Python Programming: Chapter 2 Assignment
Data Types and Operators

Python Full Course 2026

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Section A: Theory Questions

1. What are data types in Python? List any 4 with examples.

Data types represent the type of value a variable holds. They determine what kind of operations can be performed on that data. Python is dynamically typed, meaning you don't need to declare the type explicitly.

Common Data Types:

- **Integer (int):** Whole numbers without decimals.
  Example: `age = 25`
- **Float (float):** Numbers containing decimal points.
  Example: `price = 99.99`
- **String (str):** A sequence of characters enclosed in quotes.
  Example: `name = "Saumya"`
- **Boolean (bool):** Represents logical values.
  Example: `is_passed = True`

2. What is the difference between implicit and explicit type conversion?

Type conversion is the process of converting a value from one data type to another.

- **Implicit Type Conversion:** Performed automatically by the Python interpreter to avoid data loss.
  Example: Adding an `int` and a `float` results in a `float`.

```
num_int = 10
num_float = 1.5
result = num_int + num_float  # result is 11.5 (float)
```

- **Explicit Type Conversion (Type Casting):** Performed manually by the programmer using built-in functions like `int()`, `float()`, or `str()`.
  Example: Converting a string number to an integer to perform math.

```
price = "100"
price_int = int(price)  # Converts string "100" to integer 100
```

3. What are operators in Python? Explain any three types with examples.

Operators are special symbols used to perform operations on variables and values.

Types of Operators:

1. **Arithmetic Operators:** Used for mathematical calculations.
   Example: `+`, `-`, `*`, `/`, `%` (Modulus).
   `7 % 2` results in `1`.

2. **Comparison (Relational) Operators:** Used to compare two values, returning a Boolean (`True` or `False`).
   Example: `==` (Equal), `!=` (Not Equal), `>` (Greater than).
   `10 > 5` results in `True`.

3. **Logical Operators:** Used to combine conditional statements.
   Example: `and`, `or`, `not`.
   `(5 > 3) and (10 < 20)` results in `True`.