**✅ 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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