

✅ Variables & Data Types in Python (int, float, str, bool, None)

🕒 Step 1: Start with the Theory (Simple Explanation)

✅ What is a Variable?

A **variable** is like a container that stores a value in memory. You can give it a name and reuse it later.

📦 Example:

```
x = 10
```

This means:

Store the number 10 inside a box named **x**.

✅ What is a Data Type?

A **data type** tells Python **what kind of value** is stored in the variable.

For example:

- If it's a number → Python treats it as a number
 - If it's text → Python treats it as a string
-

◇ Python has dynamic typing:

You **don't need to declare data types**. Python figures it out automatically!



Step 2: Show Practical Examples in Code

Integer

```
age = 25
```

```
print(age, type(age)) # Output: 25 <class 'int'>
```

Float

```
price = 99.99
```

```
print(price, type(price)) # Output: 99.99 <class 'float'>
```

String

```
name = "Gowtham"
```

```
print(name, type(name)) # Output: Gowtham <class 'str'>
```

Boolean

```
is_active = True
```

```
print(is_active, type(is_active)) # Output: True <class 'bool'>
```

None Type

```
address = None
```

```
print(address, type(address)) # Output: None <class 'NoneType'>
```

Each Type Briefly (with Relatable Examples)

Type	Use Case Example	Explanation
int	age = 30	Whole numbers
float	pi = 3.14	Numbers with decimals
str	name = "Python"	Text/characters
bool	is_logged_in = True	True or False (logic conditions)
None	user_data = None	Means "nothing" or "no value yet"

🔥 BONUS – Dynamic Typing in Action:

```
x = 10          # int
x = "Hello"     # now it's str
```

```
x = 3.14      # now it's float  
  
print(x)
```

🔗 Ending Summary (Quick Recap)

Variables store data.

Data types tell Python what kind of data it is.

Python automatically figures out the type (dynamic typing).

5 basic types every beginner must know:

- int
- float
- str
- bool
- None

About the Author

Gowtham SB is a **Data Engineering expert, educator, and content creator** with a passion for **big data technologies, as well as cloud and Gen AI**. With years of experience in the field, he has worked extensively with **cloud platforms, distributed systems, and data pipelines**, helping professionals and aspiring engineers master the art of data engineering.

Beyond his technical expertise, Gowtham is a **renowned mentor and speaker**, sharing his insights through engaging content on **YouTube and LinkedIn**. He has built one of the **largest Tamil Data Engineering communities**, guiding thousands of learners to excel in their careers.

Through his deep industry knowledge and hands-on approach, Gowtham continues to **bridge the gap between learning and real-world implementation**, empowering individuals to build **scalable, high-performance data solutions**.

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