
```

(5) f-Strings (formatted Strings)

f strings allow mixing text + variable inside one clean sentence

Syntax

```
python(f"your score is {score}")
```

Example

```
age = 20
height = 175
print(f"I am {age} years old and
                {height} cm tall.")
```

without f-Strings this would required multiple

(*)(*) Mini project - Tip Calculator (*)(*)

This is build using
- Input
- int(), float()
- math operators
- f-strings

Goal:-
Calculate how much each person should pay after adding a tip.

Key Concept used:
- Convert input to float/int
- percentage calculation
- Dividing bill Equally
- round() to 2 decimals
- output with f string

Key takeaways (Day-2)
- Always convert input() before doing math
- type() helps you debug data type mistakes
- f-strings make output cleaner and easier
- Understanding Operators is important for future topics like loops & functions