Day 2 of 6 weeks Python course:

🕑 Time Breakdown (2 Hours)

Time Slot	Task
0:00 - 0:15	Introduction to Variables
0:15 - 0:40	Data Types in Python
0:40 - 1:00	Type Conversion & Type Checking
1:00 - 1:30	Operators in Python
1:30 - 2:00	Mini-Project: Student Information System

1st) Introduction to Variables:

A variable is a container for storing data. In Python, you don't need to declare the type of a variable.

In [3]:
```
x = 10  # Integer
name = "Deepak"  # String
pi = 3.14  # Float

print(x, name, pi)
```

```
10 Deepak 3.14
```

In [ ]:
```
Rules for Naming Variables:
1.Should start with a letter or underscore _
2.Can contain letters, numbers, and underscores
3.Case-sensitive (age and Age are different)
4.No spaces or special characters ($, @, etc.)
```

2nd) Data types in python

Data Type	Example
`int` (Integer)	`x = 10`
`float` (Decimal)	`pi = 3.14`
`str` (String)	`name = "Deepak"`
`bool` (Boolean)	`is_student = True`
`list` (Ordered, Mutable)	`numbers = [1, 2, 3]`
`tuple` (Ordered, Immutable)	`coordinates = (4, 5)`
`dict` (Key-Value Pairs)	`student = {"name": "Deepak", "age": 18}`
`set` (Unique Elements)	`fruits = {"apple", "banana"}`

In [7]:
```python
# Integer
age = 11

# Float
price = 25.99

# String
course = "Python Programming"

# Boolean
is_python_fun = True

# List
numbers = [1, 2, 3, 4, 5]

# Tuple
coordinates = (69, 96)

# Dictionary
student = {"name": "David", "age": 28}

# Set
fruits = {"apple", "banana", "cherry"}

print(type(age), type(price), type(course), type(is_python_fun))
```

```
<class 'int'> <class 'float'> <class 'str'> <class 'bool'>
```

3rd)Type Conversion & Type Checking:

1.Type checking

In [72]:
```python
x = 10.00
print(type(x))  # <class 'int'>

name = "David"
print(type(name))  # <class 'str'>
```

```
<class 'float'>
<class 'str'>
```

2.Type Conversion (Casting) Python allows explicit type conversion:

In [76]:
```python
# Convert int to float
a = 10
b = float(a)
print(b)  # 10.0

# Convert string to int
num = "100"
num_int = int(num)
print(num_int)  # 100
```

```
10.0
100
```

4th) Operators:

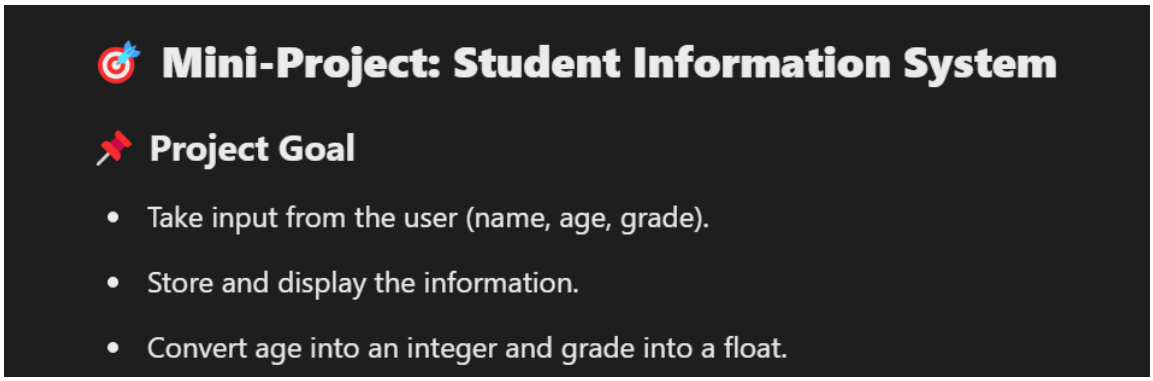
Python has several operators:

Operator Type	Example
Arithmetic	`+, -, *, /, %, **, //`
Comparison	`==, !=, >, <, >=, <=`
Logical	`and, or, not`
Assignment	`=, +=, -=, *=, /=`

In [101…
```python
a = 10
b = 2

print(a + b)  # Addition

print(a - b)  # Subtraction

print(a * b)  # Multiplication

print(a / b)  # Division (float)

print(a // b)  # Floor Division

print(a ** b)  # Exponentiation

# Comparison Operators
print(a > b)  # True

print(a == b)  # False
```

```
12
8
20
5.0
5
100
True
False
```

5th) Project:



project Answer

In [1]:
```python
# Step 1: Take user input
name = input("Enter your name: ")
age = int(input("Enter your age: "))  # Convert string to int
grade = float(input("Enter your current grade (out of 10): "))  # Convert string to

# Step 2: Store data in a dictionary
student = {
    "Name": name,
    "Age": age,
    "Grade": grade
}

# Step 3: Display information
print("\n--- Student Information ---")
print("Name:", student["Name"])
print("Age:", student["Age"])
print("Grade:", student["Grade"])
```

```
--- Student Information ---
Name: David
Age: 25
Grade: 9.0
```

Step by Step Explanation:

📌 Step 1: Taking User Input

python Copy Edit

```python
name = input("Enter your name: ")
age = int(input("Enter your age: "))  # Converts input to int
grade = float(input("Enter your current grade (out of 10): "))  # Converts input to float
```

- `input()` collects user input.
- `int(input())` ensures **age is stored as a number.**
- `float(input())` ensures **grade is stored as a decimal.**

📌 Step 2: Storing Data in a Dictionary

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```python
student = {
    "Name": name,
    "Age": age,
    "Grade": grade
}
```

- The `student` dictionary stores the user's **name, age, and grade.**

📌 Step 3: Displaying Information

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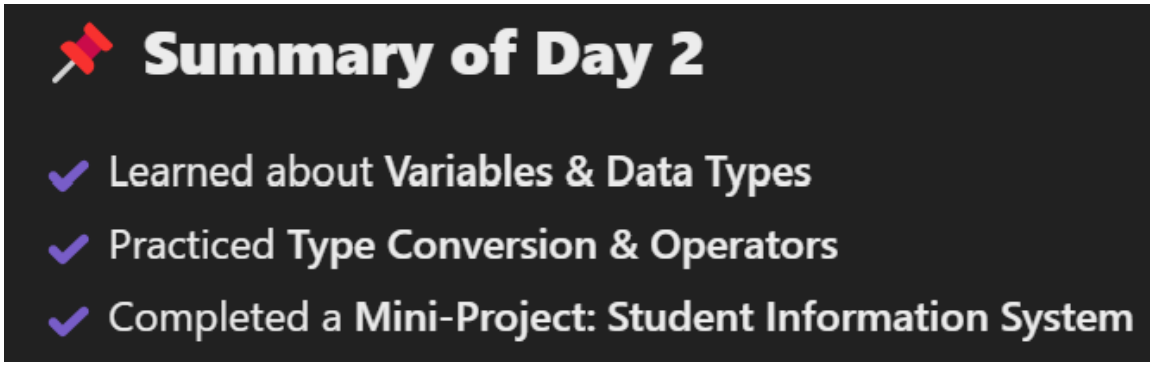
```python
print("\n--- Student Information ---")
print("Name:", student["Name"])
print("Age:", student["Age"])
print("Grade:", student["Grade"])
```

- `print()` displays the stored values.

Summary of Day 2


Summary of Day 2
Learned about Variables & Data Types
Practiced Type Conversion & Operators
Completed a Mini-Project: Student Information System

In [ ]: