■ Python Learning Notes

■ Chapter 2 – Variables and Data Types

Welcome to Chapter 2! In this chapter, we explore the foundation of Python — variables and data types. You'll learn how data is stored, named, and used in a program.

■ What Are Variables?

A variable is like a container that holds data. Think of it as a label for a value you can reuse and modify.

```
name = 'Vishwas'
age = 18
pi = 3.14
print(name, age, pi)
```

■ Data Types in Python

Python provides different types of data to store various kinds of values:

- String (str): Text data → name = 'Python'
- Integer (int): Whole number → age = 18
- Float (float): Decimal number → pi = 3.14
- Boolean (bool): True/False → is_student = True
- List: Ordered and changeable → fruits = ['apple', 'banana']
- Tuple: Ordered but unchangeable → colors = ('red', 'blue')
- Set: Unique unordered items → nums = {1, 2, 3}
- Dictionary: Key-value pairs → student = {'name': 'Vishwas', 'age': 18}

■ Type Conversion

You can convert values between data types easily using Python's built-in functions.

```
x = 10
float_x = float(x)
str_x = str(x)
print(float_x, type(float_x))
print(str_x, type(str_x))
```

■ Taking User Input

```
name = input('Enter your name: ')
age = int(input('Enter your age: '))
print(f'Hello {name}, you are {age} years old!')
```

■ Mini Challenge

Write a Python program that asks for your name and age, then prints whether you're an adult or a teenager.

```
name = input('What is your name? ')
age = int(input('How old are you? '))
if age >= 18:
print('You are an adult!')
else:
print('You are a teenager!')
```

■ Tip: Understanding variables is like labeling boxes — once you know what’s inside, programming becomes simple and fun!